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Academic Dishonesty among Health Sciences University Students in Malaysia: A Single Centre Cross-Sectional Observation

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ABSTRACT

Academic dishonesty (AD) is an unethical act by students, ranging from plagiarism to completing assignments and assessments. During the COVID-19 pandemic, higher education institutions (HEIs) in Malaysia transitioned from face-to-face to online learning modes, raising concerns about AD committed by university students. This study aimed to compare the prevalence of AD during both learning modes. A single-centre cross-sectional study was employed, recruiting third-year students from three faculties at a health campus in Kuala Lumpur, Malaysia. The study adhered to the Declaration of Helsinki, with written consent obtained from each participant and an approval was granted by the internal research ethics board. An online questionnaire covering academic environment, specific behaviour, and engagement in cheating was administered to 228 students aged 21 to 26. Although results indicated a high awareness of AD and faculty cheating policies, a high prevalence of AD persisted regardless of the learning mode. Apparently, there is no one-size-fits-all solution to curbing AD. Although students may have the relevant knowledge in their fields of study, there is no guarantee they will refrain from committing AD. Policies and solutions need to be accessible, fine-tuned, and periodically reviewed for effectiveness. Additionally, students' high perception of the seriousness of AD and awareness of cheating did not align with the high prevalence of AD in both face-to-face and online learning modes.

Keywords: *Academic dishonesty, Online learning, Face-to-face, University students, Academic integrity*

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INTRODUCTION

Academic dishonesty (AD) among students has emerged as a significant global issue, raising concerns about its prevalence during the shift to online learning necessitated by the COVID-19 pandemic. As one of the most productive authors recognised in the field of AD, McCabe's work is frequently cited in bibliometric studies, highlighting his influence on the academic discourse surrounding this issue (1). AD includes actions such as plagiarism, test cheating, and contract cheating, exacerbated by the accessibility of digital tools during remote learning (2). This global concern threatens the integrity of educational systems, as recent studies also reported that 40% to 80% of higher education students worldwide have admitted to engaging in some form of AD during their academic journey, and this has become a global concern as it threatens the integrity of educational systems (3).

Malaysia is not immune to this dangerous trend. Research found that 57.4% of Malaysian students at major public institutions acknowledged using AD at least once during their studies (4). Plagiarism, unauthorised use of resources during exams, and collaborative cheating in assignments are all examples of AD in Malaysia, and they are frequently considered as shortcuts that require less critical thinking (2). At one local university, 2.2% of students believed that bringing unauthorised notes to exams was acceptable (5), and 76.8% felt that copying from peers was not an offense (6). These findings underscore a worrying normalisation of dishonest practices in Malaysian higher education institutions (HEIs).

The COVID-19 pandemic presented unprecedented challenges to Malaysian HEIs, necessitating a shift from conventional face-to-face instruction to online learning. While this transition was necessary to ensure educational continuity, it also introduced new vulnerabilities to AD. Traditional proctoring procedures have become less efficient as tests go online. For example, a study of medical students found that AD was common during remote tests, with hierarchical clustering predicting misbehaviour with a 55% accuracy (7). Globally, AD surged during this period, with students exploiting technological and procedural gaps in virtual learning environments (2). However, specific comparative analyses of AD trends between face-to-face and online learning in Malaysia remain sparse.

AD can be classified into three categories: (a) utilising ideas without appropriate citation; (b) employing unauthorised materials during exams; and (c) having someone else complete an assignment or reusing another student's work from a prior semester (8). Each form presents distinct hurdles to academic integrity, and students' lack of understanding about the consequences of such behaviours exacerbates the problem. For example, local studies have emphasised Malaysian students' misconceptions about the acceptability of certain dishonest activities, emphasising the crucial need for educational interventions (5, 6). Another survey of Muslim students in Malaysia found that a large proportion admitted to AD, with plagiarism being the most common type (9).

