

**Original Article****Perception and Prevalence of Plagiarism among Postgraduate Medical Students in Twin Cities of Pakistan**Arslaan Javaeed<sup>1</sup>, Zartasha Chaudhry<sup>2</sup>, Sadaf Hina<sup>3</sup>, Maria Naseer Malik<sup>4</sup>, Maira Yaseen<sup>5</sup>, Qurat ul Ain Haider<sup>6</sup>**Authors**Department of  
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@gmail.com**ABSTRACT****OBJECTIVE**

To compare the perception and prevalence of plagiarism in doctors pursuing academic postgraduate qualification versus clinical postgraduate qualification

**METHODS**

All doctors pursuing a postgraduate qualification in six institutes of Islamabad and Rawalpindi, Pakistan were included in the study from April to October 2018. Data was collected through a validated, self-administered and structured questionnaire.

**RESULTS**

Out of 126 participants, the reported prevalence of plagiarism was 57.14% (n=72) with a higher proportion among clinically oriented specialty students (65.43%, n = 53) as compared to their counterparts doing academic degrees (42.22 %; n=19). Majority of respondents (80.24%) knew about plagiarism, but only 35.80% were aware of

its legal consequences. 67.9 % of the MD/MS/FCPS students did not consider plagiarism as unprofessional or unethical as compared to 40% of the M.Phil./PhD students (p <0.01).

**CONCLUSION**

Plagiarism is a common practice among postgraduate medical students and more so, among those pursuing MD, MS, and FCPS as compared to M.Phil. and Ph.D. Educational reforms regarding medical writing, the teaching of medical ethics, strict plagiarism check and knowledge about legal consequences should be made common in medical institutes to improve the current situation.

**KEYWORDS**

Cross-sectional study, Plagiarism, Awareness, Questionnaires, Attitude, Pakistan.

**INTRODUCTION**

Plagiarism is defined as using another person's language, words, thoughts, ideas or expressions intentionally without clearly attributing them as the source. The practice has been identified as a major ethical concern in the field of medical writing. Postgraduate medical students are expected to maintain and practice the highest levels of integrity as they undertake research studies. However, the high demand for publications as a requirement for the award of a postgraduate degree and the academic benefits of publication of medical papers has led to an unprecedented rise in the number of published manuscripts containing plagiarised material and compromised quality. <sup>(1)</sup>

Even though a substantial number of postgraduate medical students have conceptual knowledge of plagiarism, still they have committed it either intentionally or unintentionally. Common reasons stated are a lax attitude towards plagiarism, pressure from different spheres of their postgraduate life, laziness, poor

time management, language barriers, lack of clearly outlined institutional policies on plagiarism detection, and minimal awareness of plagiarism detection software by the medical institutions. <sup>(2)</sup> Some medical students do not even consider plagiarism as cheating. Moreover, plagiarism has become easier and more prevalent in recent years due to extensive use and easy access to multiple information resources through the internet.

Academic degrees in Pakistan such as Masters in Philosophy (M. Phil) and Doctorate in Philosophy (PhD) require a greater number of research activities and assignments as compared to clinical specialties such as Fellowship of College of Physicians and Surgeons (FCPS), Doctor in Medicine (MD) and Doctor in Surgery (MS). The academic institutes have strict protocols regarding plagiarism check and greater awareness about plagiarism so it is hypothesized that the practice of plagiarism would be less in students pursuing academic

degrees. As there is a lack of published data regarding perception and prevalence of plagiarism among these postgraduate medical students, the objective of this study is to compare the perception and practice of plagiarism in doctors pursuing academic degrees versus clinical degrees.

**METHODS**

A cross-sectional study was carried out from April to October 2018 in which doctors pursuing M.Phil. and Ph.D., in two postgraduate medical institutes and, MD, MS and FCPS in different clinical specialties from four hospitals of Rawalpindi and Islamabad agreed to participate. Informed consent was sought from all participants. The names of the institutes and hospitals have been kept anonymous to maintain confidentiality. The data were collected using self-administered and validated questionnaires, which have been used previously in a similar study.<sup>(2)</sup> Each questionnaire consists of different data variables including participant's personal information, the prevalence of plagiarism, knowledge of plagiarism, attitude towards plagiarism, types, and the reason for plagiarism and detection and response on part of the medical institute. The data were analyzed using the Statistical Package for the Social Sciences (SPSS) Version 23.0 (IBM Corp., Armonk, New York, USA) into different measures of central tendencies. Chi-Square test and P values were also used to compare the association between variations with statistical significance. Ethical approval was obtained from the ethical review committee of Poonch medical college, Rawalakot.

