



ORIGINAL ARTICLE

# Perceptions of acceptable conducts by university students



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## KEYWORDS

Academic misconducts;  
Professional misconducts;  
Perceptions;  
Optometry students

## Abstract

**Objective:** To determine perceptions of acceptable conducts amongst under and postgraduate optometry students and to compare them with students from other disciplines.

**Methods:** Students (under/postgraduate) of optometry ( $n = 156$ ) and other courses ( $n = 54$ ) from University of Minho participated in a voluntary online questionnaire about perception of conducts, classifying as acceptable or unacceptable 15 academic or professional scenarios.

**Results:** 210 questionnaires were analyzed. Differences in perceptions were found between optometry under and postgraduates in scenario 5, Chi-square(2,156) = 4.3,  $p = 0.038$ , and scenario 7, Chi-square(2,156) = 7.0,  $p = 0.008$  (both with cheating more acceptable for postgrads). Differences between under and postgraduates from other courses were found in scenario 9 (taking supplies from classroom more acceptable for undergrads), Chi-square(1,54) = 5.0,  $p = 0.025$ , and scenario 14 (forging a signature more acceptable for postgrads), Chi-square(1,54) = 3.9,  $p = 0.046$ . Differences between optometry and other courses undergraduates were observed in scenario 2 (plagiarism more acceptable for optometry undergrads), Chi-square(1,154) = 8.3,  $p = 0.004$  and scenario 9 (taking supplies from classroom more acceptable for other undergrads), chi-square(1,54) = 7.8,  $p = 0.005$ . Differences between optometry and other courses postgraduates were observed in scenario 7, Chi-square(1,56) = 5.8,  $p = 0.016$ , scenario 10 (both with cheating more acceptable for optometry postgrads), chi-square(1,54) = 8.1,  $p = 0.004$  and scenario 14 (forging a signature more acceptable for other postgrads), Chi-square(1,54) = 6.1,  $p = 0.026$ .

**Conclusion:** Academic misconducts were mainly considered more acceptable than professional misconducts. Our results show that perceptions of acceptable conducts amongst optometry students are not very different from other students, and, against our initial prediction, do not show a general change in misconduct perception when students become more mature. Universities should pay more attention to this problem and take action.

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**PALABRAS CLAVE**

Malas conductas académicas;  
Malas conductas profesionales;  
Percepciones;  
Estudiantes de optometría

**Percepciones sobre las conductas aceptables por los estudiantes universitarios****Resumen**

**Objetivo:** Determinar las percepciones sobre las conductas aceptables entre los estudiantes universitarios y los postgraduados en optometría, y compararlas con los estudiantes de otras disciplinas.

**Métodos:** Los estudiantes (universitarios/y postgraduados) de optometría (n=156) y de otras carreras (n=54) de la Universidad de Minho participaron en un cuestionario online voluntario acerca de la percepción de las conductas, calificando de aceptables o inaceptables a 15 escenarios académicos o profesionales.

**Resultados:** Se analizaron 210 cuestionarios. Se encontraron diferencias en las percepciones entre los estudiantes y los postgraduados en optometría en el escenario 5,  $\chi^2(2,156) = 4,3, p = 0,038$ , y el escenario 7,  $\chi^2(2,156) = 7,0, p = 0,008$  (en ambos, hacer trampas es más aceptable para los postgraduados). Se encontraron diferencias entre los estudiantes y los postgraduados de otras carreras en el escenario 9 (coger suministros de la clase es más aceptable para los estudiantes),  $\chi^2(1,54) = 5,0, p = 0,025$ , y el escenario 14 (falsificar una firma es más aceptable para los postgraduados),  $\chi^2(1,54) = 3,9, p = 0,046$ . Se encontraron diferencias entre los estudiantes de optometría y de otras carreras en el escenario 2 (el plagio es más aceptable para los estudiantes de optometría),  $\chi^2(1,154) = 8,3, p = 0,004$  y el escenario 9 (coger suministros de la clase es más aceptable para los estudiantes de otras carreras),  $\chi^2(1,54) = 7,8, p = 0,005$ . Se encontraron diferencias entre los postgraduados de optometría y de otras carreras en el escenario 7,  $\chi^2(1,56) = 5,8, p = 0,016$ , y el escenario 10 (en ambos, hacer trampas es más aceptable para los postgraduados en optometría),  $\chi^2(1,54) = 8,1, p = 0,004$  y el escenario 14 (falsificar una firma es más aceptable para los postgraduados en otras carreras),  $\chi^2(1,54) = 6,1, p = 0,026$ .

**Conclusión:** Las malas conductas académicas se consideraron mucho más aceptables que las malas conductas profesionales. Nuestros resultados muestran que las percepciones sobre las conductas aceptables entre los estudiantes de optometría no son muy diferentes a las de otros estudiantes y, en contra de nuestra predicción inicial, no reflejan un cambio general de la percepción de mala conducta cuando los estudiantes son más maduros. Las universidades deberían prestar más atención a este problema, y tomar medidas al respecto.