The rise of AD during the pandemic has also highlighted the role of institutional policies and their effectiveness in curbing dishonest behaviours. Malaysian universities have indeed adopted advanced plagiarism detection tools as part of their strategy to uphold academic integrity. This adoption is motivated by a desire to maintain high educational standards and align with worldwide academic trends. The introduction of these technologies is part of a larger effort to prevent plagiarism, a major concern in Malaysia's HEIs. Academic integrity regulations and educational activities aimed at cultivating an honest and original culture among students supplement the usage of such instruments (10). However, the effectiveness of these interventions varies, as some students continue to view AD as a low-risk, high-

reward strategy. A robust understanding of the underlying motivations and the contextual factors driving AD is essential for designing targeted, evidence-based interventions.

This study aims to address the gap in the literature by exploring the prevalence and nature of AD during face-to-face and online learning modes among students at a Malaysian university health campus. By examining patterns across various learning modalities, this study aims to provide practical insights to inform policies and practices that promote academic integrity. The findings can guide HEIs in implementing targeted strategies to combat AD and foster a culture of honesty and accountability in academic settings.

METHODS

This cross-sectional study was conducted among students from three faculties: (a) Faculty of Health Sciences; (b) Faculty of Dentistry; (c) Faculty of Pharmacy in a university's health campus in Kuala Lumpur, all in their third year of studies. This cohort of students was selected since they experienced both fully face-to-face (before the COVID-19 pandemic) and fully online (during COVID-19 pandemic) teaching and learning. They were all in their third year of study. Data collection was done from April 2021 to May 2021. Only local students were included in this study, while international students were excluded. The total sample size, including a 10% non-response rate, was 225, calculated with a population size of 432, 95% confidence interval, and 5% margin of error (11).

The students' information sheet and questionnaire were circulated using Google Forms among the target group. Before answering the questionnaire, students had to fill out an informed consent form. The first part of the questionnaire consisted of students' data. While the second part included the academic integrity survey (12), which was divided into three sections, namely academic environment, specific behaviours, and engagement in cheating.

In the academic environment section, the students were asked how well they knew about AD in the university setting and how well-informed they were about the faculty's academic integrity and cheating policies. The specific behaviours segment examined students' perceptions of relevant cheating, such as creating or falsifying statements, paraphrasing or duplicating words, and submitting work done by someone else. The engagement in cheating portion questioned students if they had ever cheated in online or face-to-face classes, with the same questions as the preceding section (specific behaviours). Particularly for the engagement in cheating, participants were grouped into either "had committed" when the participant committed even once, indicated by the total score of one or more, or "never committed" when the total score is zero. This total score merely indicates the frequency of cheating (12).

The Cronbach's alpha, which indicated internal consistency of the academic integrity survey, was 0.794 (13). According to Iyer and Eastman (14), the alpha coefficient for this questionnaire ranges from 0.70 to 0.85. Moreover, in a study conducted in Malaysian public universities, Cronbach's alpha was 0.916, indicating a high internal consistency of the questionnaire (15).

Statistical analysis was performed using Statistical Package for the Social Sciences (SPSS) version 26. Data were descriptively analysed and presented in frequencies and percentages. In addition, for the dichotomous and categorical data, chi-square analysis was used to determine the connection of commitment to AD with gender, faculties, and learning styles. All statistical tests were performed with a 95% confidence interval and 5% significance level.

RESULTS

Demographic Profile

A total of 228 third-year students, aged between 21 and 26 years, participated in this study. Most of them were female (81.1%), Malay (68%), and from the Faculty of Health Sciences (72.4%) (Table 1). Moreover, it was found that 77.2% of students committed AD during face-to-face learning, while 76.8% committed AD during online learning.

Table 1: Demographic profile

Category	n (%)
Gender	
Male	43 (18.9)
Female	185 (81.1)
Ethnicity	
Malay	155 (68.0)
Chinese	40 (17.5)
Indian	25 (11.0)
Others	8 (3.5)
Faculty	
Health Sciences	165 (72.4)
Pharmacy	37 (16.2)
Dentistry	26 (11.4)
Learning mode when committing AD	
Face-to-face	176 (77.2)
Online	175 (76.8)

Academic Environment: Perception of Cheating Policies

Table 2 shows the perception of cheating policies among students. Students mostly rated "high" for all the cheating policies listed.

