

Perception of medical students on plagiarism in RAK Medical and Health Sciences University, Ras Al Khaimah, UAE

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ABSTRACT

Plagiarism is one of the most prevalent forms of misconduct in the academic scenario. In recent years, scientific misconduct and academic dishonesty have been in the focus of interest of the academic and scientific community.

Objective

Due to the rise in research work in academic institutions, its imperative that all who are involved in research should have knowledge about plagiarism. This is a cross-sectional survey study, done on medical students to find out their attitudes toward plagiarism.

Materials and methods

The study was conducted at RAK Medical and Health Sciences University (RAKMHSU), UAE, using Attitude toward Plagiarism (ATP) questionnaire. The participants were from MBBS 3, 4 and 5th years. After the ethical committee clearance, the questionnaire was implemented to students in their free time. The duration given for filling the questionnaire was about 5 to 10 mins.

Results

Response rate was 66% (N=169). Results revealed moderate scores for positive attitude questions, negative attitude questions, and subjective norms among the three years towards plagiarism. There was no significant difference between the years of study or gender of the students in the group scores. However, the attitude of year-3 students showed a significant positive correlation with year-5 students ($p < 0.05$).

Conclusion

The result reflects that the students' attitudes towards plagiarism are divided. The teaching of ethics should be a part of the curriculum and it should be reinforced with workshops and CMEs.

Keywords

plagiarism; attitude; medical students; questionnaire

INTRODUCTION

The use of someone else's concepts, methods, outputs, or words without giving due acknowledgment is known as plagiarism¹. In professional scientific research, academic misconduct encompasses fabrication, falsification, plagiarism, and other unethical actions^{2,3}. Plagiarism is arguably the most well-known unethical behavior in medical writing⁴.

Plagiarism is a rapidly spreading issue that undermines learning, destroys the reputation of educational institutions, ruins student-teacher relationships, and puts barriers between students^{5,6}. The academic and scientific community has recently focused its attention on scientific misconduct and academic dishonesty⁶⁻¹¹. Any form of cheating that jeopardizes the institution's academic integrity and the educational process is referred to as academic misconduct. Unlike scientific misconduct, which typically consists of

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fabrication, falsification, plagiarism and other unethical behavior in professional scientific research, academic misconduct includes plagiarism, fabrication, deception, corruption, and sabotage under its umbrella^{1,2,12,13}.

In addition, academic misconduct refers to a variety of dishonest actions, such as receiving rewards that are not rightfully earned. Tolerating such behavior undermines learning processes, degrades the credibility of the scientific and academic communities, and produces dishonest experts who violate fundamental educational principles^{14,15,16}. These days, research is given more attention, and medical students are urged to get involved in it from the beginning. The early adoption of systems with a research focus raises the possibility of misbehavior, including plagiarism. For this reason, it is essential that students understand what constitutes plagiarism in research. In higher education, student-centered interactive education sessions have not only increased students' research credibility but also academic success¹⁷. Even during the COVID pandemic, despite constraints, a curated curriculum delivery online could address this issue^{18,19,20}.

There is currently lack of published data with regard to plagiarism in UAE. This study was conducted to know the perception of medical students towards plagiarism.

MATERIALS AND METHODS

This was a prospective cross-sectional study conducted on undergraduate medical students at RAKMHSU. The aim was to assess the perception of medical students towards plagiarism and to know the gender and year-wise differences among them.

Permission from the owner of the questionnaire was duly obtained. After the institutional research ethics committee clearance, the questionnaire was given to study subjects, and data was collected⁷. The questionnaire consists of 29 questions to assess the positive attitude (12 items), negative attitude (7 items), and subjective norms towards plagiarism (10 items). The positive attitude towards plagiarism indicates the approval and acceptance of plagiarism, the negative attitude reflects deprecation and condemnation of plagiarism, and subjective norms towards plagiarism show personal perceptions about acceptance of plagiarism in society. It is marked by the five-point Likert scale representing, Strongly Agree(5), Agree(4), Neutral(3), Disagree(2) and Strongly Disagree(1). Total scores could range from (29 – 145).

