

REVIEW  
ΑΝΑΣΚΟΠΗΣΗ

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## Academic misconduct in health-related sciences A comprehensive literature review

Academic dishonesty is prevalent in the health services. Dishonest academic behavior is a predictor of unprofessional behavior in clinical practice. This is important as it could lead to patient harm and a loss in confidence in the profession. Review of the literature suggests that attitudes towards dishonesty have become lax, suggesting a reason as to why it has generally become more acceptable. Technology is a double-edged sword which has improved access to resources for dishonest behavior, but which has also brought advances in the field of detection. The only factor demonstrated to strongly indicate a group at risk of cheating was the male gender. Recommendations on how to detect, manage and prevent academic dishonesty, and the formative role of teachers play in nurturing honesty in students have been explored. There is a need to determine if findings are reproducible in a wider variety of environments and cultures. Based on review of the current literature, we propose a template for minimizing academic dishonesty, as a basis for adaptation and further evaluation.

### Key words

Academic misconduct  
Cheating  
Plagiarism  
Unethical behavior

ARCHIVES OF HELLENIC MEDICINE 2020, 37(3):306–314  
ΑΡΧΕΙΑ ΕΛΛΗΝΙΚΗΣ ΙΑΤΡΙΚΗΣ 2020, 37(3):306–314

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Ακαδημαϊκή ανεντιμότητα  
στις επιστήμες υγείας –  
Ανασκόπηση της βιβλιογραφίας

Περίληψη στο τέλος του άρθρου

Submitted 8.10.2019  
Accepted 25.10.2019

## 1. INTRODUCTION

Academic dishonesty is a widely reported phenomenon. It may be defined as “engagement in practices that intentionally represent the work of another as one’s own”.<sup>1</sup> The incidence of dishonest behavior appears to be on the rise, although this may be attributed to an increase in frank, open discussion and debate around the topic.<sup>2,3</sup> It is important to better understand and address such behavior, because of the negative associations it has been shown to have in the context of health services, ranging from more physical issues, such as patient harm,<sup>1</sup> to more abstract concepts, such as the eventual loss of confidence in an entire profession.<sup>4–6</sup>

Detection of academic dishonesty has also moved on in today’s digital age. The advent of new anti-plagiarism software has brought much convenience to academics, but has also raised concerns about how ethical and effective their mode of operation is.<sup>7–9</sup> Meanwhile, new methods of cheating are consistently being discovered, thanks, in no small part, to modern electronic devices, such as mobile phones, tablets and the internet.<sup>10–13</sup> It is equally important that the medical community responds to academic dishonesty in the most appropriate way, to balance the application of both justice and compassion.<sup>14</sup> Without a published set of “rules” it can be difficult to decide on punishment proportionate to the crime on a fair and consistent basis.<sup>15</sup> Various potential responses have been described, ranging from verbal warnings<sup>16</sup> to expulsion.<sup>17</sup> Considering these issues, this paper aims to distil from the literature effective means of detecting, and managing academic dishonesty in a fair and constructive manner.

Finally, as the adage goes, “prevention is better than cure”. Two important themes have emerged from examination of the current literature, namely the importance of education,<sup>18–20</sup> and the influence of teachers as role models and approachable educators<sup>21–26</sup> in the drive to avoid and minimize incidents of dishonesty. Taking these themes into account, the final aim of this paper is to explore the various methods used by educators, and ultimately to propose a template for minimizing academic dishonesty, which can be adapted, tested, reported and further improved by various institutions globally.

## 2. TYPES OF ACADEMIC DISHONESTY AND THE ADVENT OF MODERN TECHNOLOGY

Perhaps the most alarming aspect of academic dishonesty is the lack of a single, common, clear definition that is universally accepted by everyone, although we broadly

classify dishonesty as being either classroom based or clinic based.<sup>23</sup> Despite this, we can identify specific behaviors in various scenarios which are generally accepted as constituting dishonesty.

