

REVIEW  
ΑΝΑΣΚΟΠΗΣΗ

---

## 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

---

G. Bazoukis,<sup>1</sup>  
J. Chan,<sup>2</sup>  
K.H.C. Li,<sup>3,4</sup>  
D.S.T. Li,<sup>3</sup>  
G. Tse,<sup>4</sup>  
I. Alexandraki,<sup>5</sup>  
T. Zaimis,<sup>6</sup>  
S.S. Papadatos,<sup>7</sup>  
T. Liu,<sup>8</sup>  
I.D.K. Dimoliatis<sup>6</sup>

---

<sup>1</sup>Second Department of Cardiology, Laboratory of Cardiac Electrophysiology, "Evangelismos" General Hospital of Athens, Athens, Greece

<sup>2</sup>University of Oxford, Oxford, United Kingdom

<sup>3</sup>Faculty of Medicine, Newcastle University, Newcastle, United Kingdom

<sup>4</sup>Department of Medicine and Therapeutics, Principal Investigator, Li Ka Shing Institute of Health Sciences, Faculty of Medicine, The Chinese University of Hong Kong, Sha Tin, Hong Kong

<sup>5</sup>Department of Clinical Sciences, Florida State University College of Medicine, Tallahassee, Florida, United States of America

<sup>6</sup>Medical Education Unit, Department of Hygiene and Epidemiology, School of Medicine, University of Ioannina, Ioannina, Greece

<sup>7</sup>Department of Internal Medicine, "Sotiria" General Hospital of Athens, Athens, Greece

<sup>8</sup>Department of Cardiology, Tianjin Institute of Cardiology, Second Hospital of Tianjin, Medical University, People's Republic of China, Tianjin, China

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

Γ. ΜΠΑΖΟΥΚΗΣ,<sup>1</sup> J. CHAN,<sup>2</sup> Κ.Η.Κ. ΛΙ,<sup>3,4</sup> D.S.T. ΛΙ,<sup>3</sup> G. TSE,<sup>4</sup> Ι. ΑΛΕΞΑΝΔΡΑΚΗ,<sup>5</sup> Τ. ΖΑΪΜΗΣ,<sup>6</sup> Σ.Σ. ΠΑΠΑΔΑΤΟΣ,<sup>7</sup> Τ. ΛΙΟΥ,<sup>8</sup> Γ. ΔΗΜΟΛΙΑΤΗΣ<sup>6</sup>

<sup>1</sup>Εργαστήριο Ηλεκτροφυσιολογίας, Β΄ Καρδιολογική Κλινική, Γενικό Νοσοκομείο Αθηνών «Ευαγγελισμός», Αθήνα, <sup>2</sup>University of Oxford, Oxford, Ηνωμένο Βασίλειο, <sup>3</sup>Faculty of Medicine, Newcastle University, Newcastle, Ηνωμένο Βασίλειο, <sup>4</sup>Department of Medicine and Therapeutics, Principal Investigator, Li Ka Shing Institute of Health Sciences, Faculty of Medicine, The Chinese University of Hong Kong, Sha Tin, Hong Kong, <sup>5</sup>Department of Clinical Sciences, Florida State University College of Medicine, Tallahassee, Florida, ΗΠΑ, <sup>6</sup>Εργαστήριο Υγιεινής και Επιδημιολογίας, Ιατρική Σχολή, Πανεπιστήμιο Ιωαννίνων, Ιωάννινα, <sup>7</sup>Παθολογική Κλινική, Γενικό Νοσοκομείο Νοσημάτων Θώρακος Αθηνών «Η Σωτηρία», Αθήνα, <sup>8</sup>Department of Cardiology, Tianjin Institute of Cardiology, Second Hospital of Tianjin Medical University, People’s Republic of China, Tianjin, Κίνα