Students of RAK College of Medicine (RAKCOMS) were included in the study. As the students were less likely to be exposed to the research, publication, and ethical issues in the year-1 and 2 of study, only clinical year students i.e year 3,4,5 MBBS were included in this study.

The student's perception across the years were compared. After collecting responses to the questionnaire, the participants were educated about plagiarism by discussion. The data was analyzed using SPSS version 25. Descriptive statistics was used to analyze the data. T-test was used to compare the mean scores of components among different subgroups of respondents such as gender. The p value less than 0.05 was considered as significant in the study comparison.

RESULT

In our study, a total of 169 students responded to the questionnaire out of 256 students (66%) in MBBS clinical years. 5 responses were incomplete and were excluded from the analysis. 41 student responses of year-3 (45.5%), 59 responses of year-4 (69%), and 64 responses of year-5 (79.2%) were analyzed. There were 103 females (62.8%) and 61 males (37.1%), who responded to the questionnaire.

The questions assessing the three components of plagiarism i.e. positive attitude, negative attitude, and subjective norms were mixed and randomly placed in the questionnaire. The responses showed comparable mean and standard deviations (SD) for individual questions in the questionnaire among the 3 years of students in our study. [Table-1]

Table-1: Shows the scores of all questions in different years

Question no.	Year-3		Year-4		Year-5	
	Mean	SD	Mean	SD	Mean	SD
1	3.42	1.35	3.67	1.27	3.40	1.25
2	3.16	1.46	3.13	1.29	3.42	1.16
3	3.74	1.19	3.52	1.21	3.46	1.11
4	3.89	1.05	3.43	0.96	3.42	1.01
5	4.05	0.97	3.67	0.93	3.74	0.99
6	2.42	1.43	2.80	1.20	2.89	1.36
7	3.16	1.17	2.91	1.31	3.00	1.30
8	3.32	1.34	3.22	1.14	3.53	1.23
9	2.26	1.37	2.69	1.15	2.38	1.23
10	3.63	1.26	3.70	1.19	3.66	1.20

Question no.	Year-3		Year-4		Year-5	
	Mean	SD	Mean	SD	Mean	SD
11	3.95	1.18	3.81	1.07	3.85	1.06
12	3.95	1.03	3.46	1.11	3.60	1.17
13	3.47	1.07	3.66	1.16	3.66	1.24
14	2.79	1.51	3.41	1.35	3.64	1.09
15	3.11	1.37	3.13	1.32	3.45	1.35
16	3.47	1.39	3.35	1.05	3.00	1.32
17	3.58	1.30	3.30	1.22	3.00	1.29
18	2.21	1.40	3.00	1.23	2.87	1.33
19	2.95	1.22	2.69	1.16	2.85	1.14
20	3.47	1.26	3.26	1.28	3.15	1.16
21	2.42	1.54	2.19	1.12	2.47	1.38
22	2.16	1.34	2.57	1.16	2.55	1.40
23	2.21	1.44	2.83	1.33	2.60	1.35
24	2.74	1.24	2.83	1.38	2.94	1.39
25	2.58	1.30	3.08	1.17	2.81	1.10
26	2.32	1.11	2.72	1.35	3.00	1.50
27	3.05	1.35	3.21	1.34	3.09	1.23
28	2.21	1.27	2.53	1.22	2.81	1.01
29	2.74	1.24	2.83	1.38	2.94	1.39

When results were compared for positive attitude questions towards plagiarism, the mean and SD of year-3,4 and 5 were similar [37.68(8.39), 38.11(6.37), 37.75(9.53) respectively for MBBS year3,4 and 5. These scores show that the overall students have moderate positive attitude. Mean and SD for negative attitude questions and subjective norms were also moderate and similar among the three years. [Table-2]