Table 2: Perception of cheating policies

Cheating policy	n (%)				
	Very low	Low	Medium	High	Very high
The severity of penalties for cheating at your faculty	1 (0.4)	23 (10.1)	42 (18.4)	107 (46.9)	55 (24.1)
Student understanding of campus policies concerning student cheating	1 (0.4)	19 (8.3)	65 (28.5)	107 (46.9)	36 (15.8)
The faculty's understanding of these policies	0 (0.0)	2 (0.9)	49 (21.5)	114 (50.0)	63 (27.6)
Student support for these policies	3 (1.3)	7 (3.1)	87 (38.2)	94 (41.2)	37 (16.2)
Faculty support for these policies	0 (0.0)	5 (2.2)	48 (21.1)	112 (49.1)	63 (27.6)
The effectiveness of these policies	3 (1.3)	24 (10.5)	73 (32.0)	91 (39.9)	37 (16.2)

Academic Environment: Cheating Policy Learning Sources and Its Effectiveness

Table 3 shows the list of learning sources for cheating policies and the effectiveness as rated by the participants. Most students chose "learned some" for all the learning sources listed. Students chose "learned a lot" for faculty as a learning source (46.1%) compared to other sources. This shows that discussions in class and explaining course syllabi or outlines to students help increase their awareness of cheating policies.

Table 3: Effectiveness of cheating policy learning sources

Learning sources	Effectiveness, n (%)		
	Learned little or nothing	Learned some	Learned a lot
First-year orientation	52 (24.1)	122 (56.5)	42 (19.4)
Campus website	59 (27.1)	112 (51.4)	47 (21.6)
Student handbook	49 (22.7)	105 (48.6)	62 (28.7)
Programme counsellor	48 (22.3)	116 (54.0)	51 (23.7)
Programme counsellor, residential advisor, faculty advisor	39 (18.1)	110 (50.9)	67 (31.0)
Other students	44 (20.4)	120 (55.6)	52 (24.1)
Faculty (e.g., discussed in class, course syllabi or course outlines)	14 (6.5)	103 (47.5)	100 (46.1)
Teaching assistant	42 (19.6)	113 (52.8)	59 (27.6)
Dean or another administrator	39 (18.1)	105 (48.8)	71 (33.0)

Specific Behaviours: Likelihood of Reporting Cheating Incidents

Table 4 shows the students' likelihood of reporting cheating incidents. Most students chose that they would likely report an incident of cheating that they observed (47.4%) and also "the typical student at your faculty would report such violations" (53.1%). However, most students also chose that it was unlikely that "a student would report to a close friend" (48.2%).

Table 4: Likelihood of reporting cheating

How likely is it that:	n (%)			
	Very unlikely	Unlikely	Likely	Very likely
You would report an incident of cheating that you observed	10 (4.4)	91 (39.9)	108 (47.4)	19 (8.3)
The typical student at your faculty would report such violations	7 (3.1)	80 (35.1)	121 (53.1)	20 (8.8)
A student would report to a close friend	62 (27.2)	110 (48.2)	41 (18.0)	15 (6.6)

Specific Behaviours and Engagement in Cheating: Perceived Seriousness and Prevalence of AD Based on Learning Mode

Table 5 shows the perceived seriousness of AD among students. The top two behaviours most students considered moderate and severe cheating were "copying from another student during a test with/without their knowledge" (94.3%) and "cheating on a test in any

other way" (93.9%). The bottom two behaviours considered moderate and severe cheating by the fewest students were "working on an assignment with others (in person) when the instructor asked for individual work" (48.7%) and "working on an assignment with others (via email or instant messaging) when the instructor asked for individual work" (50.4%).

Next, the table also shows the prevalence of AD among students during the different study modes. During face-to-face learning mode, the top three categories of AD most committed were "working on an assignment with others (in person) when the instructor asked for individual work" (49.1%), "working on an assignment with others (via email or instant messaging) when the instructor asked for individual work" (45.6%) and "paraphrasing or copying a few sentences from a book, magazine or journal (not electronic or web-based without footnoting them in a paper you submitted)" (42.5%).

