

Academic violence and mental health in medical students

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Abstract

Aggressions, abuse, and mistreatment experienced by medical students include racial, sexual, and/or ethnic discrimination, public humiliation, unfair evaluations, and deprivation of opportunities. This cross-sectional, quantitative study included 195 medical students from a university in southern Brazil. Sociodemographic questionnaires on experiences of institutional violence and a screening tool for common mental disorders were administered. Data collection took place between March and April 2024. The prevalence of common mental disorders was 46.67%, which was significantly associated with verbal aggression ("shouting or yelling," $p=0.035$; $OR=7.27$) and derogatory comments about the future medical specialty ($p=0.039$; $OR=3.01$). The main perpetrators were physicians (71.4%). The results highlight the urgent need for institutional and pedagogical interventions that prevent these practices, promote healthier academic environments, and offer psychological support to students throughout their training.

Keywords: Mental disorders. Students, medical. Bullying.

Resumo

Violência acadêmica e saúde mental em estudantes de medicina

As agressões, abusos e maus tratos vivenciados por estudantes de medicina incluem discriminação racial, sexual e/ou étnica, humilhações públicas, avaliações injustas e privação de oportunidades. Este estudo transversal e quantitativo incluiu 195 estudantes de medicina de uma universidade do Sul do Brasil. Foram aplicados questionários sociodemográficos sobre experiências de violência institucional e um instrumento de triagem para transtornos mentais comuns. A coleta ocorreu entre março e abril de 2024. A prevalência de transtornos mentais comuns foi de 46,67%, os quais foram significativamente associados a agressões verbais ("gritos ou berros", $p=0,035$; $OR=7,27$) e comentários depreciativos sobre a futura especialidade médica ($p=0,039$; $OR=3,01$). Os principais perpetradores foram médicos (71,4%). Os resultados evidenciam a urgente necessidade de intervenções institucionais e pedagógicas que previnam essas práticas, promovam ambientes acadêmicos mais saudáveis e ofereçam suporte psicológico aos estudantes ao longo da formação.

Palavras-chave: Transtornos mentais. Estudantes de medicina. Bullying.

Resumen

Violencia académica y salud mental en estudiantes de medicina

Las agresiones, abusos y malos tratos sufridos por los estudiantes de medicina incluyen discriminación racial, sexual y/o étnica, humillaciones públicas, evaluaciones injustas y privación de oportunidades. Este estudio transversal y cuantitativo incluyó a 195 estudiantes de medicina de una universidad del sur de Brasil. Se aplicaron cuestionarios sociodemográficos sobre experiencias de violencia institucional y un instrumento de detección de trastornos mentales comunes. La recopilación de datos se realizó entre marzo y abril de 2024. La prevalencia de trastornos mentales comunes fue del 46,67%, los cuales se asociaron significativamente con agresiones verbales ("gritos o chillidos", $p=0,035$; $OR=7,27$) y comentarios despectivos sobre la futura especialidad médica ($p=0,039$; $OR=3,01$). Los principales autores fueron médicos (71,4%). Los resultados ponen de manifiesto la urgente necesidad de intervenciones institucionales y pedagógicas que prevengan estas prácticas, promuevan entornos académicos más saludables y ofrezcan apoyo psicológico a los estudiantes a lo largo de su formación.

Palabras clave: Trastornos mentales. Estudiantes de medicina. Acoso escolar.

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Reports of harassment and abuse against medical students have been documented by researchers throughout the history of medical education. In 1982, Silver linked harassment directed at these students to disillusionment and frustration with their future career choices, as well as the promotion of a hostile educational environment conducive to the development of emotional disorders¹.

Aggression, abuse, and mistreatment faced by medical students constitute a spectrum of negative experiences lived by these trainees, encompassing racial, sexual, or ethnic discrimination, unfair evaluations by professors or teaching assistants, public humiliation, and deprivation of academic or professional opportunities^{2,3}. University is an educational environment characterized by a complex hierarchical relationship, in which adherence to ethical and moral conduct may not be linked to the expected reciprocity, making those hierarchically inferior vulnerable to aggression, abuse, and mistreatment perpetrated by those hierarchically superior³.

Experiencing aggression, abuse, and mistreatment during medical school is associated with the development of psychiatric disorders such as depressive disorder, generalized anxiety disorder (GAD), and burnout syndrome. Excepting burnout, the other disorders are included in a group of illnesses called common mental disorders (CMD)³.

Patients with CMD have insomnia, attention deficit, irritability, amnesia, as well as psychosomatic signs and symptoms like headache, dizziness, nonspecific pains, nausea, and fatigue. This overlapping between emotional and physical interfaces is linked to impaired learning and academic performance, which in turn aggravates the neuropsychiatric condition with significant impact on the victims' personal, social, and professional spheres⁴.

Experiencing CMDs as a victim makes students vulnerable, leading to dissatisfaction with their university studies and apathy regarding their education. In the long term, these factors tend to introduce into the job market professionals with questionable medical expertise and who are not fulfilled in their chosen career^{1,5}.

Medical education and training is a turbulent journey with high emotional demands. Students'

biopsychosocial well-being becomes unstable throughout their undergraduate studies when faced with situations involving death, highly complex patients, course loads exceeding what was previously determined, bureaucratic and administrative issues related to their future profession, and concerns about the uncertainties of the future. These factors, coupled with any instances of aggression, abuse, and mistreatment, increase the likelihood of developing CMDs and their consequences^{1,4,6}.

