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Original Article

Comparing recommended sanctions for lapses of academic integrity as measured by Dundee Polyprofessionalism Inventory I: Academic integrity from a Saudi and a UK medical school

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Abstract

Background: There are varying perceptions about professionalism and academic integrity, both being influenced by regional, cultural, contextual and religious factors worldwide. Very few studies have compared the variations in understanding about academic integrity among medical faculty and students. This study explored the existing understanding of academic integrity in a Saudi and a UK medical school.
Methods: The validated Dundee Polyprofessionalism Inventory I: Academic Integrity was administered online to the students and staff of a Saudi and a UK medical school. The data was analysed by SPSS software and a p value of less than 0.05 was considered significant.
Results: Of 1005 invitees, 411 completed the survey; response rate of 40.8%. The findings showed significant variations towards opinions of lapses of academic integrity. Mean rank scores showed that faculty of both schools were stricter than students and clinical staff were stricter than non-clinical staff ($p < 0.05$). The UK students were stricter for 16 and Saudi students were stricter for 10 lapses of academic integrity ($p < 0.05$). Yearly stratifications of students' recommendations identified a pattern of learning process as indicated by higher sanctions by senior students than their junior counterparts.
Conclusion: This study identified some congruence as well as some significant dissimilarities in the sanctions for academic dishonesty. These data can be utilized for standard setting of professionalism that will facilitate the migration of International Medical Graduates by promoting their fitness to practise, especially probity and honesty, as defined by the General Medical Council of UK.

Keywords: Academic dishonesty; Academic integrity; Dundee polyprofessionalism; Lapses; Medical students

1. Introduction

Professionalism, a multidimensional concept, is a commitment to ones' work and the orientation towards service rather than personal profit.[1] The fundamental domains of professionalism such as respect, competence, responsibility, caring, leadership, altruism, and compassion are unique and equally applicable to all professions. The physicians' charter of professionalism has been rightly categorized in six clusters; 1) professional competence, 2) patients' confidentiality, 3) improving quality of care, 4) just distribution of finite resources, 5) scientific knowledge, and 6) maintaining trust by managing conflicts of interest.[2] A major share of these commitments is related to professional integrity of physicians under the domain of medical professionalism, a unique but highly desired strand with multi-disciplinary hierarchy.

Since healthcare institutions deal with a wide array of disciplines, it is imperative to nurture the development of professional qualities, values, and attitudes which are currently being practised in medical fraternity. Despite key role of professionalism in the medical field, unfortunately, medical educators have shown their concerns about the erosion of medical

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professionalism because of indecent attitudes and behaviours of practising physicians as well as medical faculty.[3] Medical students often witness contradictory practises about what they hear in classrooms and what they encounter in real situations about the core values of professional integrity.[4]

Although a proliferation of publications about professionalism, little data exists that can underpin the understanding of academic integrity among medical students and faculty. Research by Ryan, Bonanno[5] attempted to determine the awareness of the undergraduate and postgraduate pharmacy students of University of Sydney about the university's policy in tackling the violations of academic integrity and the suggested sanctions for the proven lapses. The results identified respondents' poor knowledge about academic dishonesty. Although the majority were aware of the existence of university's policy, but very few had understanding of exact legal application of the policy. Another study on the medical students and interns of Tehran University of Medical Sciences Iran showed that only a small number of respondents considered "buying and selling hospital shifts", "cheating in the examinations", and "stealing hospital items" as lapses of academic integrity.[6] Inclination to commit various forms of academic dishonesty may be influenced by demographics, religious beliefs, behaviours, educational environment, and/or technological savvy.[7] A study exploring the perceptions of senior medical students and interns of the Faculty of Medicine and Health Sciences UAE University Al-Ain about academic integrity showed that the majority (88.6%) of respondents considered educational misconduct as a lapse of professionalism.[8] However, various forms of lapses of academic integrity such as plagiarism and copying verbatim from published material, lending work to look at and copying work that was lent without owner's permission, and preparing homework for colleagues were considered less serious offences.[9,10] The Dundee Polyprofessionalism Inventory I: Academic Integrity[11] is a valuable tool of e-learning resources that can be applied by different strategies to teach students the standards expected of them as medical students and trainees and in their working lives as practising physicians.[12] This is a survey-based tool that explores responses of a students' and/or faculty's cohort of their own year level or school or perhaps a national cohort in their understanding of elements of medical professionalism, thus explaining the term 'polyprofessionalism'. In an attempt to getting a holistic view of cross-cultural and cross-regional similarities and dissimilarities of recommended sanctions for lapses of academic integrity, this study was conducted on the undergraduate medical students and faculty of the medical schools of Taibah University (TU), Almadinah Almunawwarah Saudi Arabia and University of Leicester (UoL), Leicester, United Kingdom. The identification of cross-cultural variations in perceptions about lapses of academic integrity might help formulate a common framework that can facilitate the migration of International Medical Graduates across countries.