Αρχεία Ελληνικής Ιατρικής 2020, 37(3):306–314

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

## References

- KLOCKO MN. Academic dishonesty in schools of nursing: A literature review. *J Nurs Educ* 2014, 53:121–125
- HUPP JR. Dental students cheating – how can that be? *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 2007, 104:447–450
- DAVIES S. Cheating at medical school. Summary of rapid responses. *Br Med J* 2001, 322:299
- BREWER B. Cheating at medical school. Incident was dealt with appropriately. *Br Med J* 2001, 322:296
- ĐOGAŠ V, JERONČIĆ A, MARUŠIĆ M, MARUŠIĆ A. Who would students ask for help in academic cheating? Cross-sectional study of medical students in Croatia. *BMC Med Educ* 2014, 14:1048
- FANG FC, STEEN RG, CASADEVALL A. Misconduct accounts for the majority of retracted scientific publications. *Proc Natl Acad Sci U S A* 2012, 109:17028–17033
- WOOD BD. Academic misconduct and detection. *Radiol Technol* 2010, 81:276–279
- WHITTLE SR, MURDOCH-EATON DG. Learning about plagiarism using Turnitin detection software. *Med Educ* 2008, 42:528
- BRINKMAN B. An analysis of student privacy rights in the use of plagiarism detection systems. *Sci Eng Ethics* 2013, 19:1255–1266
- COLE AF. Plagiarism in graduate medical education. *Fam Med* 2007, 39:436–438
- HARPER MG. High tech cheating. *Nurse Educ Pract* 2006, 6:364–371
- WOITH W, JENKINS SD, KERBER C. Perceptions of academic integrity among nursing students. *Nurs Forum* 2012, 47:253–259
- WALLACE HAYES A, DELANEY B, DOMINGO JL, KNASMUELLER S, BARLOW SM, PERILL E. Introduction of the use of software for the detection of plagiarism. *Food Chem Toxicol* 2012, 50:2255
- TAN E. Cheating at medical school. Public horsewhipping is not the answer. *Br Med J* 2001, 322:296–297
- TEPLITSKY PE. Perceptions of Canadian dental faculty and students about appropriate penalties for academic dishonesty. *J Dent Educ* 2002, 66:485–506
- ASOKAN S, JOHN JB, JANANI D, JESSY P, KAVYA S, SHARMA K. Attitudes of students and teachers on cheating behaviors: Descriptive cross-sectional study at six dental colleges in India. *J Dent Educ* 2013, 77:1379–1383
- KOLETSI-KOUNARI H, POLYCHRONOPOULOU A, REPPA C, TEPLITSKY PE. Penalties for academic dishonesty in a Greek dental school environment. *J Dent Educ* 2011, 75:1383–1389
- AZULAY CHERTOK IR, BARNES ER, GILLELAND D. Academic integrity in the online learning environment for health sciences students. *Nurse Educ Today* 2014, 34:1324–1329
- FISCHER BA, ZIGMOND MJ. Educational approaches for discouraging plagiarism. *Urol Oncol* 2011, 29:100–103
- HENNING MA, RAM S, MALPAS P, SHULRUF B, KELLY F, HAWKEN SJ. Academic dishonesty and ethical reasoning: Pharmacy and medical school students in New Zealand. *Med Teach* 2013, 35:e1211–e1217
- ELLAWAY R. Cheating and the new moral compass. *Med Teach* 2013, 35:526–528
- KENNEDY D. Sherlock Holmes and the case of the plagiarised paper. *Nurse Educ Today* 2011, 31:525–530
- MUHNEY KA, GUTMANN ME, SCHNEIDERMAN E, DeWALD JP, McCANN A, CAMPBELL PR. The prevalence of academic dishonesty in Texas dental hygiene programs. *J Dent Educ* 2008, 72:1247–1260
- OROSZ G, TÓTH-KIRÁLY I, BÓTHE B, KUSZTOR A, KOVÁCS ZÜ, JÁNVÁRI M. Teacher enthusiasm: A potential cure of academic cheating. *Front Psychol* 2015, 6:318
- SPRING H, ADAMS R. Combating plagiarism: The role of the health librarian. *Health Info Libr J* 2013, 30:337–342
- CHAPUT DE SAINTONGE DM, PAVLOVIC A. Cheating. *Med Educ* 2004, 38:8–9
- BEGOVIĆ E. My view on plagiarism. *Acta Inform Med* 2014, 22:145–146
- TAYABEN JL. Attitudes of student nurses enrolled in e-learning course towards academic dishonesty: A descriptive-exploratory study. *Stud Health Technol Inform* 2014, 201:32–38
- BABUTA, JOSEPH NM, SHARMILA V. Academic dishonesty among undergraduates from private medical schools in India. Are we on the right track? *Med Teach* 2011, 33:759–761
- BENNETT-RICHARDS P. Cheating at medical school. Are we all cheats? *Br Med J* 2001, 322:298
- ELZUBEIR MA, RIZK DE. Exploring perceptions and attitudes of senior medical students and interns to academic integrity. *Med Educ* 2003, 37:589–596
- ANONYMOUS. Cheating at medical school? Cheating also happens on the large scale. *Br Med J* 2001, 322:298
- LaDUKE RD. Academic dishonesty today, unethical practices tomorrow? *J Prof Nurs* 2013, 29:402–406
- MWAMWENDA TS, MONYOOE LA. Cheating among University of Transkei students. *Psychol Rep* 2000, 87:148–150
- RENNIE SC, RUDLAND JR. Differences in medical students' attitudes to academic misconduct and reported behaviour across the years – a questionnaire study. *J Med Ethics* 2003, 29:97–102
- GØTZSCHE PC, KASSIRER JP, WOOLLEY KL, WAGER E, JACOBS A, GERTEL A ET AL. What should be done to tackle ghostwriting in the medical literature? *PLoS Med* 2009, 6:e23
- KRUEGER L. Academic dishonesty among nursing students. *J Nurs Educ* 2014, 53:77–87
- RAO TS, ANDRADE C. The MMR vaccine and autism: Sensation, refutation, retraction, and fraud. *Indian J Psychiatry* 2011, 53:95–96
- McMANUS IC, LISSAUER T, WILLIAMS SE. Detecting cheating in written medical examinations by statistical analysis of similarity of answers: Pilot study. *Br Med J* 2005, 330:1064–1066
- ROACH ES, GOSPE S, NGYT, SAHIN M. Trust but verify: The introduction of plagiarism detection software. *Pediatr Neurol* 2014, 50:287
- HOSSEINI MJ, BAZARGANI R, LATIFI L, HANACHI P, HASSAN ST, OTHMAN M. Medical researchers in non-English countries and concerns about unintentional plagiarism. *J Med Ethics Hist Med* 2009, 2:14
- MORTAZ HEJRI S, ZENDEHDEL K, ASGHARI F, FOTOUHI A, RASHIDIAN A. Academic disintegrity among medical students: A randomised