Whilst during online learning mode, the top three categories of AD most committed by students were "working on an assignment with others (via email or instant messaging) when the instructor asked for individual work" (53.5%), "working on an assignment with others (in person) when the instructor asked for individual work" (51.8%) and "paraphrasing or copying a few sentences from a book, magazine or journal (not electronic or web-based without footnoting them in a paper you submitted)" (39.5%). Students in both learning modes committed the same categories of AD with different distributions.

Table 5: Perceived seriousness and prevalence of AD

Categories of AD	Perceived seriousness, n (%)	Prevalence, n (%)	
		Face-to-face	Online
Fabricating/falsifying a bibliography	182 (79.8)	46 (20.2)	50 (21.9)
Working on an assignment with others (in person) when the instructor asked for individual work	111 (48.7)	112 (49.1)	118 (51.8)
Working on an assignment with others (via email or instant messaging), when the instructor asked for individual work	115 (50.4)	104 (45.6)	122 (53.5)
Getting questions or answers from someone who has already taken the test	189 (82.9)	50 (21.9)	51 (22.4)
In a course requiring computer work, copying another student's programme rather than writing your own	205 (89.9)	32 (14.0)	37 (16.2)
Helping someone else cheat on a test	207 (90.7)	32 (14.0)	47 (20.6)
Fabricating/falsifying lab data	189 (82.9)	66 (28.9)	45 (19.7)
Fabricating/falsifying research data	202 (88.6)	23 (10.1)	28 (12.3)
Copying from another student during a test, with/without their knowledge	215 (94.3)	26 (11.4)	30 (13.2)
Using digital technology (text messaging) to get unpermitted help from someone during a test/examination	213 (93.4)	25 (11.0)	48 (21.1)
Receiving unpermitted help on an assignment	174 (76.3)	37 (16.2)	44 (19.3)
Copying (by hand or in person) other student's homework	191 (83.7)	51 (22.4)	38 (16.7)

(*Continued on next page*)

Table 5 (*Continued*)

Categories of AD	Perceived seriousness, n (%)	Prevalence, n (%)	
		Face-to-face	Online
Copying (using digital means such as instant messaging or email) other student's homework	196 (85.9)	43 (18.9)	40 (17.5)
Paraphrasing or copying a few sentences from a book, magazine or journal (not electronic or web-based without footnoting them in a paper you submitted)	154 (67.5)	97 (42.5)	90 (39.5)
Turning in a paper from a "paper mill" (a paper written and previously submitted by another student) and claiming it as your work	207 (90.8)	20 (8.8)	28 (12.3)
Paraphrasing or copying a few sentences of material from an electronic source (internet) without footnoting them in a paper you submitted	173 (75.8)	91 (39.9)	88 (38.6)
Submitting a paper that you purchased or obtained from a website and claimed as your own work	208 (91.2)	15 (6.6)	19 (8.3)
Using unpermitted handwritten crib notes (or cheat sheets) during a test or exam	210 (92.1)	10 (4.4)	31 (13.6)
Using unpermitted handwritten crib notes (stored in PDA, phone or calculator) during a test or exam	210 (92.2)	17 (7.5)	41 (18.0)
Using an electronic/digital device as an unauthorised aid during an exam	213 (93.4)	17 (7.5)	48 (21.1)
Copying material, almost word for word, from any written source and turning it in as your work	206 (90.4)	27 (11.8)	34 (14.9)
Turning in a paper copied, at least in part, from another student's paper, whether or not the student is taking the same course	207 (90.7)	16 (7.0)	27 (11.8)
Using a false or forged excuse to obtain an extension on a due date or delay taking an exam	192 (84.2)	18 (7.9)	25 (11.0)
Turning in work done by someone else	213 (93.4)	14 (6.1)	19 (8.3)
Cheating on a test in any other way	214 (93.8)	16 (7.0)	41 (18.0)

Engagement in Cheating: AD Based on Learning Mode, Gender, and Faculty

Table 6 shows the number of students who committed at least once in any category of AD for both genders. There was no significant difference found. The same table then displays the amount of students from three faculties who committed at least one AD in any category during face-to-face or online learning. The Faculty of Health Sciences had the largest percentage of students who committed AD during the learning mode, with 81.2% across both face-to-face and online modes. The distribution of the student committed AD were significantly different between the three faculties for both learning modes.