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**Introduction**

Healthcare professionals, optometrists included, are expected to express essential ethical principles, values and integrity that best serve their patients' interests. Nevertheless, unlike work laws and regulations, moral standards or ethical principles are flexible and their application varies in each particular situation. Thus, moral standards place upon each professional two main obligations: the responsibility of developing his or her personal standards and the required self-discipline to practice in accordance with these standards.<sup>1</sup> Optometrists' professional development is mainly determined by their attitude towards the profession, by facing each clinical case as a potential learning experience and staying committed to a process of continuous improvement that started out as student at universities.<sup>2</sup> Academic misconduct has been defined as the misrepresentation of one's academic achievement, with cheating and plagiarism being its most common manifestations.<sup>3</sup> Professional misconducts include: deliberate acts of disrespectful behaviour to faculty members, students and patients; failure to abide by standard clinical policies and procedures; theft of examination or examination

answers; forgery, alteration or misuse of patient records; and/or theft or destruction of college or others property.<sup>3</sup> Some studies have shown that academic dishonest behaviours seem to be a common occurrence amongst students in general, including health care disciplines such as pharmacy<sup>4</sup> and nursing.<sup>5</sup>

A positive relationship between students' academic misconducts and their future professional misconducts has been identified. Engineering students tend to use similar decision-making processes whether in college or in their workplace and that past deviant behaviour is an indicator of future dishonest behaviour, showing that academic dishonesty relates to unprofessional practice.<sup>6</sup> A strong relation has been identified between business students' propensity to cheat in university and their attitude towards unethical behaviour in professional settings.<sup>7</sup> Business students who find academic dishonest behaviours acceptable are more likely to engage in such behaviours, and those who engage in these behaviours during college are more likely to incur in dishonest behaviours in the workplace.<sup>8</sup> As for health care students, pharmacy students' dishonest behaviours in professional programmes seems to relate to unprofessional behaviour.<sup>9</sup> Also, dishonest behaviours seem to be

restricted to what these students believe to be minor transgressions, like making long-distance phone calls from the workplace, calling in sick when not sick and using pharmacy stock narcotics without prescription.<sup>9</sup> Finally, there is a possible correlation between nursing students' academic misconducts and nurses' unprofessional practice.<sup>10</sup> Thus, it is important to investigate how optometry students' views on such behaviours alter across the years, which may indicate their behaviours as future practitioners.<sup>1</sup>

The aim of this study was to determine perceptions of acceptable conducts amongst optometry student in different levels of their education – under and postgraduate – and to compare them with students from other disciplines. Due to the nature of their future profession, it is expected that optometry students improve their perception of ethical conducts.

## Methods

An anonymous internet-based questionnaire was advertised ([www.surveygizmo.com](http://www.surveygizmo.com)) in social networks amongst students of the Minho University. We asked administrators of private Facebook groups of students in each school to publicize the survey at the beginning of the academic year of 2013/2014, and the survey was available online during one and a half months. We were able to trace our respondents to the source because survey gizmo provides records of the link that was used to access the survey as well as their GPS coordinates (city of origin of the respondent was the variable controlled). The 15 scenarios presented in the survey were based on incidents of misconduct that occurred in the New England College of Optometry.<sup>3</sup> The scenarios reflected both academic and professional misconducts. Each scenario was presented as a potential conduct and participants were instructed to classify it in a two-alternative forced choice answer as "acceptable" or "unacceptable". Initial instructions of the questionnaire informed respondents that our goal was to determine their perception of the scenarios presented. No clues were given if scenarios portrayed were considered good or bad conducts and the words used as choices were carefully selected to counteract bias. Also to minimize bias towards answering "the correct answer" instead of the spontaneous and desired answer, questions were presented in a random order to each respondent and only going forward was permitted.

These scenarios were slightly altered for this study to match the Portuguese reality and, because we wanted to compare optometry students with others, to make the questions applicable to all students. E.g. the initial questionnaire asked if it would be acceptable to take contact lens from the contact lens class and we asked if it would be acceptable to take stationary from a class if this type of material was freely available. All answers to the questionnaire were compulsory and only complete questionnaires were analyzed. Students were asked about their course and school year. A summary of all scenarios is given in [Table 1](#).

We considered two main study groups: optometry and other courses. These groups were further divided in two subgroups of under and postgraduates. The percentage of answers of acceptable conducts between groups was compared as follows: (1) optometry: undergraduates versus

postgraduates; (2) other courses: undergraduates versus postgraduates; (3) undergraduates: optometry versus other courses; (4) postgraduates: optometry versus other courses. All "acceptable" answers were classified as acceptable misconducts. Data analysis was performed with SPSS version 20.0. Scores for acceptable conducts per each scenario were compared between under and postgraduate students and between optometry and other courses. Differences between groups were tested using chi-square test or Fisher–Freeman–Halton test when the number of responses was 5 or less.

## Results

In total, 210 undergraduate and postgraduate students completed the survey. Of these, 156 were optometry and vision sciences students (128 undergraduates and 28 postgraduates) and 54 were students of several other courses (26 undergraduates and 28 postgraduates of Arts and Human Sciences, Engineering, Education, Medical School, Sciences, Law, Psychology, Nursing, Economics and Management, Social Sciences and Architecture). Gender and age was not available, but we know that in the Optometry and Vision Sciences course 78% of the students were female, 45% of the students were under 20 years, 46% were between 20 and 23 years, and 9% were older than 23 years. Scenarios were analyzed as academic (8 questions) or professional misconducts (7 questions) and the results are summarized in [Table 2](#).