Table-2: Collective responses for different group of questions

	Year-3	Year-4	Year-5
	Mean (SD)		
Positive attitude questions	37.68 (8.39) Moderate	38.11 (6.37) Moderate	37.75 (9.53) Moderate
Negative attitude questions	22.31 (4.49) Moderate	21.88 (3.45) Moderate	21.70 (4.60) Moderate
Subjective norms	28.42 (7.42) Moderate	30.03 (5.60) Moderate	30.08 (7.94) Moderate

Positive attitude- Low=12-28, Moderate=29-45, High=46-60;
 Negative attitude- Low= 7-16, Moderate= 17-26, High= 27-35;
 Subjective norms- Low= 10-23, Moderate 24-37, High=38-50

On further analysis, when correlations were assessed among different year students, the year 3 students had a significant positive correlation with year 5 students, in terms of negative attitude [Pearson correlation(.590), significance(.008)]. There was also a positive correlation among other pairs but they were not statistically significant. [Table-3] Similar correlation results were found for questions on subjective norms, where year 3 students positively correlated with year 5 students, with a Pearson correlation (.473), significance (.041). However, in our study, although the year 3 and year 5 pair showed positive correlations, the results were not significant for the questions on the positive attitude. Furthermore, year-4 students showed a negative correlation with year-5 students on positive attitude questions, but it was not statistically significant [Pearson correlation (-.001), significance (.994)]. [Table-3]

Table-3: Correlations of attitude scores between different years of study

POSITIVE ATTITUDE		Year 3	Year 4	Year 5
Year 3	Pearson Correlation	1	.035	.360
	Sig. (2-tailed)		.887	.130
Year 4	Pearson Correlation	.035	1	-.001
	Sig. (2-tailed)	.887		.994
Year 5	Pearson Correlation	.360	-.001	1
	Sig. (2-tailed)	.130	.994	
NEGATIVE ATTITUDE		Year 3	Year 4	Year 5
Year 3	Pearson Correlation	1	.117	.590**
	Sig. (2-tailed)		.635	.008
Year 4	Pearson Correlation	.117	1	.059
	Sig. (2-tailed)	.635		.688
Year 5	Pearson Correlation	.590**	.059	1
	Sig. (2-tailed)	.008	.688	
SUBJECTIVE NORMS		Year 3	Year 4	Year 5
Year 3	Pearson Correlation	1	.001	.473*
	Sig. (2-tailed)		.997	.041
Year 4	Pearson Correlation	.001	1	.267
	Sig. (2-tailed)	.997		.067
Year 5	Pearson Correlation	.473*	.267	1
	Sig. (2-tailed)	.041	.067	

PA-3, 4, 5 = Positive attitude Year-3, 4, 5 ; NA-3, 4, 5 = Negative attitude Year- 3, 4, 5 ; SN-3, 4, 5 = Subjective norms Year- 3, 4, 5 ; * Correlation is significant at the 0.05 level (2-tailed); **Correlation is significant at the 0.01 level (2-tailed).

In our study, a total of 107 female students (63.3%) and 62 (36.6%) male students responded to the questionnaire. When mean and SD were compared between male and female students, the difference was not statistically significant in all three components. [Table-4]

Table-4: Gender-wise comparison of attitude scores

Paired Samples Test									
		Paired Differences					t	df	Sig. (2-tailed)
		Mean	SD	SE Mean	95% CI				
					Lower	Upper			
Pair 1	FEMALE POSITIVE – MALE POSITIVE	-.68	11.77	1.75	-4.22	2.84	-.392	44	.697
Pair 2	FEMALE NEGATIVE – MALE NEGATIVE	-.33	5.60	.83	-2.01	1.34	-.399	44	.692
Pair 3	FEMALE SUBJECTIVE – MALE SUBJECTIVE	-.86	9.81	1.46	-3.81	2.08	-.592	44	.557