2. Methods

In January 2015, the 34-statement Dundee Polyprofessionalism Inventory I: Academic Integrity was distributed to the students and faculty of medical schools through an email link taking them to Bristol Online Surveys (BOS). The survey aimed to seek knowledge and understanding of the participants about professional attitudes and behaviours, to identify the similarities and differences in responses to lapses of professionalism among the participants that will help in understanding differences in cultural and educational backgrounds among the two countries, to compare the responses of undergraduate medical students across years, and to compare the responses to lapses of professionalism reported in this study with the published results from Scotland,[13] Egypt,[14] Saudi Arabia,[15] and Pakistan.[16] The ethical committees of both medical schools approved this survey-based cross-institutional research. Participants were invited to complete the survey by explaining the significance of research and by taking their consent to participate.

The participants were instructed to record their responses to 1−34 statements in three parts;

a] Is this wrong?
b] Do you think your students do it?
c] What level of sanction 1−10 should apply for a first time offence with no mitigating circumstances?

The level of sanctions was graded from none to expulsion from the medical school with no chance for readmission.

The recorded data of demographics and responses were exported from the BOS software in the form of Excel sheets and SPSS output files and data analysis was performed on SPSS version 20. Quantitative analysis by descriptive statistics was presented by frequency distribution tables, while inferential statistics were done by chi-squared and independent sample *t*-tests. Independent sample *t*-test identified the differences in responses by gender. Thereafter, inferential statistics were calculated by Mann−Whitney U and Kruskal−Wallis tests. The Mann−Whitney U was used to compare two population means and identified differences among two independent categories; whereas Kruskal−Wallis test was used to identify differences between more than two independent categories. Visual descriptions of significant findings were graphically presented by box plots. A p value of less than 0.05 was considered to be significant.

3. Results

Of a total of 1005 invitees, 411 completed the survey (response rate of 40.8%); 283 (183 students and 100 faculty members) from TU and 128 (118 students and 10 faculty members) from UoL. From both schools, 60% of staff primarily belonged to clinical and 40% to non-clinical disciplines. Most of the students (59; 32.2%) responded from TU and belonged to 5th year; whereas maximum number (30; 25.4%) of UoL students was from 1st year of their study. Responding to the first item of statement No. 1, the majority (278/411) considered the lapse of academic integrity as wrong; for 2nd item, 239/411 admitted that fellow students got or gave help for course work against a teacher's rules; for 3rd

item, 198/411 admitted that they never got or gave help for course work against a teacher's rules (Table 1). Similarly, for 4th item of first statement, 158/411 remarked that they would never give or get help for course work, against a teacher's rules in present course.

An analysis of the mode and median of respondents' recommendations from both medical schools to 'what level of sanction 1–10 should apply for a first time offence with no mitigating circumstances?' showed that the mode for *'getting or giving help for course work, against a teacher's rules'* by both groups of staff and students together, UoL was 2 (reprimand through verbal warning), median of students was also 2 (reprimand through verbal warning); whereas the median of staff was 2.5 (reprimand through verbal and written warning) as shown in Table 2. Median is preferred over mode as it represents a single central value. Mode shows only the most frequent value and its major disadvantage is that it may be multiple, carrying two or more modes for one variable. A comparison of differences in rankings suggested by staff of TU and UoL in the present study and the rankings by staff of another Saudi medical school reported by Babelli, Chandratilake[17] is outlined in Table 2. The rankings with a difference in median of two levels or more is described in more detail. Seven statements were found to have a median of more than two levels among the staff of TU, UoL, and other medical school. The analysis of rankings by the students of TU and UoL in the present study and its comparison with the rankings by the students of medical schools of Saudi Arabia [&15], Scotland [∞16], and Egypt [Ω10] is shown in Table 2.

A comparative analysis of staff and students of both medical schools by Mann–Whitney U test showed that faculty recommended statistically higher sanctions than students for 17 statements (p-value < 0.05) as shown in Table 3. The most significant difference in sanctions as suggested by the combined staff and students of both medical schools were noted for *'engaging in substance misuse e.g. drugs'* where medians of 5 and 8 were recorded for students and staff of both schools, respectively (Fig. 1). A comparison of mean rank scores of recommended sanctions by staff of both medical schools showed that the Leicester staff was stricter than the Taibah staff for three statements ($p < 0.05$); *'signing attendance sheets for absent friends, or asking classmates to sign attendance sheets for you in labs or lectures'* ($p = 0.046$), *'forging a healthcare worker's signature on a piece of work, patient chart, grade sheet or attendance form'* ($p = 0.006$), and *'intentionally falsifying test results or treatment records in order to disguise mistakes'* ($p = 0.021$). The students of UoL were stricter for 16 lapses of academic integrity than the students of TU, as shown in bold in Table 3. For *'inventing extraneous circumstances to delay sitting an exam'*, medians of 4 and 6 were recorded by Taibah and Leicester students, respectively (Fig. 2). Contrarily, students of TU proposed significantly higher mean ranks than the students of UoL for 10 statements. Thus, there were significant variations between the sanctions recommended by students of both medical schools. Clinical staff was stricter than the non-clinical staff for 5 statements as their mean ranks was statistically significant at p-value less than 5% than the non-clinical staff of both universities, as shown in bold in Table 3. Although there were variations among sanctions to all other lapses in academic integrity, they were not statistically significant.