We compared the percentage of acceptable academic misconducts amongst undergraduate students but we did not find statistically significant differences. Results for the three years were collapsed for further analysis and are summarized in [Table 3](#). [Fig. 1](#) shows the comparisons between under and postgraduates for optometry and other courses and [Fig. 2](#) shows the comparison between courses for undergraduate and postgraduate students.

Considering our study groups, there were four academic scenarios (2, 5, 7 and 10) and two professional scenarios (9 and 14) which showed statistically significant differences.

### Academic misconducts

Collaborating on an individual homework (scenario 2) was considered acceptable by more than half (58%) of optometry undergraduates. This percentage was significantly higher than the 27% found for other courses undergraduates ( $p=0.004$ ).

Letting a classmate that was previously adverted for academic misbehaviour to take a look at their exam (scenario 5) was considered acceptable by 57% of optometry postgraduates, a percentage significantly higher than the 36% of optometry undergraduates ( $p=0.038$ ).

More than two thirds (71%) of optometry postgraduate students considered acceptable to let a classmate who is sitting next to him/her to take a look at their exam (scenario 7). This acceptance was significantly higher for postgraduate students from other courses (39%,  $p=0.016$ ). Comparing undergraduate and postgraduate optometry students, the acceptance was also different, as 71% of postgraduate students considered this conduct acceptable compared with the percentage of 44% found in optometry undergraduates ( $p=0.008$ ).

**Table 1** Scenarios of academic and professional misconducts presented in the online survey.

Scenario	
Academic	1. You are assigned an individual homework. You and a classmate perform it together and each of you delivers a paper under your own name.
Academic	2. You are preparing a homework assignment. You copy and paste some relevant information from a reliable site.
Professional	3. You find equipment such as an USB pen-drive in a hallway. There is no one in sight and do not know to whom it belongs. Finders keepers, you can have the equipment.
Academic	4. You are able to read the first page of a final exam on the counter in the copy room. You memorize it and share it with the classmates who are closest to you.
Academic	5. You are sitting next to a colleague who was adverted for academic misbehaviour. You don't mind if he looks at your answers because it will help him show academic commitment.
Professional	6. After a lab work, you realize that you forgot to register the experimental results. You are pretty sure that the experimental results were the same as the theoretical so you record them in the report as such.
Academic	7. It doesn't matter if a colleague takes a look at your answers during an exam because he will never use most of this stuff anyway.
Academic	8. You suspect that a friend was involved in cheating. You do nothing because you are not a tattle-tale and reporting it won't bring you any benefit.
Professional	9. In the lab there are several office materials available that you can take without control (e.g. pencil). You are in need of one of these and decide to help yourself.
Academic	10. You take an exam and try to memorize as many questions as possible. Later on you share them with the next students taking this exam.
Professional	11. You are really angry at your counsellor. You send him an email to let off steam with knowledge to the entire faculty.
Academic	12. It is not cheating if you look at the exam of a classmate who is sitting next to you just as long you don't change your answers.
Professional	13. You need a reference for an article you are writing. To save money on the photocopy, you cut those pages of the journal. After all, the library typically has multiple copies.
Professional	14. You are attending a mandatory class. You know your classmates will come but aren't here yet, so you sign them in the attendance sheet.
Professional	15. Your friend confides that he is about to commit suicide. You break confidentiality and tell an administrator.

In scenario 10, to memorize and share exam questions, 93% of optometry postgraduates found it acceptable against 61% for other postgraduate students ( $p=0.004$ ).

When we consider optometry students only, results for most academic scenarios reveal high tolerance to misconduct, e.g. scenarios 1, 2, 4, 8, 10, 12 and 15, with 50% or higher percentage of acceptance. Some scenarios reveal greater acceptance of academic misconduct amongst postgraduates than undergraduates, e.g. scenarios 5, 7 and 10. Also worth to mention is that more than 90% of the respondents in all groups would not report cheating and would break confidentiality to report a suicidal colleague (scenarios 8 and 15, respectively).

### Professional misconducts

Taking laboratory supplies, like a pencil (scenario 9) and forging a classmate's signature on a mandatory class (scenario 14) are professional misconducts that change between groups. Comparing under and post graduates, we observed that almost half (46%) of other courses undergraduates found acceptable to take lab supplies, but this percentage diminished for other courses postgraduates to 18% ( $p=0.025$ ). Percentages were also different between

students profile, 20% optometry undergraduates found this scenario acceptable, whereas a smaller percentage than the 46% was found for other courses undergraduates ( $p=0.005$ ). In scenario 14, more than half of other courses postgraduates (54%) found acceptable to forge a classmate's signature in a mandatory class differing from the 27% of other courses undergraduates ( $p=0.046$ ) and from the 21% of optometry postgraduates ( $p=0.026$ ).