In the academic context, dishonesty can include lifting whole sections from other authors without acknowledgment for use in journal papers or personal statements,<sup>10,27,28</sup> and in the classroom, copying during examinations or for assignments,<sup>29–31</sup> obtaining test questions before everyone else to obtain an unfair advantage,<sup>32</sup> collusion on assignments which are supposed to be completed individually,<sup>23,33</sup> producing a false medical certificate,<sup>34</sup> self-plagiarism<sup>35</sup> and ghost-writing in journal papers.<sup>36</sup> From a clinical point of view, academic dishonesty encompasses actions such as reporting false patient observations or altering reports,<sup>23,37</sup> violation of confidentiality,<sup>37</sup> forging a doctor’s signature on patient records<sup>35</sup> and falsifying the results of clinical trials.<sup>38</sup>

A recent development which is altering the landscape of academic dishonesty is the advent of modern technology. Technological innovations have made finding information and copying much easier,<sup>10</sup> and it has been observed that the increasing use of information technology has led to an increase in dishonest behavior.<sup>11</sup> Testing behind the façade of a computer screen may be more convenient, but leads to improvisation on the part of those being tested.<sup>12</sup> Technology, however, is a double-edged sword and has a role to play in the detection of academic dishonesty, as we will explore later in this paper.<sup>8,39–41</sup>

## 3. EVOLVING ATTITUDES TOWARDS DISHONESTY

An explanation for why individuals commit acts of dishonesty may be found in the attitudes these people have about the issue. Exploration of the attitudes of students reveals that there are some students who genuinely do not view acts of dishonesty as inherently “wrong”,<sup>42</sup> and others who view them as less serious<sup>43–46</sup> or part of the social norm.<sup>47</sup> Some people believe that it is ethical to use information that is publicly available –such as on the internet– unacknowledged, simply because it is public information.<sup>23</sup> Students, and even teachers, may not report acts of dishonesty, in order to preserve relationships,<sup>48</sup> for fear of retaliation,<sup>26</sup> or because they simply did not think it was their duty to do so.<sup>7</sup>

Some have hypothesised that this pandemic of dishonesty is a function of the deterioration of morals over time,<sup>49</sup> or that cheaters have an “ethical framework” that downplays the negative association of dishonesty with professionalism, predisposing them to decide to cheat.<sup>20,50</sup> Personality

has also been implicated, as individuals who operate with a strong internal set of values have been shown to be less disposed to cheat than their counterparts who are easily influenced by others. This is because they place greater importance on the perception of themselves by others, and the pressures exerted on them by society.<sup>37,51</sup>

#### 4. DEMOGRAPHICS AND DISHONEST BEHAVIOR

Apart from character traits, another means of analysing the phenomena of dishonesty would involve identification of out patterns of behavior in different populations of people. Various factors have been investigated, including culture,<sup>52,53</sup> age,<sup>54–56</sup> gender,<sup>31,37,48,57–65</sup> profession,<sup>54,55,66</sup> family structure,<sup>60</sup> level of parental education,<sup>48</sup> religiosity,<sup>59,67</sup> race,<sup>37</sup> socioeconomic background,<sup>64</sup> course type,<sup>68</sup> and level of previous education.<sup>48,50,57,58</sup>

From a cultural standpoint, it has been hypothesised that less developed countries –such as those transitioning from a post-communist era– have a higher incidence of dishonesty than their developed counterparts. This is thought to be due to a combination of environmental factors and a lack of stringent regulation.<sup>52</sup> Findings showing that international counterparts studying in such countries are less likely<sup>53</sup> to be dishonest are conflicting. A study from the United States produced completely opposite findings,<sup>69</sup> further emphasizing that an individual's cultural background plays a role.