The recommended sanctions by students of both medical schools across years (from 1st to 5th year) using Kruskal–Wallis test showed statistically significant differences in mean ranks for 11 statements (Table 4). The results showed that for 6/11 statements with significant differences in recommendations, 1st year students from both medical schools were stricter than other years' students. In contrast, 2nd year students were stricter for two, 4th year for one, and 5th year for two forms of academic dishonesty. Fig. 3 shows the most significant variations in the recommendations for *'exchanging information about an exam before it has been taken (e.g. OSCE)'* by students of both medical schools across years. TU students recommended statistically higher recommendations for; *'engaging in substance misuse'* (e.g. drugs)' ($p = 0.04$) by year 1, *'examining patients without knowledge or consent of supervising clinician'* ($p = 0.01$) by year 2, and *'falsifying references or grades on a curriculum vitae or altering grades in the official record'* ($p = 0.02$) by year 1. On the other hand, UoL students ranked significantly higher range of sanctions for; *'signing attendance sheets for absent friends, or asking classmates to sign attendance sheets for you in labs or lectures'* ($p = 0.00$) by year 5, *'exchanging information about an exam before it has been taken (e.g. OSCE)'* ($p < 0.00$) by year 1, *'examining patients without knowledge or consent of supervising clinician'* ($p < 0.00$) by year 1, and *'resubmitting work previously submitted for a separate assignment or earlier degree'* ($p < 0.00$) by year. A comparison of all mean rank scores of recommended sanctions by students of each medical school across years identifies a pattern of learning process as indicated by higher sanctions given by senior medical students than their junior counterparts (Table 4).

4. Discussion

The findings of this research indicate that the majority of respondents agreed that lapses of academic integrity as detailed in the Dundee Polyprofessionalism Inventory I: Academic Integrity inventory were unprofessional. The commonest perceived lapse in academic integrity was *'attempting to use personal relationships, bribes or threats to gain academic advantages by e.g. getting advance copies of exam papers or passing exam* by *such pressures on staff'* as ranked by 390/411 participants. On the contrary, the commonest perceived dishonest behaviour reported by a study on the Pakistani medical students using a 47-item validated and customized version of the Dundee Polyprofessionalism Inventory I: Academic integrity was proxy attendance (308, 64%) (14). In the same study, different percentages of respondents admitted that they had done 44 (94%) of dishonest behaviours during some stage of MBBS course. Students perceived that fellow students were doing dishonest behaviours far more commonly than themselves. Results of the present study showed that respondents admitted witnessing lapses of academic integrity by the majority

Table 1
Overall feedback to first four statements of the Dundee Polyprofessionalism Inventory I: Academic Integrity.

Statements	Is this wrong?			Fellow students do?			Have you ever done?		
	Yes	No	Unsure	Yes	Yes	No	Unsure	Yes	Yes
1. Getting or giving help for course work, against a teacher's rules [e.g. lending work to another student to look at	278	65	68	239	278	65	68	239	278
2. Removing an assigned reference from a shelf in the library in order to prevent other students from gaining access to the information in it	379	10	9	68	379	10	9	68	379
3. Signing attendance sheets for absent friends, or asking classmates to sign attendance sheets for you in labs or lectures	353	31	24	289	353	31	24	289	353
4. Drinking alcohol over lunch and interviewing a patient in the afternoon	311	31	57	64	311	31	57	64	311
5. Exchanging information about an exam before it has been taken [e.g. OSCE]	222	125	60	266	222	125	60	266	222
6. Forging a healthcare worker's signature on a piece of work, patient chart, grade sheet or attendance form	366	20	20	98	366	20	20	98	366
7. Claiming collaborative work as one's individual effort	366	19	18	145	366	19	18	145	366
8. Altering or manipulating data [e.g. adjusting data to obtain a significant result]	380	18	10	127	380	18	10	127	380
9. Failure to follow proper infection control procedures	381	8	17	199	381	8	17	199	381
10. Threatening or verbally abusing a university employee or fellow student	388	10	7	10	388	10	7	10	388
11. Attempting to use personal relationships, bribes or threats to gain academic advantages by e.g. getting advance copies of exam papers or passing exam by such pressures on staff	390	10	8	98	390	10	8	98	390
12. Engaging in substance misuse [e.g. drugs]	380	13	13	135	380	13	13	135	380
13. Completing work for another student	294	63	52	227	294	63	52	227	294
14. Intentionally falsifying test results or treatment records in order to disguise mistakes	378	9	13	80	378	9	13	80	378
15. Physically assaulting a university employee or student	391	8	7	68	391	8	7	68	391
16. Purchasing work from a fellow student or internet etc. supplier	321	39	44	111	321	39	44	111	321
17. Lack of punctuality for classes	324	30	48	306	324	30	48	306	324
18. Providing illegal drugs to fellow students	393	10	3	78	393	10	3	78	393
19. Not doing the part assigned in group work	378	15	14	286	378	15	14	286	378
20. Examining patients without knowledge or consent of supervising clinician	305	48	48	154	305	48	48	154	305
21. Sabotaging another student's work	377	7	15	83	377	7	15	83	377
22. Inventing extraneous circumstances to delay sitting an exam	353	17	30	167	353	17	30	167	353
23. Sexually harassing a university employee or fellow student	393	3	6	64	393	3	6	64	393
24. Resubmitting work previously submitted for a separate assignment or earlier degree	262	58	76	156	262	58	76	156	262
25. Plagiarising work from a fellow student or publications/internet	356	16	29	178	356	16	29	178	356
26. Cheating in an exam by e.g. copying from neighbour, taking in crib material or using mobile phone or getting someone else to sit for you	389	10	4	202	389	10	4	202	389
27. Cutting and pasting or paraphrasing material without acknowledging the source	367	11	26	203	367	11	26	203	367
28. Damaging public property e.g. scribbling on desks or chairs	385	6	14	187	385	6	14	187	385
29. Falsifying references or grades on curriculum vitae or altering grades in the official record	377	8	13	66	377	8	13	66	377
30. Involvement in paedophilic activities - possession/viewing of child pornography images or molesting children	344	14	26	36	344	14	26	36	344
31. Photographing dissection or prosection or cadaver materials	272	66	55	140	272	66	55	140	272
32. Joking or speaking disrespectfully about bodies/body parts	347	21	35	197	347	21	35	197	347
33. Inappropriate representation of Medicine in social media by posting photos/videos/texts about clinic activities	318	41	42	159	318	41	42	159	318
34. Posting inappropriate material about fellow students, teachers or patients on social media	379	7	15	128	379	7	15	128	379