Differences between groups in the remaining professional scenarios (3, 6, 11, 13 and 15) were not statistically significant. In all groups, the level of acceptance was low – below 50% for scenarios 3, 6 and 11 – or very low – below 10% for scenario 13. The only exception was the break of confidentiality, scenario 15, in which the percentage of acceptable responses was approximately 90% or more for all groups. These results are summarized in Fig. 1 and Fig. 2.

### Discussion

Our results show that four scenarios portraying academic misconducts and three scenario portraying professional misconducts change amongst levels of education or students profile. Misconduct in academic scenarios was more acceptable than in professional scenarios in all groups.

**Table 2** Students' responses in frequency and percentage to each scenario of academic (A) and professional (P) conducts presented in the online survey by school year.

Scenario	Answer	1st year		2nd year		3rd year		Postgraduates		
		Optometry	Other courses	Optometry	Other courses	Optometry	Other courses	Optometry	Other courses	
A	1	Acceptable	15 (50.0%)	4 (66.7%)	16 (57.1%)	3 (50.0%)	36 (51.4%)	7 (50.0%)	14 (50.0%)	18 (64.3%)
		Unacceptable	15 (50.0%)	2 (33.3%)	12 (42.9%)	3 (50.0%)	34 (48.6%)	7 (50.0%)	14 (50.0%)	10 (35.7%)
A	2	Acceptable	20 (66.7%)	1 (16.7%)	18 (64.3%)	3 (50.0%)	36 (51.4%)	3 (21.4%)	14 (50.0%)	11 (39.3%)
		Unacceptable	10 (33.3%)	5 (83.3%)	10 (35.7%)	3 (50.0%)	34 (48.6%)	11 (78.6%)	14 (50.0%)	17 (60.7%)
P	3	Acceptable	5 (16.7%)	2 (33.3%)	8 (28.6%)	1 (16.7%)	7 (10.0%)	3 (21.4%)	3 (10.7%)	2 (7.1%)
		Unacceptable	25 (83.3%)	4 (66.7%)	20 (71.4%)	5 (83.3%)	63 (90.0%)	11 (78.6%)	25 (89.3%)	26 (92.9%)
A	4	Acceptable	21 (70.0%)	4 (66.7%)	19 (67.9%)	4 (66.7%)	48 (68.6%)	10 (71.4%)	20 (71.4%)	16 (57.1%)
		Unacceptable	9 (30.0%)	2 (33.3%)	9 (32.1%)	2 (33.3%)	22 (31.4%)	4 (28.6%)	8 (28.6%)	12 (42.9%)
A	5	Acceptable	9 (30.0%)	1 (16.7%)	12 (42.9%)	2 (33.3%)	25 (35.7%)	4 (28.6%)	16 (57.1%)	13 (46.4%)
		Unacceptable	21 (70.0%)	5 (83.3%)	16 (57.1%)	4 (66.7%)	45 (64.3%)	10 (71.4%)	12 (42.9%)	15 (53.6%)
P	6	Acceptable	19 (63.3%)	2 (33.3%)	14 (50.0%)	4 (66.7%)	27 (38.6%)	7 (50.0%)	8 (28.6%)	11 (39.3%)
		Unacceptable	11 (36.7%)	4 (66.7%)	14 (50.0%)	2 (33.3%)	43 (61.4%)	7 (50.0%)	20 (71.4%)	17 (60.7%)
A	7	Acceptable	14 (46.7%)	1 (16.7%)	13 (46.4%)	2 (33.3%)	29 (41.4%)	6 (42.9%)	20 (71.4%)	11 (39.3%)
		Unacceptable	16 (53.3%)	5 (83.3%)	15 (53.6%)	4 (66.7%)	41 (58.6%)	8 (57.1%)	8 (28.6%)	17 (60.7%)
A	8	Acceptable	29 (96.7%)	6 (100.0%)	26 (92.9%)	6 (100.0%)	68 (97.1%)	12 (85.7%)	28 (100.0%)	27 (96.4%)
		Unacceptable	1 (3.3%)	0 (0.0%)	2 (7.1%)	0 (0.0%)	2 (2.9%)	2 (14.3%)	0 (0.0%)	1 (3.6%)
P	9	Acceptable	4 (13.3%)	1 (16.7%)	8 (28.6%)	3 (50.0%)	14 (20.0%)	8 (57.1%)	5 (17.9%)	5 (17.9%)
		Unacceptable	26 (86.7%)	5 (83.3%)	20 (71.4%)	3 (50.0%)	56 (80.0%)	6 (42.9%)	23 (82.1%)	23 (82.1%)
A	10	Acceptable	28 (93.3%)	2 (33.3%)	24 (85.7%)	5 (83.3%)	53 (75.7%)	12 (85.7%)	26 (92.9%)	17 (60.7%)
		Unacceptable	2 (6.7%)	4 (66.7%)	4 (14.3%)	1 (16.7%)	17 (24.3%)	2 (14.3%)	2 (7.1%)	11 (39.3%)
P	11	Acceptable	6 (20.0%)	1 (16.7%)	4 (14.3%)	1 (16.7%)	4 (5.7%)	1 (7.1%)	2 (7.1%)	0 (0.0%)
		Unacceptable	24 (80.0%)	5 (83.3%)	24 (85.7%)	5 (83.3%)	66 (94.3%)	13 (2.9%)	26 (92.9%)	28 (100.0%)
A	12	Acceptable	16 (53.3%)	4 (66.7%)	18 (64.3%)	5 (83.3%)	41 (58.6%)	7 (50.0%)	16 (57.1%)	17 (60.7%)
		Unacceptable	14 (46.7%)	2 (33.3%)	10 (35.7%)	1 (16.7%)	29 (41.4%)	7 (50.0%)	12 (42.9%)	11 (39.3%)
P	13	Acceptable	1 (3.3%)	1 (16.7%)	1 (3.6%)	0 (0.0%)	3 (4.3%)	1 (7.1%)	0 (0.0%)	2 (7.1%)
		Unacceptable	29 (96.7%)	5 (83.3%)	27 (96.4%)	6 (100.0%)	67 (95.7%)	13 (92.9%)	28 (100.0%)	26 (92.9%)
P	14	Acceptable	9 (30.0%)	1 (16.7%)	14 (50.0%)	4 (66.7%)	24 (34.3%)	2 (14.3%)	6 (21.4%)	15 (53.6%)
		Unacceptable	21 (70.0%)	5 (83.3%)	14 (50.0%)	2 (33.3%)	46 (65.7%)	12 (85.7%)	22 (78.6%)	13 (46.4%)
P	15	Acceptable	29 (96.7%)	6 (100.0%)	27 (96.4%)	6 (100.0%)	68 (97.1%)	11 (78.6%)	28 (100.0%)	26 (92.9%)
		Unacceptable	1 (3.3%)	0 (0.0%)	1 (3.6%)	0 (0.0%)	2 (2.9%)	3 (21.4%)	0 (0.0%)	2 (7.1%)