Table 6: AD based on learning mode, gender, and faculty

Category	Learning mode when committing AD, n (%)			
	Face-to-face		Online	
	Had committed	Never committed	Had committed	Never committed
Gender				
Male (n = 43)	33 (76.7)	10 (23.3)	32 (74.4)	11 (25.6)
Female (n = 185)	143 (77.3)	42 (22.7)	143 (77.3)	42 (22.7)
p-value	0.938		0.687	
Faculty				
Health Sciences (n = 165)	134 (81.2)	31 (18.8)	134 (81.2)	31 (18.8)
Pharmacy (n = 37)	24 (64.9)	13 (35.1)	23 (62.2)	14 (37.8)
Dentistry (n = 26)	18 (69.2)	8 (30.8)	18 (69.2)	8 (30.8)
p-value	0.059 (χ^2 = 5.644)		0.029 (χ^2 = 7.078)	

DISCUSSION

AD prevalence studies are usually focused on face-to-face learning. However, with the COVID-19 pandemic, online learning has become more common. As the pandemic progressed and movement restrictions alleviated, students in Malaysia were subjected to a mix of face-to-face and online learning modes depending on their curriculum. As a result, it is important to evaluate the prevalence of AD in Malaysian face-to-face and online learning environments. For the purposes of this study, students were regarded as committing AD if they admitted to at least one AD category, but not if they did not admit to any AD category.

Firstly, there was a minor difference between the percentage of students who committed AD during face-to-face (77.2%) and online (76.8%) learning modes. This means no learning mode is more prone to AD than the other. In comparison, a study conducted in Malaysian public universities showed that 47% of students had committed AD at least once in 2014, 51% in 2015, and 49% in 2016 (16). This shows that AD prevalence is higher in our observation. This phenomenon might be attributed to the screening tools as well as the AD criteria used. However, there is no denying that the current result is worrying, and measures should be taken to minimise the trend in universities.

Next, for the academic environment section of the questionnaire, most students rated that they have a high perception of cheating policies, which encompass penalty severity, student and faculty understanding of such policies, student and faculty support for these policies, and the effectiveness of these policies. The majority of students also rated the faculty (46.1%) as the most effective source for learning about cheating policy, either through class discussions, course syllabi, or course outlines. In contrast, a study in Latvia found that only 23% of local undergraduate students could explain the concept of AD, while the majority of students had learnt about it from their teachers (17). Another study discovered that a lack of awareness about plagiarism corresponds with the university's plagiarism policies (18). In the context of Malaysian universities, when it comes to policies of misconduct, students/researchers are aware of such policies in their respective institutions. It is just that they do not know the specifics or how to access these misconduct policies (19).

Besides that, for the specific behaviours section, most students said that they or a typical student would likely report an incident of cheating. But most students also said that it was unlikely that a student would report to a close friend. The unlikelihood could be because no immediate action would be taken, so it is better to report the incidents directly to the lecturers. Furthermore, in terms of the perceived seriousness of AD among students, students rated "copying from another student during a test with/without their knowledge" and "cheating on a test in any other way" as cheating. "Working on an assignment with others (in person, via email, or instant messaging) when the instructor requested individual work" was rated lower as cheating. Turnitin and other plagiarism checkers can be used to check assignments submitted by students, teaching them to be more aware of their own work. When it comes to online examinations, a study by Sapiee et al. (20) has posited a viable solution to prohibiting online exam misconduct. This was done using facial recognition technology, whereby the system prevents students from copying and pasting answers, snapping screenshots, and recording their browsing navigation. Any change in eye movement during the exam will be reported to the lecturers for further action.