- response technique study. *Med Educ* 2013, 47:144–153
43. KUKOLJA TARADI S, TARADI M, DOGAS Z. Croatian medical students see academic dishonesty as an acceptable behaviour: A cross-sectional multicampus study. *J Med Ethics* 2012, 38:376–379
  44. AL-DWAIRI ZN, AL-WAHEIDI EM. Cheating behaviors of dental students. *J Dent Educ* 2004, 68:1192–1195
  45. ARHIN AO, JONES KA. A multidiscipline exploration of college students' perceptions of academic dishonesty: Are nursing students different from other college students? *Nurse Educ Today* 2009, 29:710–714
  46. PARK EJ, PARK S, JANG IS. Academic cheating among nursing students. *Nurse Educ Today* 2013, 33:346–352
  47. MONTUNO E, DAVIDSON A, IWASAKI K, JONES S, MARTIN J, BROOKS D ET AL. Academic dishonesty among physical therapy students: A descriptive study. *Physiother Can* 2012, 64:245–254
  48. DESALEGN AA, BERHAN A. Cheating on examinations and its predictors among undergraduate students at Hawassa University College of Medicine and Health Science, Hawassa, Ethiopia. *BMC Med Educ* 2014, 14:89
  49. DIBARTOLO MC, WALSH CM. Desperate times call for desperate measures: Where are we in addressing academic dishonesty? *J Nurs Educ* 2010, 49:543–544
  50. RABI SM, PATTON LR, FJORTOFT N, ZGARRICK DP. Characteristics, prevalence, attitudes, and perceptions of academic dishonesty among pharmacy students. *Am J Pharm Educ* 2006, 70:73
  51. JUNI S, GROSS J, SOKOLOWSKA J. Academic cheating as a function of defense mechanisms and object relations. *Psychol Rep* 2006, 98:627–639
  52. HRABAK M, VUJAKLIJA A, VODOPIVEC I, HREN D, MARUSIĆ M, MARUSIĆ A. Academic misconduct among medical students in a post-communist country. *Med Educ* 2004, 38:276–285
  53. KUKOLJA TARADI S, TARADI M, KNEŽEVIĆ T, ĐOGAŠ Z. Students come to medical schools prepared to cheat: A multi-campus investigation. *J Med Ethics* 2010, 36:666–670
  54. MARQUES DN, MACEDO AF. Perceptions of acceptable conducts by university students. *J Optom* 2016, 9:166–174
  55. HONNY JM, GADBURY-AMYOT CC, OVERMAN PR, WILKINS K, PETERS-EN F. Academic integrity violations: A national study of dental hygiene students. *J Dent Educ* 2010, 74:251–260
  56. AUSTIN Z, COLLINS D, REMILLARD A, KELCHER S, CHUI S. Influence of attitudes toward curriculum on dishonest academic behavior. *Am J Pharm Educ* 2006, 70:50
  57. EMMERTON L, JIANG H, MCKAUGE L. Pharmacy students' interpretation of academic integrity. *Am J Pharm Educ* 2014, 78:119
  58. HAFEEZ K, LAIQ-UZ-ZAMAN KHAN M, JAWAID M, HAROON S. Academic misconduct among students in medical colleges of Karachi, Pakistan. *Pak J Med Sci* 2013, 29:699–702
  59. HUELSMAN MA, PIROCH J, WASIELESKI D. Relation of religiosity with academic dishonesty in a sample of college students. *Psychol Rep* 2006, 99:739–742
  60. KEÇEÇI A, BULDUK S, ORUÇ D, ÇELIK S. Academic dishonesty among nursing students: A descriptive study. *Nurs Ethics* 2011, 18:725–733
  61. ROIG M, CASO M. Lying and cheating: Fraudulent excuse making, cheating, and plagiarism. *J Psychol* 2005, 139:485–494