**Table 3** Undergraduate and postgraduate students' perceptions of acceptable academic (A) and professional (P) conducts by scenario.

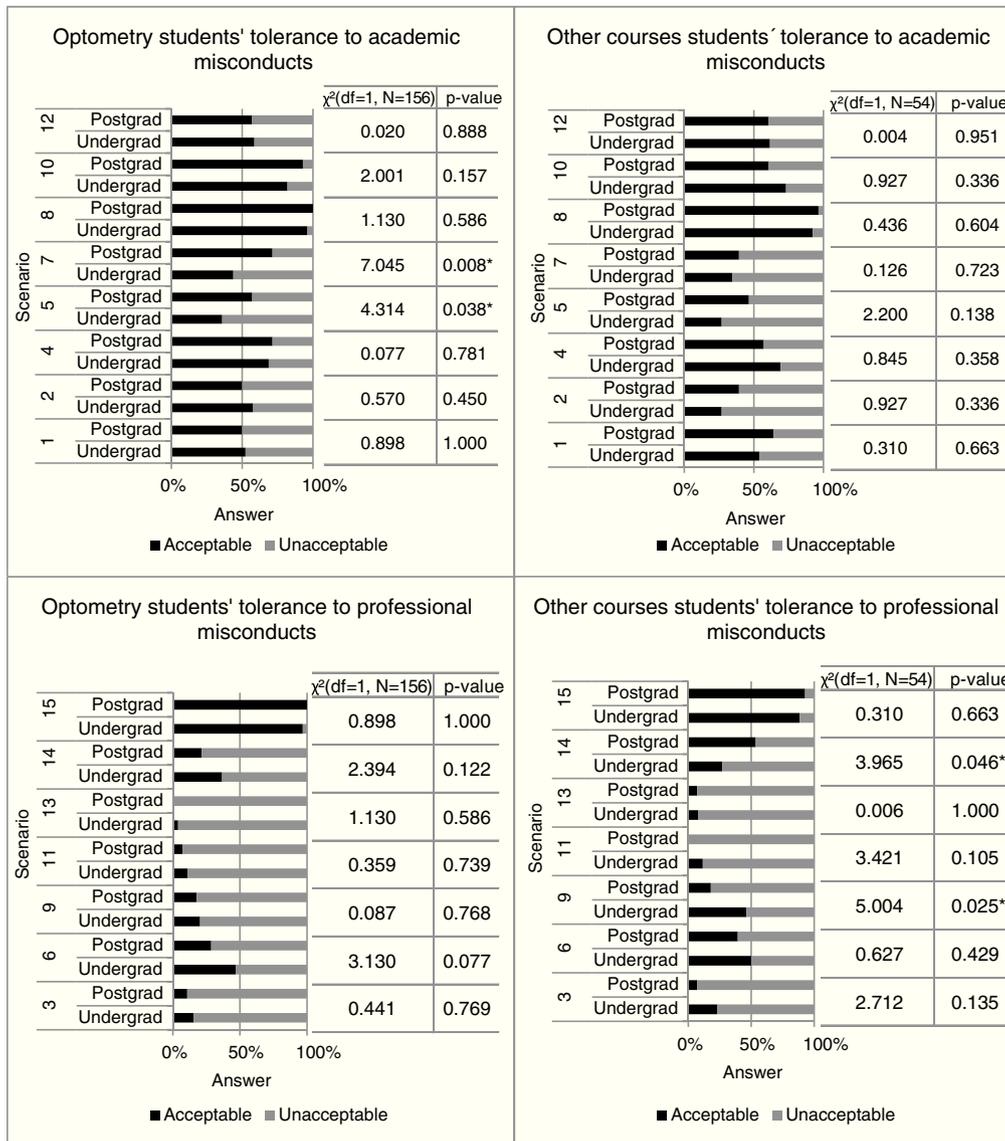
Scenario	Answer	Undergraduates		Postgraduates		
		Optometry	Other courses	Optometry	Other courses	
A	1	Acceptable	67 (52.3%)	14 (53.8%)	14 (50.0%)	18 (64.3%)
		Unacceptable	61 (47.7%)	12 (46.2%)	14 (50.0%)	10 (35.7%)
A	2	Acceptable	74 (57.8%)	7 (26.9%)	14 (50.0%)	11 (39.3%)
		Unacceptable	54 (42.2%)	19 (73.1%)	14 (50.0%)	17 (60.7%)
P	3	Acceptable	20 (15.6%)	6 (23.1%)	3 (10.7%)	2 (7.1%)
		Unacceptable	108 (84.4%)	20 (76.9%)	25 (89.3%)	26 (92.9%)
A	4	Acceptable	88 (68.8%)	18 (69.2%)	20 (71.4%)	16 (57.1%)
		Unacceptable	40 (31.3%)	8 (30.8%)	8 (28.6%)	12 (42.9%)
A	5	Acceptable	46 (35.9%)	7 (26.9%)	16 (57.1%)	13 (46.4%)
		Unacceptable	82 (64.1%)	19 (73.1%)	12 (42.9%)	15 (53.6%)
P	6	Acceptable	60 (46.9%)	13 (50.0%)	8 (28.6%)	11 (39.3%)
		Unacceptable	68 (53.1%)	13 (50.0%)	20 (71.4%)	17 (60.7%)
A	7	Acceptable	56 (43.8%)	9 (34.6%)	20 (71.4%)	11 (39.3%)
		Unacceptable	72 (56.3%)	17 (65.4%)	8 (28.6%)	17 (60.7%)
A	8	Acceptable	123 (96.1%)	24 (92.3%)	28 (100.0%)	27 (96.4%)
		Unacceptable	5 (3.9%)	2 (7.7%)	0 (0.0%)	1 (3.6%)
P	9	Acceptable	26 (20.3%)	12 (46.2%)	5 (17.9%)	5 (17.9%)
		Unacceptable	102 (79.7%)	14 (53.8%)	23 (82.1%)	23 (82.1%)
A	10	Acceptable	105 (82.0%)	19 (73.1%)	26 (92.9%)	17 (60.7%)
		Unacceptable	23 (18.0%)	7 (26.9%)	2 (7.1%)	11 (39.3%)
P	11	Acceptable	14 (10.9%)	3 (11.5%)	2 (7.1%)	0 (0.0%)
		Unacceptable	114 (89.1%)	23 (88.5%)	26 (92.9%)	28 (100.0%)
A	12	Acceptable	75 (58.6%)	16 (61.5%)	16 (57.1%)	17 (60.7%)
		Unacceptable	53 (41.4%)	10 (38.5%)	12 (42.9%)	11 (39.3%)
P	13	Acceptable	5 (3.9%)	2 (7.7%)	0 (0.0%)	2 (7.1%)
		Unacceptable	123 (96.1%)	24 (92.3%)	28 (100.0%)	26 (92.9%)
P	14	Acceptable	47 (36.7%)	7 (26.9%)	6 (21.4%)	15 (53.6%)