Table 2
Comparison of medians of rankings by staff of Taibah University and University of Leicester in the present study and the staff of another Saudi medical school[&] (13).

No.	Mode							Median							
	Staff				Students			Staff			Students				
	TU	UoL	Saudi[15]	Scottish[13]	TU	UoL	Saudi[15]	TU	UoL	Saudi[15]	TU	UoL	Saudi[15]	Scottish[13]	Egyptian[14]
1	2	2	2	2	2	2	2	3	2.5	2	3	2	2	2	2
2	2	3[a]	2	4	4	2	3	3	3.5	4	4	3	4	3	3
3	3	3	3	4	2	3	1	3	5.5	3	3	3	2	2	3
4	5	5	4	10	1	4	10	4	5	6	4	4	7	4.5	6
5	1	8	6	6	1	1	1	4	6	3	3	3	2	5	2
6	10	10	10	10	5	3	5	5	9	6	5	6	5	**5**	4
7	5	6	2	5	5	3	5	5	6	5	4	4	4	3	2
8	6	7	6	6	5	6	5	6	7	6	5	5	5	4	6
9	2	2	2	4	4	2	3	4	3.5	4	4	2	4	2	6
10	4	4	8	4	4	4	3	5	5	5	5	5	5	8	5
11	10	5[a]	8	6	6	6	6	8	8	7.5	6	7	7	6	4
12	10	4	4	8	5[a]	4	10	8	5	8	6	4	7	6	8
13	2	6	6	3	1	2[a]	1	4	4.5	3	2	4	2	3	2
14	10	10	10	6	5	10	6	7	9.5	6	5	8	6	5	6
15	10	8	9	10	4[a]	10	8	8	8	8	6	9	7	9	8
16	6	8	7	6	5	6	6	6	6	6	5	6	5	**5**	4
17	2	2	2	4	2	2	2	3	3.5	4	3	2	2	2	2
18	10	10	10	10	10	10	10	10	10	10	7	9	9	9	9
19	2[a]	2[a]	2	5	5	2	2	4	3.5	5	4	2	3	2	3
20	2	1[a]	4	2	1	2	1	3	4	3	4	2.5	2	2	3
21	5	8	8	6	6	6	6	5	7.5	6	5	6	6	6	7
22	4	3	6	6	4	7	3	5	4.5	5	4	6	4	6	3
23	10	10	4	10	10	10	9	9	9.5	9	8	9	8	9	8
24	5	2	6	5	1	6	3	5	6	5	4	4	3	3	6
25	5	6	6	6	5	6	6	6	5.5	6	4.5	6	5	5	7
26	6	6[a]	7	6	6	7	6	7	7	7	6	7	6	N/A	7
27	5	2[a]	N/A	N/A	2	3	N/A	5	3.5	4	4	3	3	N/A	3.5
28	3	2	2	3	4	2	3	4	3	3	4	2	3	2	8
29	10	9[a]	10	6	6	10	5	8	9	8	6	7	7	6	7
30	10	10	10	10	10	10	10	10	10	10	8	10	9	10	9
31	1	4[a]	N/A	N/A	1	10	N/A	4	6	N/A	3	5	N/A	N/A	N/A
32	2	2	N/A	N/A	2	2	N/A	4	2.5	N/A	4	2	N/A	N/A	N/A
33	3	2[a]	N/A	N/A	3	2	N/A	4	4.5	N/A	4	3	N/A	N/A	N/A
34	4	4[a]	N/A	N/A	4	3	N/A	6	6.5	N/A	5	4	N/A	N/A	N/A