**RESULTS**

A total of one hundred and twenty-six postgraduate medical doctors pursuing various degrees participated in the study. Out of these, seventy-two doctors (57%) reported having practiced plagiarism in the past whereas fifty-four doctors (42%) denied it (P < 0.01). A higher proportion of plagiarism was practiced among doctors in clinically oriented specialty (n =53, 65.4%), compared to their M.Phil. and Ph.D. counterparts, (n=19, 42.2%) with a P value < 0.01 among the two groups as shown in Table 1.

When asked about their knowledge on plagiarism, the

majority (n=103, 81.74%) of the respondents were aware of it as shown in Table 2. However, only 39 % of students knew its legal consequences with M.Phil. and Ph.D. students reporting higher rates of awareness. Postgraduate trainees who considered plagiarism as an unethical or unprofessional practice were 42.06% (n= 53; P= <0.01) Table 2.

Majority of the students (n=51; 70.83%) who admitted having practiced plagiarism reported doing so by copying and pasting. Pressure to meet the deadlines found to be the most common reason for practicing plagiarism (42.10% in M.Phil., Ph.D. students versus 47.16% in MD/MS/ FCPS students), followed by confusion (20.75% and 31.58%) in this study Table 3.

A total of 39.68% (n=50) students believed that their medical institutions were successful at detecting plagiarism. This rate is significantly higher among Ph.D. and M.Phil. students (n=34;75.55%) compared to clinical specialty students (n=16; 19.75%). Sixty percent of M.Phil. and Ph.D. students reported lowering of grades as a response to plagiarism by the respective academic institute while most frequent response according to MD, MS and FCPS students was warning issued by the institute (n=48;59.25%) as seen in Table 4.

This research showed that 46.03% (n=58) of respondents were aware of Turnitin (iParadigms LLC, Oakland, California, USA) with a higher percentage of M.Phil. and Ph.D. students compared to MD, MS, and FCPS students (n=36; 80.00% versus n=22; 27.16%), while a total of 23.01% of both study groups were aware of iThenticate (iParadigms LLC). Alarming only 6.17% (n=05) doctors in clinical postgraduate programs know about iThenticate Table 5.

**DISCUSSION**

Postgraduate medical students are expected to maintain and practice the highest levels of integrity as they undertake research studies. However, the pressure that is associated with multiple assessments and the benefits of multiple submissions of academic papers have led to intentional and unintentional involvement in plagiarism

	M.Phil. & Ph.D. Students		MD, MS and Total FCPS Students		P Value		
	n	%	N	%	N	%	
<b>Practiced</b>	19	42.22	53	65.43	72	57.14	<0.01
<b>Not Practiced</b>	26	57.77	28	34.56	54	42.85	

**Table 1: Distribution of the prevalence of plagiarism by specialty (N=126).**

M.Phil. &Ph.D. Students			MD, MS and FCPS Students		Total	P Value
	N	%	N	%	%	
<b>Do you know what plagiarism is?</b>						0.167
Yes	38	84.44	65	80.24	81.74	
No	07	15.55	16	19.75	18.25	
<b>Are you aware of the legal consequences of plagiarism?</b>						0.04
Yes	21	46.66	29	35.80	39.68	
No	24	53.33	52	64.19	60.31	
<b>Do you consider plagiarism to be unprofessional or unethical?</b>						<0.01
Yes	27	60	26	32.09	42.06	
No	18	40	55	67.90	57.93	

**Table 2: Knowledge of plagiarism among postgraduate medical students (N=126)**

		M.Phil. &Ph.D. Students		MD/ MS/ FCPS Students		Total
	N	%	N	%	%	
<b>Type of plagiarism practiced (those who admitted having practiced)</b>						
Copy & Paste	14	73.68	37	69.81	70.83	
Copy from the peers	05	26.31	16	30.18	29.16	
<b>Reasons for plagiarism</b>						
Ease of plagiarizing/laziness	03	15.78	05	9.43	11.11	
Pressure to meet deadlines	08	42.10	25	47.16	45.83	
Confusion	06	31.58	11	20.75	23.61	
Cultural reasons	02	10.52	12	22.64	19.44	