Another hypothesis is based on the level of maturity of the individual. Common sense dictates that the more mature a student and the more experienced, the less likely is the student to engage in or report dishonest behavior. Based on age alone, the results are contradictory. Some papers state that older individuals “view cheating behaviors more critically,”<sup>56</sup> whilst others find no relationship.<sup>54,55</sup> Related to age is the level of previous education, with half of the documentation finding no association between the level of previous education and dishonest behaviors,<sup>48,57,58</sup> although one study reported that students with a previous degree were less likely to be dishonest.<sup>50</sup>

Gender was the most widely investigated parameter. The majority of the papers found that males were more likely to engage in dishonest behavior and were more likely to perceive such behavior as acceptable.<sup>31,37,59–62,64,65</sup> Only one paper found women to be more accepting of academic dishonesty than men,<sup>58</sup> and other studies found no relationship.<sup>48,57,63</sup> Of all the demographic parameters investigated, it is of note that only one factor –that is the male gender– emerges as a predisposing demographic factor.

In the context of health services, patients place their trust in healthcare professionals. Hence, in an ideal situation, one would expect health care professionals to have a lower tolerance towards, and a lower incidence of dishonesty. Some studies found no significant difference in tolerance or incidence of dishonesty, between students in the fields of optometry and nursing and those in other professions.<sup>54,66</sup> One study reported a lower incidence of self-reported dishonesty amongst dental students compared with students in other faculties.<sup>55</sup>

Other parameters were also explored, for which effective comparison is not possible. Religiosity was found to be independent of dishonesty in one paper<sup>59</sup> although another study suggested that higher levels of organizational religiosity are related to higher rates of dishonesty.<sup>67</sup> Members who lived in a nuclear family structure were found to be less dishonest than their counterparts who lived with extended family structures.<sup>60</sup> Self-identified non-white individuals were found to be more tolerant of dishonest behaviors than self-identified white individuals.<sup>37</sup> Individuals from a lower socioeconomic background were reported to be at higher risk for misconduct.<sup>64</sup> Cheating rates were found to be similar for individuals enrolled in an online course compared with their counterparts who were sited on campus.<sup>68</sup> Finally, no association was found between the level of parental education and the tendency for an individual to cheat.<sup>48</sup>

#### 5. FACTORS THAT DIRECTLY INFLUENCE THE DECISION TO COMMIT DISHONEST ACTS

Beyond the character or background of an individual, a trigger must be pulled before a decision to cheat is made. In this section, we focus on the factors, or “excuses”, which ultimately form the basis individuals use to justify dishonesty. In today's competitive academic climate, students cheat because of a demanding course, the pressure to publish, or just for the sake of getting ahead of others.<sup>16,46,48,65,69</sup> Competition itself, however, was shown to be inconclusive as a factor that may lead to dishonest behavior.<sup>70,71</sup> Dishonesty could arise simply due to lack of awareness of what constitutes dishonest behavior,<sup>72</sup> although awareness is not necessarily a deterrent to dishonesty.<sup>73</sup> Students may be intimidated by the expectations of their teachers to do well.<sup>72</sup> Candidates who felt that assessment was unfair, who felt academically inferior to their peers or who were presented with chances to cheat tended to be more dishonest.<sup>74,75</sup> To get through a course, peers may help each other to cheat, and this has been shown to be a greater motivation than personal advancement.<sup>23,47</sup> Previous cheaters generally had a more

lenient attitude towards dishonesty,<sup>53</sup> and were also shown to be more prone to cheating again.<sup>50</sup>

With regards to the clinical setting, students may be presented with situations where vital observations are difficult to measure accurately, and hence may falsify the result in the charts.<sup>23</sup> A clinical environment where supervisors engage in subpar practices has been shown to result in unethical and dishonest behavior among students.<sup>72</sup>