TU = Taibah University; UoL = University of Leicester; N/A = Not available. a = Multiple modes exist. The smallest value is shown.

of fellow colleagues; whereas participants did not admit doing dishonest behaviours themselves. In the present study, responding to the statement *'signing attendance sheets for absent friends, or asking classmates to sign attendance sheets for you in labs or lectures'*, 289/411 perceived that fellow students/colleagues did it. The highest number of respondents (77/411) who were unsure whether they would ever do dishonest behaviour was about *'exchanging information about an exam before it has been taken [e.g. OSCE'*. This reflects lack of knowledge about lapses of academic integrity in the studied cohort and emphasizes the significance of education about unprofessional behaviours leading to academic dishonesty.[15] Such understanding about professionalism can be promoted by teaching the legacy of desired professional characteristics in medical schools[17,18] particularly during workplace based education[19] particularly by modifying the learners' learning styles.[20] Education of professionalism must be embedded across the medical education continuum in stage-appropriate learning opportunities.[21]

Although 389/411 respondents agreed that *'cheating in an exam by e.g. copying from neighbour, taking in crib material or using mobile phone or getting someone else to sit for you'* was wrong, 202/411 witnessed fellow colleagues doing it during examinations. Cheating has plagued the Saudi medical schools and this unethical practise, if not remedied, has the potential to produce incompetent physicians.[22] In the present research, the respondents from both centers ranked a median of 7 to cheating which is fairly high and suggests an area of consensus among the respondents. Literature has shown a high prevalence of cheating by medical students ranging from 74% to 97% and has argued that students use both low- and high-level innovative cheating strategies during examinations, writing assignments, in group work, or during clinical practise.[23] There is also a great degree of dissimilarities in the respondents' ranking about the use of social media in this study. This underpins the importance of educating the students about the extent, usage and application of social media for educational purposes.[24]

Table 3
Comparison of mean rank scores of recommendations by students and staff of Taibah University and University of Leicester.

No.	Students vs. Staff (MR)			TU staff vs. UoL staff (MR)			TU students vs. UoL students (MR)		
	Students	Staff	*p*	TU	UoL	*p*	TU	UoL	*p*
1	193.90	213.00	0.133	54.08	47.90	0.531	156.63	128.76	0.005
2	206.60	193.11	0.299	54.18	57.60	0.738	176.22	107.12	0.000
3	192.96	236.54	0.001	52.61	73.00	0.046	138.60	169.12	0.002
4	195.09	198.80	0.778	47.95	53.20	0.569	140.81	158.93	0.072
5	189.30	233.21	0.001	49.66	68.45	0.054	151.02	147.18	0.700
6	198.03	213.56	0.239	49.38	76.35	0.006	135.87	173.07	0.000
7	191.08	226.29	0.006	53.11	62.65	0.347	150.82	141.25	0.338
8	189.12	243.69	0.000	52.98	63.90	0.284	151.60	147.48	0.685
9	197.49	207.11	0.456	53.02	47.60	0.582	167.80	116.57	0.000
10	200.70	203.78	0.814	52.10	56.25	0.676	143.31	159.21	0.116
11	190.77	233.47	0.001	53.16	56.75	0.722	132.21	175.19	0.000
12	185.22	249.00	0.000	54.56	43.35	0.265	163.61	126.20	0.000
13	188.88	243.33	0.000	54.42	60.70	0.545	129.12	180.46	0.000
14	196.46	211.57	0.242	51.80	75.30	0.021	122.18	185.41	0.000
15	196.18	216.54	0.118	52.30	59.65	0.458	124.00	188.01	0.000
16	190.26	228.54	0.003	53.39	59.95	0.520	122.94	183.71	0.000
17	187.41	238.33	0.000	53.81	55.80	0.844	165.08	120.91	0.000
18	185.28	246.80	0.000	52.52	62.90	0.266	135.86	168.40	0.001
19	195.38	221.78	0.039	55.18	53.25	0.851	173.01	108.86	0.000
20	194.89	210.88	0.219	51.20	54.61	0.737	152.80	140.59	0.223
21	196.10	207.08	0.395	51.16	70.45	0.054	131.93	168.61	0.000
22	198.78	195.87	0.821	53.23	56.05	0.781	112.36	193.68	0.000
23	194.33	210.35	0.207	51.82	53.70	0.844	138.34	160.21	0.026
24	176.56	251.01	0.000	53.28	50.06	0.759	143.75	144.37	0.950
25	187.40	228.11	0.001	55.59	43.80	0.251	123.89	175.06	0.000
26	198.17	206.79	0.504	53.99	59.50	0.591	120.18	187.01	0.000
27	189.82	225.84	0.005	55.00	44.30	0.291	140.92	153.89	0.194
28	193.51	223.52	0.020	55.82	36.30	0.055	176.54	103.33	0.000
29	187.64	221.68	0.009	50.23	63.15	0.183	128.28	171.33	0.000
30	191.79	186.52	0.658	45.75	57.35	0.162	112.73	190.09	0.000
31	197.72	181.28	0.203	48.35	66.50	0.068	113.74	187.97	0.000
32	195.33	211.14	0.217	53.44	48.80	0.638	161.22	124.99	0.000
33	185.45	230.24	0.000	53.16	56.80	0.718	162.38	117.98	0.000
34	184.03	246.17	0.000	53.27	55.70	0.810	158.60	130.70	0.005