**Table 3: Types and reasons for plagiarism among Postgraduate medical students**

M.Phil. &Ph.D. Students			MD/ MS /FCPS Students		Total
	N	%	n	%	%
<b>Successful detection of plagiarism</b>					
Yes	34	75.55	16	19.75	39.68
No	11	24.44	65	80.24	60.31
<b>Response to plagiarism</b>					
Report to higher authorities	07	15.55	02	2.40	07.14
Lower grades	27	60.00	14	17.28	32.53
Warning	05	11.11	48	59.25	42.06
Ignore	06	13.33	17	20.98	18.25

**Table 4: Detection and response towards plagiarism by the medical university (N= 126)**

M.Phil. & Ph.D. Students			MD, MS and FCPS Students		Total
	N	%	N	%	%
<b>Have you heard of Turnitin® (iParadigms LLC, Oakland, California, USA)?</b>					
<b>Yes</b>	36	80.00	22	27.16	46.03
<b>No</b>	09	20.00	59	72.83	53.96
<b>Have you heard of iThenticate® (iParadigms LLC)?</b>					
<b>Yes</b>	24	53.33	05	6.17	23.01
<b>No</b>	21	46.66	76	93.82	76.98

**Table 5: Awareness regarding computerized plagiarism detection software (N= 126)**

which includes different types such as plagiarism of ideas, mosaic plagiarism, self-plagiarism, plagiarism of written material, etc. <sup>(3)</sup> At the undergraduate level, most of the students have little or no knowledge of plagiarism as a vice, its forms, and its repercussions. <sup>(4)</sup> They do not view plagiarism as a serious violation of integrity with somber repercussions such as revocation of one's license and a prison term in extreme cases. <sup>(5)</sup> Also, to blame is the lack of clear institutional policies that guide the submission of manuscripts and assignments. These practices of plagiarism are prevalent in postgraduate students as well. <sup>(6)</sup> Moreover, with the continued use of technology, students are relying on online platforms to easily access previous works of colleagues. <sup>(7)</sup> However, the difference is seen in doctoral students as a recent study did not show any difference in plagiarism in a doctoral thesis submitted in the age of the internet as compared to pre-internet times. <sup>(8)</sup>

Our study found out that majority of the postgraduate students in both academic, as well as a clinical pathway, knew about plagiarism. These findings concur with a study carried out on postgraduate and undergraduate pharmacy students in Australia where a majority of the postgraduate and undergraduate students are aware of what plagiarism is, and its existence. However, only a small proportion ( $P < 0.05$ ) was aware of the contents of the policies and consequences associated with the practice of plagiarism. <sup>(9)</sup> This could be since research skills are taught in most universities at the postgraduate level. However, students' attitude towards the vice has continued to encourage its practice despite knowing its illegality. In another study carried out on 221 physicians pursuing surgery and emergency medicine, the clinicians showed a positive inclination towards the practice of plagiarism with the respondents having a mean positive attitude of  $29.56 \pm 6.81$ . <sup>(10)</sup> It is alarming to see that 67.9 % of the MD/MS/ FCPS students did not consider plagiarism as unprofessional or unethical as compared to 40% of the M.Phil./PhD students ( $p < 0.01$ ). Although College of Physicians and Surgeons of Pakistan (CPSP), the premium award instituting body for MCPS and FCPS, clearly states that "the trainee who plagiarizes or copies

someone else's dissertation will be liable for a punitive action by CPSP, which may include debarring him/her from appearing in FCPS examination for lifetime" such an attitude by residents and trainees is eye-opening. This requires serious action on the part of medical curriculum developers to address this issue and create platforms to disseminate knowledge regarding plagiarism. The strict check should be implemented by institutes awarding degrees on the basis of this dissertation/ thesis.

Copying and pasting from peers and the internet are the most common types of plagiarism practiced by postgraduate medical students in Pakistan. These findings concur with a study done in Erbil, Iraq in the Hawler Medical University where 81.1% of respondents reported copy-pasting from internet sources and copying friends work as the most common form of plagiarism practiced. <sup>(2)</sup> This may be because of the dependence on technology and the repetition of assignments over the years by instructors thus leading to readily available answers. The study also revealed that 46.5% of postgraduate medical students plagiarize due to laziness making it one of the most common reasons for plagiarism in this study. <sup>(2)</sup> Another study showed that 84.9% of the students admitted to plagiarizing due to the pressure to meet deadlines. <sup>(11)</sup> Confusion about assignments and medical writing was also cited as one of the common reasons in our study which shows the need for having formal courses in medical writing in the undergraduate curriculum. The reasons cited for plagiarism were similar in both groups which require educational reforms in both clinical and academic pathways.