		Unacceptable	81 (63.3%)	19 (73.1%)	22 (78.6%)	13 (46.4%)
P	15	Acceptable	124 (96.9%)	23 (88.5%)	28 (100.0%)	26 (92.9%)
		Unacceptable	4 (3.1%)	3 (11.5%)	0 (0.0%)	2 (7.1%)

The expected learning results foreseen in the University of Minho's directive are the development of skills that lead students to acquire adequate ethical principles, core values and work methods, including the respect for values of authenticity, fairness and intellectual honesty. Moreover, the directive states that all fraudulent practices concerning the students' learning process are subjected to a regulatory Academic Code of Conduct. Therefore, unethical scenarios are contemplated in the university's directive of which all students should become aware when enrolling at the institution.

Participants in this study showed low academic integrity values. It is worth to mention the surprising increased tolerance of more advanced students in situations such as cheating in exams or reduced willingness to report cheating. This might reveal a poor attitude towards their own knowledge and reasons of concern if as professionals they will not report things like malpractice. Probably less surprising was the reduction in tolerance from undergraduate compared with postgraduate optometry students in things like copying and pasting from websites or other sources. A possible explanation for the high tolerance found amongst undergraduate students is the lack of knowledge in how to refer previous work. Also, optometry students do not contact much with

assignments needing referencing and probably only start to think about it when they enter postgraduate studies. Today's easy access to information via the internet may reinforce this kind of behaviour.<sup>11</sup> Postgraduates have literature review assignments throughout the course and are probably more aware of how it is correctly done.