TU = Taibah University; UoL = University of Leicester; MR = Mean Rank.

A varying proportion of respondents (1−139; 0.2%−33%) admitted committing lapses of academic integrity in the present study. In the study by Shukr and Roff (14), 1%−64% of the Pakistani medical students admitted committing 44/47 lapses of academic integrity. In the present study, highest mean rank scores of 73 ($p = 0{,}04$), 76.35 ($p = 0.006$), and 75.30 ($p = 0.02$) were recommended by staff of UoL for *'signing attendance sheets'*, *'forging a healthcare'*, and *' intentionally falsifying'*, respectively, showing statistically significant variances from the

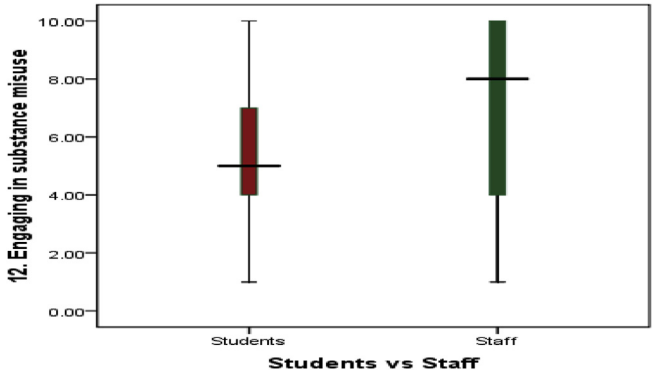

Fig. 1. Boxplot showing the most significant median differences in the sanctions for 'engaging in substance misuse e.g. drugs' between the combined students and staff of Taibah University and those of University of Leicester.

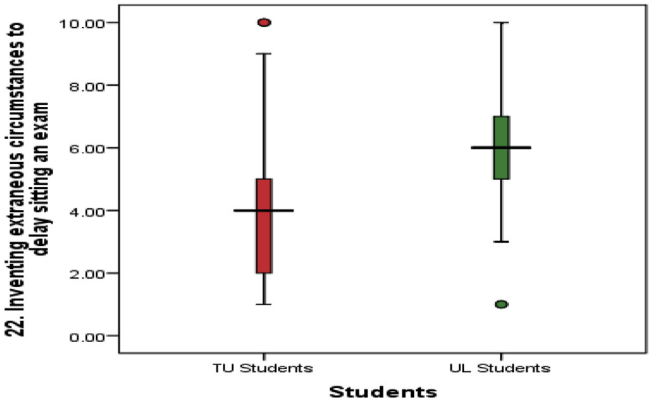

Fig. 2. Boxplot showing the most significant median differences in sanctions for 'inventing extraneous circumstances to delay sitting an exam' between students of Taibah University and University of Leicester.

Table 4
Comparison of mean rank scores of the recommended sanctions by students of combined Taibah University and University of Leicester across years.