## 6. DETECTION OF ACADEMIC DISHONESTY

The detection of academic dishonesty is as wide and dynamic as the spread of dishonest behavior itself. Information technology has made detection easier,<sup>8,40,76</sup> although there remain issues with the interpretation of the results generated by computer programs, for example program stability, or deciding on an acceptable level of similarity with other sources when assessing an essay.<sup>7,8,77</sup> Furthermore, each time such software is used, the candidate's work is stored in the database for use in future comparisons, which could be in potential violation of the candidate's "rights to privacy", and highlights the importance of explaining to candidates how such services operate.<sup>9</sup> Computers, with their brightly lit screens may compromise candidates in tests by allowing others to see their work with more ease than with the use of conventional examination papers. A solution to this problem has been described, where the use of privacy screen filters increased the confidence of students undergoing assessment.<sup>78</sup>

Academic dishonesty continues to occur in more traditional settings such as written examinations. Measures such as strict invigilation with the use of proctors,<sup>50</sup> randomized seating, and question papers that avoid repetition should be implemented.<sup>46,50,79,80</sup> The use of technology to analyse patterns in answering questions could be helpful in exposing collusion.<sup>39</sup>

## 7. MANAGING ACADEMIC DISHONESTY

When dishonesty is discovered, there is a need to handle it with the right combination of compassion and the administration of justice designed to "rehabilitate" the individual, rather than simply discourage.<sup>14</sup> As each individual is unique, a wide range of suggestions has been made as to how dishonest individuals should be treated. Some invigilators are content with verbal warnings,<sup>16</sup> whilst others insist on harsh punishment, such as withholding an academic qualification.<sup>81</sup>

The diverse range of responses that may arise from a single scenario can be illustrated by an editorial publicizing how a medical student got caught cheating.<sup>82</sup> What was controversial about this case was that the student was allowed to graduate, despite having been caught using a reference book during her final written exam. This attracted a flurry of responses in a short period of time. Some questioned if it was right for the journal to publicize the case, citing the distress and potential damage it could cause for both the institution and the candidate in question.<sup>14,30</sup> Others highlighted the fact that cheating had eroded the trust the public placed in the profession, and even presented honest students as being less capable.<sup>4</sup> Some felt that justice should be served publicly,<sup>83</sup> as it then served as a "deterrent to others" and helped to promote intolerance towards academic dishonesty;<sup>84</sup> in contrast, another response commended the institution for compassion.<sup>85</sup> Finally, one response stated that the institution had not been forthcoming with an explanation for its decision, and that this was damaging to the reputation of the profession,<sup>86</sup> in the same vein as the Bristol and Shipman cases.<sup>87</sup>

The case above highlights how inconsistencies may arise when different individuals decide on a punishment following the discovery of academic dishonesty. While it may be difficult to reconcile all the different views, some general principles may help to guide individuals towards a fair course of action. Firstly, the skill level of the offender must be taken into consideration, for it would be unfair to penalize "a novice for a complex skill badly executed".<sup>22</sup> Secondly, extenuating circumstances should be considered, as they place the actions of the offender in context.<sup>17</sup> Finally, the punishment should be proportionate to the offence, and the process through which the punishment is derived should be transparent.<sup>88</sup>

## 8. PREVENTING ACADEMIC DISHONESTY

There are two important concepts where preventing academic dishonesty is concerned. The first involves educating candidates on the nature of the dishonest behavior and equipping them with the tools with which to address it. Increasing the awareness of the problem early on in their studies exposes students or clinicians to the problems they might otherwise encounter much later.<sup>18,89,90</sup> Teaching candidates soft, academic skills, such as time management, and good habits, such as identifying situations where citations are required, can mitigate some of the factors which lead students to cheat in the first place.<sup>19</sup> Designing assignments in an appropriate manner, giving candidates

the opportunity to practice, and encouraging the use of technology to detect dishonest behaviors rather than aid them, have all been recommended.<sup>19,22,41,75,91–93</sup> Education alone, however, does not guarantee the minimization of dishonest behavior,<sup>94,95</sup> and simply warning students has been shown to be ineffective as a deterrent.<sup>96,97</sup>