Academic integrity has been under debate for many decades. It has been found that college students are mainly influenced by what they learn from their peers, conducting themselves accordingly to what they observe and, to a smaller degree, by the existence of an honour code, the likelihood of being caught, the perception of the severity of penalties and the understanding and acceptance of academic integrity.<sup>12</sup> Similar studies with health care fields' students seem to support our findings and indicate that academic dishonesty is regarded as common and is highly accepted. It has been reported that academic misconducts are highly prevalent amongst pharmacy students and, although few of them directly admitted to cheat, many admitted to engage in dishonest behaviours, such as copying from a printed source or from the internet without referencing and collaborating or copying in individual assignments.<sup>4</sup> Also, many of them did not consider the latter behaviour



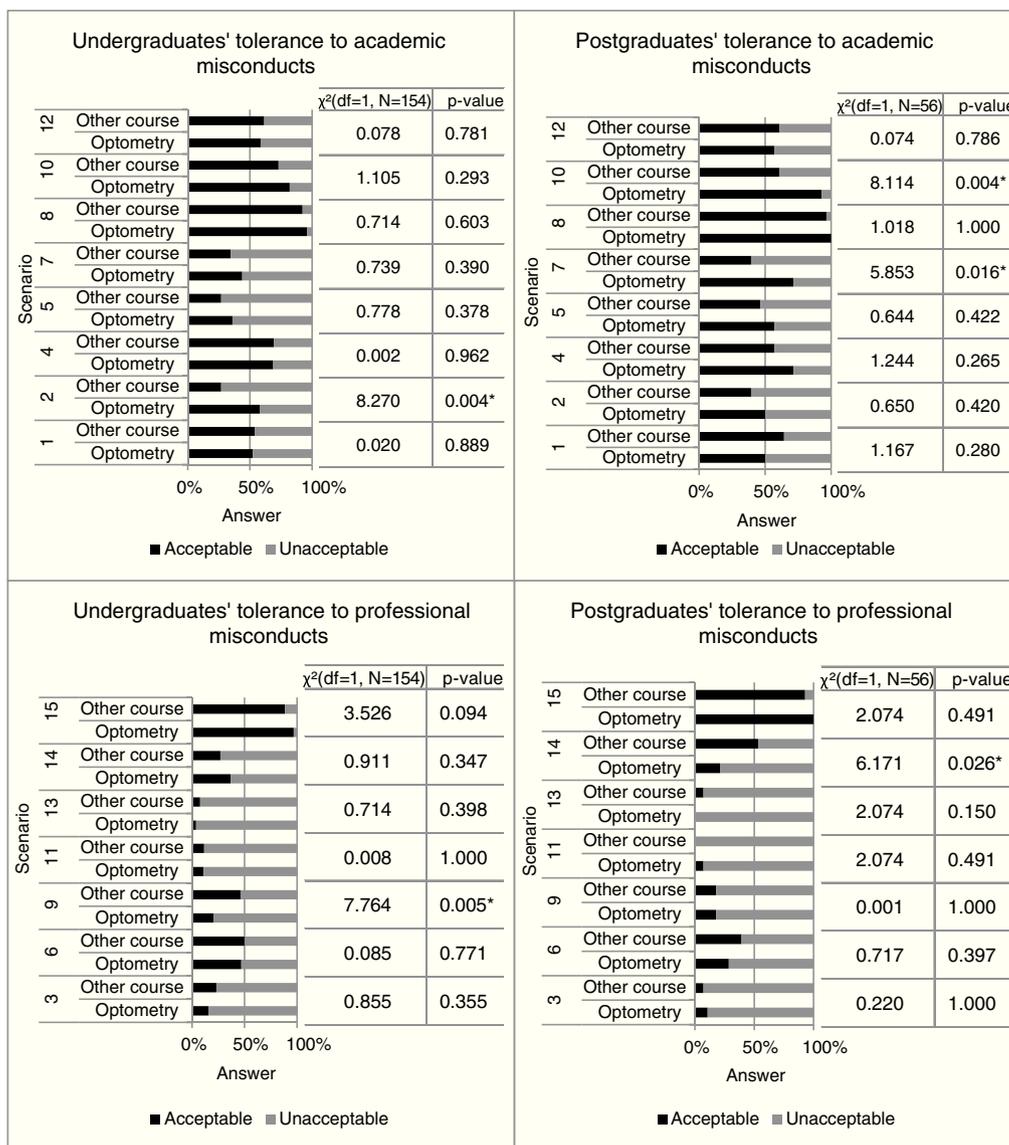
**Figure 1** Differences within under and postgraduate optometry and other courses students' perceptions of acceptable academic and professional conducts by scenario ( $\chi^2$ : Chi-square value; df: degrees of freedom, N: sample size; \*p-value <0.05).

to be a form of academic dishonesty, and were more likely to cheat if they had cheated during high school or in pre-pharmacy programs.<sup>4</sup> These results might point to a trend to maintain the same attitudes and perceptions of academic dishonesty. These findings are in line with our study, where we found higher acceptance in academic misconduct amongst postgraduate than in undergraduate students. A reasonable tendency for academic dishonesty has also been found in nursing students in Turkey, which was particularly high regarding behaviours like submitting others' homework as their own, for third year students, and quoting without referencing, for first year students.<sup>5</sup> A survey conducted on first year optometry students' perceptions of academic, clinical and professional misconducts as ethical or unethical behaviour reported that academic misconduct was the only area of concern.<sup>3</sup>