No.	Mean ranks across year of all students (n = 301)						Mean ranks across year of TU students (n = 183)						Mean ranks across year of UoL students (n = 118)					
	1st	2nd	3rd	4th	5th	*p*	1st	2nd	3rd	4th	5th	*p*	1st	2nd	3rd	4th	5th	*p*
1	139	150	135	148	156	0.605	90	90	84	95	93	0.885	59	63	50	49	54	0.516
2	136	143	132	167	163	0.060	113	93	76	99	93	0.149	61	63	52	64	54	0.664
3	156	154	133	170	148	0.172	103	95	85	105	86	0.307	53	55	49	71	81	0.009
4	161	151	130	151	156	0.277	100	95	79	90	96	0.442	61	56	53	65	65	0.704
5	202	142	128	133	164	0.000	113	100	82	82	98	0.180	83	50	45	49	67	0.000
6	191	143	141	132	159	0.009	104	89	89	80	101	0.306	71	50	55	59	64	0.181
7	132	145	132	154	165	0.118	104	78	82	88	96	0.418	49	63	51	68	72	0.088
8	123	141	145	166	162	0.078	84	79	87	104	93	0.396	48	59	58	60	76	0.092
9	147	150	149	145	148	0.998	101	94	97	85	87	0.776	65	64	47	53	51	0.156
10	175	132	148	151	148	0.225	112	80	93	93	90	0.634	64	49	56	60	65	0.422
11	159	153	146	158	137	0.593	119	84	86	101	87	0.285	50	59	65	64	58	0.470
12	159	122	144	169	151	0.062	116	64	94	101	87	0.045	66	57	47	64	59	0.250
13	162	177	133	142	146	0.059	99	106	84	88	94	0.538	53	64	52	62	63	0.539
14	171	154	134	142	147	0.250	88	71	92	92	92	0.551	58	64	44	56	71	0.074
15	179	152	136	148	145	0.145	99	75	86	96	96	0.471	60	58	56	61	58	0.985
16	166	176	128	123	157	0.002	75	105	77	82	101	0.058	57	64	53	49	70	0.290
17	133	147	144	156	152	0.699	92	96	86	90	88	0.955	59	63	57	62	53	0.862
18	168	154	133	158	143	0.204	105	73	89	105	87	0.166	60	64	46	55	65	0.230
19	115	130	134	173	172	0.000	99	83	76	100	97	0.132	50	60	56	66	65	0.333
20	181	181	146	116	137	0.000	101	119	97	72	86	0.012	76	68	47	40	46	0.000
21	160	145	126	160	151	0.107	94	73	76	97	98	0.076	58	57	53	72	55	0.440
22	174	164	119	137	150	0.004	91	99	73	84	97	0.107	57	55	47	64	80	0.035
23	159	132	140	153	153	0.482	111	64	83	94	96	0.071	56	57	59	64	59	0.941
24	113	167	129	148	157	0.012	80	97	74	87	93	0.289	44	69	57	63	66	0.041
25	156	156	134	132	152	0.314	102	79	83	81	93	0.567	51	64	53	56	75	0.113
26	183	173	132	146	125	0.001	111	97	85	100	78	0.127	60	62	49	51	67	0.358
27	139	167	152	137	137	0.268	81	106	96	85	82	0.324	54	62	57	54	62	0.828
28	129	125	143	157	170	0.019	106	86	87	86	96	0.651	57	56	49	70	66	0.210
29	177	126	141	138	151	0.058	108	55	85	94	93	0.027	62	54	58	48	71	0.325
30	181	145	130	141	142	0.020	100	68	75	97	92	0.076	59	54	62	52	67	0.184
31	192	164	137	120	134	0.000	97	97	88	79	84	0.691	65	56	53	45	77	0.052
32	142	139	144	146	159	0.670	82	93	92	87	89	0.978	63	56	48	53	72	0.151
33	135	130	142	146	161	0.281	91	86	88	81	89	0.937	60	55	51	64	70	0.355
34	134	148	138	156	157	0.473	95	108	81	89	89	0.402	55	55	58	66	68	0.567

TU = Taibah University; UoL = University of Leicester.

staff of TU. These three forms of reported academic dishonesty expressed significant variations in recommended sanctions and may indicate cultural differences across countries. This study also illustrates that LU students were stricter in 16 lapses of academic integrity, recommending significantly higher mean rank scores than TU students. This reaffirms that there is a great variations in cultural characteristics of medical students about professionalism across countries.

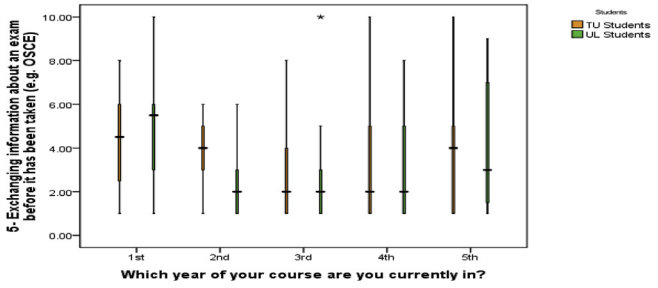

Fig. 3. Boxplot presenting the most significant variations in medians of recommendations for 'exchanging information about an exam before it has been taken (e.g. OSCE)' by students of both medical schools across years.

The International Medical Graduates (IMGs), qualified in other countries but serving in UK, account for 37% of the registered physicians with the General Medical Council. The IMGs working in UK have been subjected to proportionally more investigations by the General Medical Council concerning complaints about poor clinical skills, inadequate professional knowledge, and lack of understanding and knowledge about law or codes. Trainees' major hurdles were their lack of awareness of the required communication skills, cultural norms, individual autonomy, probity, confidentiality, and informed consent to treatment, required within the National Health Services (NHS). This dilemma, if not appropriately resolved, can lead to serious consequences such as threats to patient safety, rise in complaints against practising doctors, increasing compensation claims, and a bad impression about the NHS. Another study has reported that the Australian IMGs also showed significant differences in cultural attitudes, professional behaviours, medical knowledge, and clinical skills.[25] In this report, the IMGs were concerned about lack of professional and personal support as they felt culturally isolated. We can have better prepared IMGs by applying a unified

code of professional conduct which can cater the culture-oriented professional characteristics of medical students across the globe.