The second and arguably more important aspect is the need to foster professional behavior in individuals in the health services. Individuals may rely on their own personal moral code, but that code is formed in no small part by the type of environment to which they were exposed during their formative period.<sup>98</sup> Students and supervisors should be clear about their respective responsibilities.<sup>99</sup> Transparency, adequate publicizing, discussion and explanation of rules and regulations, along with standardized punishment proportionate to the severity of the offence, are all recurring themes in the literature.<sup>19,75,88,90,92,100</sup> Some institutions take this one step further, requiring students to agree to an “honor code” – with generally positive outcomes.<sup>7,12,49,55,88</sup> Constant monitoring and provision of feedback regarding professional behavior has also been seen to be beneficial.<sup>92,101,102</sup> The introduction of a “formal ethics curricula”<sup>73</sup> is another measure which is promoted in the literature.<sup>75,88</sup>

## 9. TEACHERS AS ROLE MODELS

Every teacher was once a student, and as students teachers acquired knowledge –some of it good and some bad– and have then gone on to pass this knowledge on to their own students. It comes as no surprise, then, that teachers are crucial role models,<sup>103</sup> who will have a strong influence on the students they teach. They have a “responsibility to set a good example”<sup>22</sup> and should be approachable and not intimidating.<sup>50</sup> Learning is a continuous business, and so even amongst teachers, the senior teachers should offer guidance to their juniors.<sup>49</sup> One area to which they should pay special attention is the upkeep of high standards of integrity –for example referencing material sourced for lecture slides– in order to maintain a moral high ground.<sup>21,88</sup>

## 10. A HOLISTIC APPROACH TO ACADEMIC DISHONESTY – A TEMPLATE FOR FURTHER STUDY

So far, we have examined the various reasons why people commit dishonest acts, and we have discussed the ways in which these acts may be precipitated, detected, managed and discouraged. Apart from the strong indication that members of the male gender were more likely to

be dishonest, no single reason for cheating or intervention against it was more important than another.

It is difficult to effectively compare the efficacy of the various interventions proposed or observed in the literature. This is because the sample size for most studies was small, and even when the samples were substantial, they were geographically limited, the most extensive including only three countries,<sup>104</sup> all from western, relatively similar cultures. In today’s globalized classroom, it is necessary to understand how different cultures perceive academic dishonesty, in order to develop better methods for minimizing its incidence.<sup>105</sup> Interventions which work in one culture may not be as effective in another, and hence, there is a need for large-scale collaboration between institutions around the world, to investigate whether the interventions described in this body of literature are reproducible over a variety of settings, in a variety of different cultures.

Based on the findings from our literature review, we offer the following template for addressing academic dishonesty, for application, adaptation, and further evaluation: (a) Expose students to academic dishonesty and educate them at an early stage. (b) Ensure that assignments are designed in such a way as to minimize the incidence of dishonesty, whilst giving students the opportunity to practice skills such as the referencing of different source types. Encourage the use of technology to enable students to check and improve their work, rather than for facilitating dishonest behavior. (c) Teach students soft skills, such as time management, to reduce the chances for students to fall into situations which encourage dishonest behavior. (d) Incorporate an ethics component in the curriculum at an early stage. Constant monitoring with constructive feedback of student professionalism is important for imbuing a personal moral code. (e) Devise a transparent, fair process for managing incidents of dishonesty, which should be distributed, publicized and adequately discussed. Punishment should be proportionate to the offence, and consideration given to mitigating or extenuating circumstances. The outcome should be clearly explained and publicized, but only upon request and with consideration for the student’s well-being. (f) Where possible, technology should be used to aid the detection of academic dishonesty. Allegations should be reconsidered individually, in view of the present imperfections of software. (g) Examinations should be designed to minimize question repetition. Random seating, and invigilation by proctors, rather than faculty members, is recommended, to decrease the incidence of dishonest behavior in examinations. (h) Teachers have a responsibility to set a good example, and avoid academi-



cally dishonest behaviors themselves, and to retain the moral high ground.