Attitude towards academic misconduct was similar for optometry and other disciplines. Significant differences

have been found between undergraduate nursing students' perceptions of academic dishonesty and other college students majoring in different disciplines, such as social work, criminal justice and mass communication.<sup>13</sup> Nursing students, although having trouble in identifying academic misconducts in half of the scenarios (6 out of 12), were more able to recognize academic misconducts than other students.<sup>13</sup> This was not the case in our study. A possible explanation is our small sample for other courses, as all the other courses are all represented and do not have much in common, ranging from law to medicine, which may be camouflaging potential differences between them.

Scenarios involving professional misconducts were less tolerable. All scenarios involving material property were poorly tolerated. Also poorly tolerated were other situations such as forging experimental results or signatures, in particular amongst postgraduate optometry students. The only scenario about confidentiality breaching was highly



**Figure 2** Differences within undergraduates and postgraduates' perceptions of acceptable academic and professional conducts in different courses by scenario ( $\chi^2$ : Chi-square value; df: degrees of freedom, N: sample size; \*p-value <0.05).

acceptable; however, we must acknowledge that the topic was an extreme example in order to try to infer how the code of ethics superimposes to what is considered acceptable. Our results follow a trend corresponding to our initial prediction that optometry undergraduates with less experience with experimental and clinical components seem to be more tolerant to this type of behaviour than postgraduates. Postgraduates are more mature and, although they seem to disregard exams and to be tolerant to cheating, they are more responsible and precise in experimental contexts. The tolerance to share a discontent email with the entire faculty also decreased across the years in optometry students. This may reveal the maturity of older students who seem to respect private matters. Forging signatures was also less acceptable amongst postgraduate optometry students, who may be more aware of the importance of one's signature, having probably already signed prescriptions and contracts. Our results disagree with a few significant differences found

in the responses of medical students in Scotland across the years, where behaviours such as signature forging, resubmitting work from another part of the course and falsifying patient information were considered more acceptable amongst more mature students.<sup>14</sup> We do not have information about the curriculum that these medical students received; however, our participants attended ethics classes during the last year of their undergraduate course. We believe that, in our case, ethics classes made students clearly aware of the importance of ethical and professional behaviour. Ethical principles concerning the code of conduct and ethical standards of health care practitioners, namely, optometrists, received in the last academic year would be visible only in postgraduate students and that may be what our results for professional scenarios are showing.

This is an initial study on the optometry students' perceptions of ethical conducts, which might be predictive of their behaviours as future practitioners. Students' attitude

towards academic dishonesty seems to mediate the relationship between self-control, perceived opportunity and this type of behaviour.<sup>15</sup> Self-control and perceived opportunity are difficult to change, but attitudes are malleable and, by means of educational influence and the development of honour codes, may be shaped in order to induce proper behaviours.<sup>15</sup> If students' perceptions on academic misconducts should change through their academic path it is likely that their attitudes also change accordingly. However, according to our results, optometry students do not seem to improve their perception of ethical conducts. This is worrisome mainly in terms of academic behaviour, which has higher tolerance for dishonest behaviour, when compared to professional conducts, which as low tolerance both for under and postgraduates.

## Limitations

There are some limitations to this study that should be mentioned and considered in future studies. More accurate demographic data should be collected in order to analyze its potential influence in the results. Some studies point to different behaviours amongst students according to gender, where women tend to be more honest in an academic context,<sup>5,7,8</sup> although many did not find any difference in gender.<sup>4,9,14</sup> As for age, younger students tend to cheat more only in college, but no differences are found in professional settings.<sup>8</sup> Another variable that should be controlled are the learning areas. Some questions may not be as relevant to a student of economics or law as to an optometry student, specifically, questions regarding experimental work. However, we believe that the questions were posed in a general manner as to reflect basic ethical principles by which all the students may imagine themselves in each scenario and respond accordingly. We were also unable to control whether respondents attended ethical courses in the degrees' syllabus that are typically directed to the specific area, like economics, management or health and that might influence their perceptions. Additionally, the size of the study sample is an important limitation that should be increased in further studies in order to fully understand if there is any difference between learning areas. The small size of our "control group" may not allow the detection of differences between other students and optometry students. Also, it would be interesting to include more Universities for the same reason.

## Conclusion

In conclusion, academic misconducts were considered acceptable by optometry students, in contrast to professional misconducts portrayed in our study. According to the results, optometry students' perceptions of acceptable conducts seem similar to students of other learning areas. Against our initial prediction, our results do not show a general change in misconduct perception when students become more mature so it is not granted that they will not

adopt their academic misconduct as professionals. Therefore, universities and faculty should give more attention at this problem, and develop and implement new strategies like increasing the amount of compulsory education about moral standards. For future research, we recommend a background querying, like age and gender, previous formation, social background and a more extensive sampling, including students and professionals.

## Conflicts of interest

The authors have no conflicts of interest to declare.

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