SD= Standard Deviation; CI= Confidence Interval of the Difference; SE= Standard Error

In this study, we did a correlation analysis among male and female students. Positive attitude mean in male students, negatively correlated with all the three components among female students, but they were not statistically significant [Pearson correlation of -.051, -.014, -.043 and significance of .740, .928, .780 respectively for positive, negative and subjective norms among females]. [Table-5]

Table-5: Correlation of attitude scores by gender

		Correlations					
		FP	MP	FN	FS	MN	MS
FP	Pearson Correlation	1	-.051	-.096	.396**	-.019	.012
	Sig. (2-tailed)		.740	.412	.000	.900	.939
MP	Pearson Correlation	-.051	1	-.014	-.043	.596**	.825**
	Sig. (2-tailed)	.740		.928	.780	.000	.000
FN	Pearson Correlation	-.096	-.014	1	.082	.026	-.062
	Sig. (2-tailed)	.412	.928		.483	.865	.685
FS	Pearson Correlation	.396**	-.043	.082	1	-.009	-.018
	Sig. (2-tailed)	.000	.780	.483		.951	.907
MN	Pearson Correlation	-.019	.596**	.026	-.009	1	.494**
	Sig. (2-tailed)	.900	.000	.865	.951		.001
MS	Pearson Correlation	.012	.825**	-.062	-.018	.494**	1
	Sig. (2-tailed)	.939	.000	.685	.907	.001	

FP= Female Positive; MP= Male Positive; FN= Female Negative; MN= Male Negative; FS=Female Subjective; MS= Male subjective

** Correlation is significant at the 0.01 level (2-tailed).

Scores for male positive attitude questions positively correlated with male negative attitude and male subjective norms scores, which were statistically significant (.000 and .001). However, although scores for female positive attitude questions significantly correlated with female subjective norms scores [Pearson correlation (.396), significance (.000)], it negatively

correlated with negative attitude scores, which was not statistically significant [Pearson correlation (-.096), significance (.412)]. [Table-5]

DISCUSSION

According to our study, medical students' general attitudes regarding a positive attitude toward plagiarism

are moderate, which is consistent with the findings of a small number of other studies²¹⁻²⁶. However, the findings contradict another study where the scores were low for positive attitude ($5.80 \pm .473$) and Negative attitude ($10.61 \pm .696$)²⁷. Unlike many of these studies, faculty members were not included in our study.

Additionally, the study's results regarding the many positive attitude question components are not consistent. The two most common areas of uncertainty among students are copying work from other languages and self-plagiarism. On questions on self-plagiarism, a comparable proportion of respondents agreed and disagreed. Since one cannot steal from oneself, many students believe that borrowing previously published work is acceptable and neither detrimental nor harmful. In an effort to finish a task on time, pressure is also occasionally applied. Although it is normal for there to be some repetition when someone writes on the same subject again, referencing a source is necessary. Additionally, there is a lack of clarity on publishing in a foreign language.

The overall score in negative attitude questions is moderate, hovering around the high range. It shows that a lot of students have very unfavorable opinions about plagiarism. Students believe it to be the same as theft, that it diminishes the investigative spirit, and that it hampers scientific advancement. On the other hand, there is disagreement over whether exposing the identities of plagiarists to the scientific community is a sufficient punishment for their actions. Additionally, our research demonstrates that students in years three and five equally detest plagiarism.

The scores are modest in terms of subjective norms. Students generally believe that plagiarism is okay in certain situations and that it's occasionally necessary or the result of work pressure. Many students think it's acceptable, and since they don't get caught, they keep doing it. The fact that nearly equal numbers of students believe they work in a place free from plagiarism while in reality they do not, is equally troubling. These early impressions have a negative impact on truthful research and should be addressed for aspiring researchers.

There was no difference between the overall attitudes of students in different years of MBBS, in our study. This is in accordance with a similar study among year I, II, and III MDS students²⁸.