  62. STORCH EA, STORCH JB. Academic dishonesty and attitudes towards academic dishonest acts: Support for cognitive dissonance theory. *Psychol Rep* 2003, 92:174–176
  63. VENGOECHEA J, MORENO S, RUIZ A. Misconduct in medical students. *Dev World Bioeth* 2008, 8:219–225
  64. YATES J, JAMES D. Risk factors at medical school for subsequent professional misconduct: Multicentre retrospective case-control study. *Br Med J* 2010, 340:c2040
  65. FANELLI D, COSTAS R, LARIVIÈRE V. Misconduct policies, academic culture and career stage, not gender or pressures to publish, affect scientific integrity. *PLoS One* 2015, 10:e0127556
  66. BROWN DL. Cheating must be okay – everybody does it! *Nurse Educ* 2002, 27:6–8
  67. STORCH EA, STORCH JB. Organizational, nonorganizational, and intrinsic religiosity and academic dishonesty. *Psychol Rep* 2001, 88:548–552
  68. HART L, MORGAN L. Academic integrity in an online registered nurse to baccalaureate in nursing program. *J Contin Educ Nurs* 2010, 41:498–505
  69. DYRBYE LN, MASSIE FS Jr, EACKER A, HARPER W, POWER D, DURNING SJ ET AL. Relationship between burnout and professional conduct and attitudes among US medical students. *JAMA* 2010, 304:1173–1180
  70. OROSZ G, FARKAS D, ROLAND-LÉVY C. Are competition and extrinsic motivation reliable predictors of academic cheating? *Front Psychol* 2013, 4:87
  71. ROCHA MM, DA SILVA GA, NASCIMENTO L, DE SIQUEIRA JO, OTTA E. Cheating on college examinations. *Psychol Rep* 2007, 100:379–386
  72. PARK EJ, PARK S, JANG IS. Clinical misconduct among South Korean nursing students. *Nurse Educ Today* 2014, 34:1467–1473
  73. GHIAS K, LAKHO GR, ASIM H, AZAM IS, SAEED SA. Self-reported attitudes and behaviours of medical students in Pakistan regarding academic misconduct: A cross-sectional study. *BMC Med Ethics* 2014, 15:43
  74. BICHLER G, TIBBETTS SG. Conditional covariation of binge drinking with predictors of college students' cheating. *Psychol Rep* 2003, 93:735–749
  75. ORAN NT, CAN HÖ, ŞENOL S, HADIMLI AP. Academic dishonesty among health science school students. *Nurs Ethics* 2016, 23:919–931
  76. ROBERSON DW. Using a student response system to reduce academic cheating. *Nurse Educ* 2009, 34:60–63
  77. BILIC-ZULLE L, AZMAN J, FRKOVIĆ V, PETROVECKI M. Is there an effective approach to deterring students from plagiarizing? *Sci Eng Ethics* 2008, 14:139–147
  78. ESCUDIER MP, TRICIO JA, ODELL EW. Student acceptability of high-stakes e-assessment in dental education: Using privacy screen filters to control cheating. *J Dent Educ* 2014, 78:558–566
  79. GITANJALI B. Academic dishonesty in Indian medical colleges. *J Postgrad Med* 2004, 50:281–284
  80. BAZOUKIS G, DIMOLIATIS IDK. Cheating in medical schools in Greece: Quantitative evaluation and recommendations for resolving the problem. *Arch Hellen Med* 2011, 28:390–399
  81. LINGEN MW. Tales of academic dishonesty and what do we do about it? *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 2006, 102:429–430