Broadly, in the present study, junior students of TU and senior students of UoL were stricter in recommending sanctions for academic integrity. There were 11 statements with statistically significant differences between the students of both schools across years. The rest of statements showed insignificant variations indicating major areas of consensus about professionalism. This 'fractal-like' pattern of responses by each cohort reflects a "function of both the cohort's homogeneity in terms of its highly selective admission to medical school and progressive socialization into strongly mandated professionalism norms"[26] Fractal is a natural phenomenon that exhibits a repeating pattern that displays at every scale. Further exploring this dimension of results, the recommended sanctions across all five years from each school are highly congruent across years. While a limitation of the study was low response rate (not unusual in medical education studies), there is a remarkable level of congruence of recommended sanctions across years in both schools. This may endorse Roff's suggestion that 'professionalism studies may not need to rely on high response rates to be robust, but be conducted with well-constructed stratified, representative samples of 20–30% of the target population.[26] This needs to be further investigated in future studies. A cross-sectional study attempted to explore the perceptions of students of private and public medical schools about plagiarism, lying, cheating and falsifying documents by using a pre-coded questionnaire and the results showed significant differences in medical students' self-reported attitudes and behaviours towards the lapses of academic integrity.[27]

The present study compared the perceptions of TU and UoL staff with that of another medical school reported[15] and the comparison showed that TU staff was more lenient than other medical schools as shown by medians of 3, 5.5, and 3 were recorded for *'signing attendance sheets'* by Taibah, Leicester, and other Saudi medical school, respectively (Table 2). This finding articulates with the existing practise in the majority of the Saudi medical schools where proxy practise is not considered as an academic dishonesty. To the statement *'drinking alcohol over lunch'*, median of 4 by Taibah, 5 by Leicester, and 6 by other Saudi medical school staff signal that Taibah staff was more lenient than those of other Saudi medical school. This is quite interesting finding as drinking alcohol is strictly prohibited in the religion of Islam, regardless of being on duty or not; however, there is variation in recommendations by the same region's staff. At the same time, there is a difference of only one median among staff of UoL, TU and other Saudi medical school. Medians of 7, 9.5, and 6 by staff of Taibah, Leicester and other Saudi medical school, respectively to *'intentionally falsifying test'* reported stricter ranking by Leicester staff than other groups in recommending sanctions to this attribute of academic dishonesty. This might reflect strict regulations in UK in terms of research ethics and publications. Academics in the Kingdom of Saudi Arabia are generally not well-trained in research and writing skills. Leniency in ranking to this research domain in fact reflects poor understanding of research ethics by academics in this region. Ethics in medical research is considered both as discipline and practise. Key elements of ethics in research includes informed consent, confidentiality, privacy, privileged communication, and respect and responsibility. This also includes, but not limited to, honest and genuine presentation of data with the intention to present accurate findings of research.

A comparison of the medians of perceptions of medical students of Taibah and Leicester with those from another Saudi,[15] a Scottish,[13] and three Egyptian[14] medical schools shows an aggregate of 998 medical students; TU (183), UoL (118), another Saudi medical school (103), a Scottish (375), and three Egyptian (219) medical schools (Table 2). The data shows that while there is significant concordance among all medical students, there are significant variations among sanctions to certain lapses of academic integrity. For instance, responding to *'drinking alcohol over lunch'*, Egyptian students proposed the highest median of 6; whereas a highest median of 5 was suggested by the Scottish students to *'exchanging information'*. An innovative teaching tool of interprofessional education has shown a great initial promise in harmonizing the learning and educational climate across disciplines that can help foster learning opportunities while learning with, from and about each other.[27] Brief findings of the present research work, reported earlier,[4] have also reaffirmed that there is no consensus on a universally agreed model about sanctions for professionally dishonest behaviours. On a broader perspective, the evident cultural dissimilarities and context specificity of professionalism should catalyse further scholarly efforts to develop a unified code for maintaining academic integrity.

In this study, the recommendation for lapses of academic integrity were obtained by online recruitment of cohorts of staff and medical students from two countries. The study has limitation of getting a small number of respondents from faculty of UoL which might not have represented generic perceptions of the entire faculty. However, this study endorses the potential value of the Dundee Polyprofessionalism Inventory I: Academic Integrity in recording and potentially standardising the recommendations that will, in turn, help in establishing desired standards of medical professionalism in various cohorts.

In conclusion, this research demonstrates that Dundee Polyprofessionalism Inventory I: Academic Integrity can be used as a valuable benchmark in identifying the perceptions of medical faculty and students about appropriate sanctions of lapses of academic integrity for a first time offence with no mitigating circumstances. However, there is substantial conceptual context that is universally agreed upon. There are variances of understanding about professionalism among medical students across years as well as among clinical and non-clinical staff of both medical schools. Some of the responses resonate with counter-cultural differences and suggest that cultural background plays a major role in understanding professionalism. A unified code for medical professionalism is needed that would serve as an effective tool for International Medical Graduates during their cross-cultural migration for education and service.

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