Furthermore, for the engagement in cheating section, the prevalence of AD based on learning mode was investigated. The highest AD committed during face-to-face learning was "working on an assignment with others (in person) when the instructor asked for individual work" (49.1%), followed by "working on an assignment with others (via email or instant messaging) when the instructor asked for individual work" (45.6%). During online learning, both AD trends changed, with "working on an assignment with others (via email or instant messaging) when the instructor asked for individual work" (53.5%) taking precedence over "working on an assignment with others (in person) when the instructor asked for individual work" (51.8%). Similarly, a study by Anohina-Naumeca et al. (17) indicated that completing an individual task in cooperation with another student is among the highest category of AD, which the students showed strong acceptance. Despite a high perception of AD, the prevalence of AD was also high.

In addition, no significant differences were found between learning mode and gender when committing AD. This means no gender is prone to do more AD than the other, which is in contrast to other studies. A study by Hensley et al. (21) discovered that men have higher rates of plagiarism than women, implying that gender plays a role in AD. Another study in Taiwan discovered that male graduate students were more accepting of AD than females (22). According to available evidence, men prefer to practise AD more than women (15).

Finally, there were significant differences found between learning mode and faculty. For both face-to-face and online learning, the Faculty of Health Sciences showed the highest percentage of committing AD, but this could be due to the large number of students from that faculty as opposed to the smaller number of students from the Faculty of Pharmacy and Dentistry.

AD significantly impacts students' moral and personality development, academic achievements, and future professional conduct. It negatively affects students' moral development and personality qualities, resulting in a lack of confidence, discipline, and the ability to investigate ideas freely (23). The normalisation of dishonest activity can undermine moral integrity because students may prioritise pragmatic gains above ethical considerations (24). It can also result in students developing unethical behaviours that may persist into their professional lives, thereby affecting their future career prospects (25).

AD also significantly impacts the reputation and academic integrity of universities. Universities suffer reputational damage when AD is prevalent, as it undermines the value

of their degrees and the trust placed in their academic standards (25). The integrity of academic achievements is compromised, affecting the institution's ability to produce graduates who are genuinely knowledgeable and skilled (26). Universities are encouraged to promote academic integrity through collaborative initiatives and preventive measures (27). One such intervention to curb AD in universities was through a talk on plagiarism. A study by Salahuddin (28), carried out a plagiarism talk to postgraduate students. The seminar made the students aware of plagiarism difficulties, with the takeaway message that avoiding plagiarism makes for a competent researcher. Aside from that, implementing innovative technology such as anti-plagiarism systems and artificial intelligence techniques might help prevent AD. These technologies not only detect violations but also promote a responsible attitude towards academic honesty among students and faculty (29).

However, there is no one-size-fits-all solution to curbing AD because although students could possess the relevant knowledge, it is still not a guarantee that they will refrain from committing AD (5). So, policies and solutions need to be accessible (19), fine-tuned, and reviewed occasionally for effectiveness.

CONCLUSION

The study revealed that AD remains prevalent among students in both face-to-face and online learning modes, with no significant differences between the two. Students' high understanding of academic integrity standards did not result in reduced AD practices, illustrating the issue's complexities. Notably, the Faculty of Health Sciences had the most reported incidences, owing to its greater student population. While students recognise severe signs of AD, collaborative behaviours, even when discouraged, continue to be a significant obstacle. The lack of significant gender differences and the increasing acceptance of certain AD behaviours underscore the multifaceted nature of AD, necessitating tailored interventions to uphold academic integrity.

Future studies should focus on exploring the psychological, cultural, and situational factors influencing students' decisions to engage in AD across diverse learning environments. Longitudinal research may provide insights into the long-term effectiveness of policies and treatments that have been adopted. It is critical to investigate the effect of advanced technical solutions, such as AI-powered monitoring systems and plagiarism detection technologies, in reducing AD during online exams. Additionally, examining the impact of faculty-led academic integrity education, such as workshops or embedded curriculum discussions, could provide evidence-based strategies to strengthen ethical academic practices.

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ETHICAL APPROVAL

This study was approved by the National University of Malaysia Research Ethics Committee (JEPUKM), with the code: UKM PPI/111/8/JEP-2021-504. Informed consent was obtained from all participants.

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