82. SMITH R. Cheating at medical school. *Br Med J* 2000, 321:398
83. FERGUSSON N. Cheating at medical school. Cheating should be properly punished. *Br Med J* 2001, 322:297
84. JARMULOWICZ M. Cheating at medical school. Public declaration of an appropriate punishment is important. *Br Med J* 2001, 322:298
85. WESTLAKE W. Cheating at medical school. Committee should be commended for showing compassion. *Br Med J* 2001, 322:297
86. VIVE J. Cheating at medical school. Examination committee's decision tarnishes reputations. *Br Med J* 2001, 322:297
87. McQUEEN R. Cheating at medical school. Keeping quiet about cheating will not increase public confidence. *Br Med J* 2001, 322:297–298
88. SCANLAN CL. Strategies to promote a climate of academic integrity and minimize student cheating and plagiarism. *J Allied Health* 2006, 35:179–185
89. SMEDLEY A, CRAWFORD T, CLOETE L. An intervention aimed at reducing plagiarism in undergraduate nursing students. *Nurse Educ Pract* 2015, 15:168–173
90. FARROKHI F. Plagiarism: Where unawareness makes a lame excuse. *Arch Iran Med* 2009, 12:176–178
91. GHAREDAĞHI MH, NOURIJELYANI K, SALEHI SADAGHIANI M, YOUSEFZADEH-FARD Y, GHAREDAĞHI A, JAVADIAN P ET AL. Knowledge of medical students of Tehran University of Medical Sciences regarding plagiarism. *Acta Med Iran* 2013, 51:418–424
92. RYAN G, BONANNO H, KRASS I, SCOLLER K, SMITH L. Undergraduate and postgraduate pharmacy students' perceptions of plagiarism and academic honesty. *Am J Pharm Educ* 2009, 73:105
93. SCHILLER MR. E-cheating: Electronic plagiarism. *J Am Diet Assoc* 2005, 105:1058, 1059–1062
94. RATHORE FA, WAQAS A, ZIA AM, MAVRINAC M, FAROOQ F. Exploring the attitudes of medical faculty members and students in Pakistan towards plagiarism: A cross-sectional survey. *PeerJ* 2015, 3:e1031
95. DEGEETER M, HARRIS K, KEHR H, FORD C, LANE DC, NUZUM DS ET AL. Pharmacy students' ability to identify plagiarism after an educational intervention. *Am J Pharm Educ* 2014, 78:33
96. MARSHALL T, TAYLOR B, HOTHERSALL E, PÉREZ-MARTÍN L. Plagiarism: A case study of quality improvement in a taught postgraduate programme. *Med Teach* 2011, 33:e375–e381
97. BILIĆ-ZULLE L, FRKOVIĆ V, TURK T, AZMAN J, PETROVECKI M. Prevalence of plagiarism among medical students. *Croat Med J* 2005, 46:126–131
98. CATANESE V, ARONSON P. A case of student cheating. *Virtual Mentor* 2005, 7:4
99. MITCHELL T, CARROLL J. Academic and research misconduct in the PhD: Issues for students and supervisors. *Nurse Educ Today* 2008, 28:218–226
100. McCRINK A. Academic misconduct in nursing students: Behaviors, attitudes, rationalizations, and cultural identity. *J Nurs Educ* 2010, 49:653–659
101. PAPADAKIS MA, LOESER H, HEALY K. Early detection and evaluation of professionalism deficiencies in medical students: One school's approach. *Acad Med* 2001, 76:1100–1106
102. HOWE A, MILES S, WRIGHT S, LEINSTER S. Putting theory into practice – a case study in one UK medical school of the nature and extent of unprofessional behaviour over a 6-year period. *Med Teach* 2010, 32:837–844
103. KENNY D. Student plagiarism and professional practice. *Nurse Educ Today* 2007, 27:14–18
104. KUSNOOR AV, FALIK R. Cheating in medical school: The unacknowledged ailment. *South Med J* 2013, 106:479–483
105. MUHNEY KA, CAMPBELL PR. Allied dental and dental educators' perceptions of and reporting practices on academic dishonesty. *J Dent Educ* 2010, 74:1214–1219
106. HALL BM. Australia needs an office of academic integrity. *Med J Aust* 2006, 185:619–622
107. NAKAMURA Y, CHRISTENSEN NB. Plagiarism. *Cancer Sci* 2009, 100:1563–1565
108. DINÇ L. Ethics education and academic misconduct. *Nurs Ethics* 2008, 15:3–5
109. LEFOR AT. Scientific misconduct and unethical human experimentation: Historic parallels and moral implications. *Nutrition* 2005, 21:878–882

*Corresponding author:*

G. Bazoukis, Second Department of Cardiology, Laboratory of Cardiac Electrophysiology, "Evangelismos" General Hospital of Athens, Athens, Greece  
e-mail: gbazoukis@med.uoa.gr