In our study, the average scores for subjective norms,

positive attitude, and negative attitude fell into the moderate range. A few more researches bear similarities to this^{29,30}. Our results, however, are in opposition to those of Pupovac *et al.*, who found that subjective standards about plagiarism revealed a moderately positive attitude and a moderately to highly negative attitude (36 ± 7 , 26 ± 4 , and 32 ± 6 , respectively)²⁶.

Compared to male students, more female students participated in our study. This is consistent with a study by Naveen *et al.* that found that 34.5% of participants were males and 65.5% were females; however, it differs with a study by Jereb that found that 61% of participants were males and 39% were females^{27,31}.

In our study, the overall scores of all three components did not differ between male and female students (significance of .697, .692, and .557). This is consistent with the study by Roig and Caso³². The results for male students show that a significant portion of them had strong opinions, both good and negative, about whether or not plagiarism is acceptable in society. On the other hand, it was shown that female students had stronger positive opinions about positive attitude questions but weaker opinions regarding negative attitude questions. Among female students, acceptance of plagiarism was likewise highly connected with a positive attitude toward it.

Jereb's study examined the gender gap in plagiarism in great detail. The authors came to the conclusion that even though people know plagiarism is wrong, males commit it more often than females. Having a busy social life was significantly positively correlated with the acceptability of plagiarism. This study found that there are some views around attitude towards plagiarism that differ between males and females^{31,33}.

While the results of a similar survey conducted among instructors and students in Pakistan showed statistical differences in certain areas, it was observed that both groups lacked knowledge about plagiarism. A 19-item questionnaire was utilized to gather information from medical schools in the public and private sectors³⁴. In a different study conducted in India, medical students had extremely low knowledge (total mean score $4.96\% \pm 1.67\%$)³⁵. Iranian medical students had a low level of knowledge that was directly correlated with the number of individual publications they had³⁶. Nevertheless, the knowledge component of plagiarism was not evaluated in our study.

Regarding self-plagiarism, opinions in our survey were split. Students need to understand that self-plagiarism is against the law and unethical. Any reuse should be regarded as duplication because prior publishing by the author practically transfers copyrights to the publisher (thus authors don't solely own it) ³⁷.

A wide range of variables typically impact a person's perspective on any given topic. Anti-plagiarism software checks are only efficient at identifying simple textual recycling; it is unable to identify more sophisticated or complicated forms ³⁸. With improvements in detection techniques, plagiarism can be detected more successfully ^{39,40}. But it should be mentioned that there should be a system in place to stop plagiarism, and the only way to do this is by making changes in the attitude towards plagiarism.

Numerous elements that contribute to plagiarism have been discovered in some earlier research. Poor research management, a lack of ethical publication guidelines in the curriculum, and lack of knowledge or access to resources about plagiarism, according to Gasparayan, all have an impact on students' attitudes toward plagiarism^{36,38}. A related Korean study found that first-year medical students' ignorance of research misconduct contributed to a lenient mindset and plagiarism practices^{41,42}.

Prior studies have also demonstrated that students' plagiarism is influenced by their lack of understanding and proficiency with referencing and citing sources. Teaching research ethics to students not only helps them see plagiarism more clearly, but it also helps them understand research integrity ^{30,36}.

CONCLUSION

Students' opinions generally indicated that they disapproved of plagiarism in medical research. On the other hand, perspectives regarding self-plagiarism and its level of acceptability varied somewhat. The results imply that attitudes should be further studied and that there should be a greater awareness of plagiarism. To fully understand the scope of the dearth of ethics in writing, these kinds of studies ought to be conducted with a bigger sample size and involve more health science students. Research ethics training is currently required for students pursuing professional degrees. It is important to raise the understanding of ethical issues in general and plagiarism in particular among young researchers. Enhancing one's proficiency in the English language will also indirectly reduce plagiarism. Workshops can be used to accomplish this.

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