One of the major findings this research revealed was that universities have poor ways of detecting plagiarism as only 19.75% ( $n=16$ ) of the plagiarised work among the MD, MS, and FCPS students were detected. This contrast with the 75.55% ( $n=34$ ) detection rate seen with M.Phil. and Ph.D. submissions. Medical universities do not have enough knowledge on the availability of plagiarism detection software with some universities being completely ignorant of the availability of this software which they can

use to successfully detect plagiarism in the research writing of their postgraduate medical students. This research also revealed that 80% (n=36) of M.Phil. and Ph.D. students and 27.16% (n=22) of MD, MS, and FCPS students had knowledge of Turnitin. Another research done among postgraduate medical students in Pakistan revealed that out of 350 students, less than half of them knew anything about plagiarism detection software. Some of this software include; iThenticate, paradigms LLC, and Turnitin.<sup>(12)</sup> The unavailability encourages students to plagiarize because detection will not be effective. In most fellowship programs in Pakistan such as MCPS, FCPS, MD or MS, the submission of the synopsis is not online and plagiarism check, if performed, is not informed to the postgraduate doctor. This results in a lack of awareness about plagiarism. Secondly, appropriate action is not taken if plagiarized material is found which results in an environment which promotes plagiarism. Although there are policies on plagiarism by Higher Education Commission of Pakistan (HEC) and College of Physicians and Surgeons of Pakistan (CPSP), these still remain to be implemented across the board.

Use of modern technological tools to eliminate plagiarism is a recommended method of shunning plagiarism as most universities have online platforms where submitted papers are screened for plagiarism before acceptance. This has been made easier by the availability of technology and the presence of databases where the papers might be lifted from.<sup>(13, 14)</sup> These databases must be frequently updated and done so by researchers on a global level to make this effective. Universities, medical institutions, and colleges need to adopt plagiarism software such as Turnitin and iThenticate to detect plagiarism and apply the necessary measures.

Postgraduate medical students have obviously gone through undergraduate education and are therefore aware of research writing in higher institutions. Introducing medical research writing as a course in the institutions will help to train the students, how to write and all the basic requirements that will ensure a perfectly written research without plagiarism.<sup>(11)</sup> Teaching medical research writing will stop the prevalence of reasons such as confusion and language barrier which lead the students to plagiarize. Strict implementation of the consequences outlined in the policies will help with the behavioral changes of the students because they will have experienced the action taking place.<sup>(15)</sup> In this study, lower grades, warning, and reporting to higher authorities were the main responses of the university to plagiarism. However, a high percentage of cases was ignored with the highest percentage of cases given warnings (59.25%). According to research carried out on postgraduate pharmacy students at the University of Sydney in Australia, most students knew the University had policies

on plagiarism but few of them knew what the policies covered.<sup>(9)</sup> Despite the knowledge of plagiarism students keep engaging in plagiarism maybe because a plagiarism free environment has not been created for them. Teaching the ethical aspects plagiarism and making awareness of moral norms in academia proved to be an effective method of controlling plagiarism among postgraduate medical students. Creating an environment where plagiarism is clearly viewed as an act of academic dishonesty will help the students to disengage themselves from the practice of plagiarism.<sup>(16)</sup> A recent study showed that plagiarism is quite prevalent in undergraduate medical students in Pakistan where 71.1% of the respondents had plagiarized their work in some manner.<sup>(17)</sup>

There are certain limitations to this study. One is the small sample size as study involved only four hospitals of Rawalpindi and two postgraduate institutes of Rawalpindi and Islamabad, Pakistan. It's possible that these results may not qualify for all medical and health fields to be generalized. Repetition of the study in the future or increasing sample size would be helpful in this regard. In addition, the current study included only postgraduate medical students. Future research should pursue to determine perceptions of plagiarism among undergraduate medical students as well to evaluate the efficacy of anti-plagiarism interventions and anticipation policies.

## CONCLUSION

Plagiarism is a universal predicament facing academia, especially the scientific field which depends on originality and honesty. Lack of awareness, a positive attitude towards plagiarism, pressure due to the deadline and advancement in technology are the major reasons why plagiarism is highly prevalent among postgraduate medical students. Devising countermeasures is the best way to curb this problem. Countering the reasons postgraduate medical students plagiarise, has proven to be the most effective way of deterring plagiarism among postgraduate medical students. Introducing awareness avenues for medical universities, colleges and students will also help in improving policies, detection, and actions regarding plagiarism.

## CONFLICT OF INTEREST

There is no conflict of interest.

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