Finally, some countries have formed a formal ethics department at governmental level to investigate the matters surrounding academic dishonesty – the efficacy of which was not part of the scope of this paper.<sup>90,106</sup> A meta-analysis could be undertaken, to determine whether countries with formal departments have a lower incidence of academic dishonesty. Apart from the use of plagiarism detection software, some journals have also adopted widely used algorithms which provide a clear, transparent process which guides the investigation of dishonesty in publications.<sup>107</sup> An analysis of the detection rates of dishonesty, and of whether or not authors felt that their work had been assessed fairly, could be undertaken to assess the efficacy of such a procedure.

## 11. CONCLUSIONS

Academic dishonesty is widely reported and yet it is poorly understood. One reason for this lack of understanding could be that the phenomenon is not confined to individual parameters alone. It appears that a variety of parameters – be it those that lead to dishonest behavior or those that discourage such behaviour – interact and synergize with each other to lead to a certain outcome. In other words, the whole is greater than the sum of its parts. Some may argue that it is impossible to fully “educate” the students’ way out of dishonest behavior, because making ethical decisions involves both cognitive and “psychosocial processes”.<sup>108</sup> However, what is clear, is that dishonesty has no place in the health services, or indeed, in the “scientific community as a whole”.<sup>109</sup>

## ΠΕΡΙΛΗΨΗ

### Ακαδημαϊκή ανεντιμότητα στις επιστήμες υγείας – Ανασκόπηση της βιβλιογραφίας

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Η ακαδημαϊκή ανεντιμότητα επικρατεί στις υπηρεσίες υγείας. Η ανέντιμη συμπεριφορά αποτελεί προγνωστικό δείκτη της αντιεπαγγελματικής συμπεριφοράς στην κλινική πράξη. Η σπουδαιότητα αυτού του γεγονότος έγκειται στο ότι μπορεί να οδηγήσει αφ’ ενός σε επιβλαβείς για τους ασθενείς πράξεις και αφ’ ετέρου στην απώλεια εμπιστοσύνης στο ιατρικό επάγγελμα. Η ανασκόπηση της βιβλιογραφίας αναδεικνύει ότι έχει επικρατήσει μια ελαστική συμπεριφορά απέναντι στην ανεντιμότητα, εύρημα που έχει οδηγήσει πλέον στην αποδοχή της. Η τεχνολογία είναι ένα δίκοπο μαχαίρι, το οποίο από τη μία έχει προσφέρει τα μέσα που διευκολύνουν την ανέντιμη συμπεριφορά, αλλά από την άλλη έχει επιφέρει βελτιώσεις στον τομέα της ανίχνευσής της. Ο μόνος παράγοντας που έχει συσχετιστεί με ανέντιμη συμπεριφορά είναι το άρρεν φύλο. Στην παρούσα μελέτη, αναζητήθηκαν επίσης οι συστάσεις σχετικά με τον τρόπο ανίχνευσης, διαχείρισης και πρόληψης της ακαδημαϊκής ανεντιμότητας, καθώς επίσης διερευνήθηκε ο εκπαιδευτικός ρόλος που διαδραματίζουν οι δάσκαλοι στην καλλιέργεια των μαθητών. Ωστόσο, θα πρέπει να διασαφηνιστεί εάν τα ευρήματα της παρούσας μελέτης θα μπορούσαν να αναπαραχθούν σε έναν διαφορετικό πληθυσμό. Με βάση την ανασκόπηση της βιβλιογραφίας, προτείνουμε ένα πρότυπο για την ελαχιστοποίηση της ακαδημαϊκής ανεντιμότητας όσον αφορά στην προσαρμογή και στην περαιτέρω αξιολόγησή του.

**Λέξεις ευρητηρίου:** Ακαδημαϊκή ανεντιμότητα, Ανήθικη συμπεριφορά, Αντιγραφή, Λογοκλοπή

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