Thus, the high prevalence rate of aggression, abuse, and mistreatment perpetrated against medical students throughout their undergraduate studies, mainly by professors and teaching assistants, justifies this study. Moreover, this bad practice is associated with a high incidence of CMDs and other negative repercussions on future professional careers. But despite its importance, few studies have investigated this subject. Hence, this study identified the prevalence of aggression, abuse and mistreatment against medical students, associating it with the classification of possible CMD cases.

Method

A quantitative, cross-sectional study project was submitted to and approved by the Research Ethics Committee. All study participants signed the informed consent form for research subjects as per the Resolution 466/2012 of the National Health Council (CNS)⁷.

The sample universe consisted of 305 medical students from a public higher education institution in southern Brazil, enrolled full-time and lasting six years. Eligible participants were students in their first through sixth year, regularly enrolled, 18 years of age or older, and who agreed to participate in the research. As 92 students refused the invitation (30.16%), 195 (63.94%) undergraduates participated in the study. Additionally, 18 (5.90%) were under 18 years of age and therefore excluded.

Students answered three standardized, self-administered, and individualized questionnaires simultaneously. The first questionnaire concerned sociodemographic and economic data, comprising questions about course year, age group, gender

identity, sexual orientation, race, marital status, religion, monthly family income, satisfaction with the course, leisure time, and thoughts of dropping out of the degree program.

The second contained specific questions about aggression, abuse, and mistreatment that occurred during medical school, according to type, frequency, and perpetrators. It was developed using selected questions from a questionnaire translated into Portuguese and validated by Barreto and collaborators⁸ within the QUARA Project, conducted in São Paulo city. The questions addressed different types of aggression, abuse, and mistreatment, including the following domains: 'verbal' – being yelled at or shouted at; 'psychological' – belittling or humiliation, assignment of tasks for punitive rather than educational purposes, receiving credit for work done by the student, threat of harm, threat of physical harm, subjection to ethnic and/or religious discrimination, threat of failing or receiving a low grade without justification, receiving negative comments about future profession or career in the scientific field; 'physical' – having been slapped, kicked, pushed, or hit; and 'sexual' – being subjected to sexual harassment and/or discrimination.

Answers to each question included the estimated frequency of 0 (never), 1 (rarely: occurs once or twice), 2 (sometimes: occurs three or four times), and 3 (frequently: occurs five or more times). They also included the main aggressors, such as academics, professors, residents, teaching assistants or supervisors, doctors, nurses, other health professionals, patients, family members, caregivers, or others.

Thirdly, the Self Report Questionnaire (SRQ-20) was applied to assess possible CMD cases in the last thirty days. SRQ-20 is a tool developed to screen for minor psychiatric disorders in primary health care, which was validated in Brazil by Mari and Willians⁹. Consisting of twenty questions, each 'yes' answer is worth 1 point, so the final score ranges from 0 to 20 points. Male students scoring 6 or higher and female students scoring 8 or higher were considered potential CMD cases.

Data collection was conducted virtually between March and April 2024, with application of questionnaires via Google Forms.

First-year students participated in the research at the beginning of the first academic year, that is, they had been in the course for two months. Among the 195 participants, 47 (83.9%) were in their first year; 30 (63.8%), their second year; 37 (61.7%), their third year; 32 (53.3%), their fourth year; 27 (67.5%), their fifth year; and 22 (51.2%), their sixth year. Percentages show the relative frequency of participants in relation to the total number of students in the respective class.

Statistical analysis consisted first of a descriptive data analysis using absolute and relative frequencies for qualitative variables, and measures of central tendency and variability for quantitative variables, in addition to the prevalence of frequent victims of aggression, abuse, and mistreatment, and of CMD among participants. As standardized by the questionnaire, frequent victims refer to students who have experienced these situations five times or more.

Associative analysis between being a frequent victim of negative incidents throughout graduation and being classified as a possible CMD case used Pearson's chi-squared or Fisher's exact tests. These tests aim to verify whether there is a relation of dependence or independence between two qualitative variables. Its statistical principle is based on comparing proportions to verify whether a statistically significant difference exists between the observed frequencies and the expected frequencies of the event being analyzed.

Moreover, the odds ratio (OR) and respective 95% confidence interval (CI) were calculated to assess the associative strength between being a frequent victim of aggression, abuse, and mistreatment and being classified as a possible CMD case. The significance level adopted was 5% and the analyses were performed on R 4.2.1.

Results

Of the 195 research participants, 54.36% were between 21 and 25 years old, 52.31% identified as cisgender women, 83.08% reported being heterosexual, 82.56% were white, 96.92% were single, and 50.26% had a monthly family income between R\$ 1,000 and 5,000 (Table 1).

Table 1. Sociodemographic and medical course-specific characterization of the research participants

Variable	Categories	N*	%#	95%CI&	
				L	U
Age	18-20 years	57	29.23	23.30	35.97
	21-25 years	106	54.36	47.35	61.20
	26-30 years	28	14.36	10.13	19.97
	31-35 years	3	1.54	0.52	4.42
	36-40 years	1	0.51	0.091	2.85
Gender identity	Cisgender man	92	47.18	40.30	54.17
	Cisgender woman	102	52.31	45.32	59.21
	Non-binary	1	0.51	0.091	2.85
Sexual orientation	Heterosexual	162	83.08	77.19	87.69
	Homosexual	7	3.59	1.75	7.22
	Bisexual	21	10.77	7.15	15.90
	Pansexual	3	1.54	0.52	4.42
	Asexual	1	0.51	0.091	2.85
	Other	1	0.51	0.091	2.85
Race	White	161	82.56	76.62	87.25
	Black	9	4.62	2.45	8.54
	Mixed-race	21	10.77	7.15	15.90
	Other	4	2.05	0.80	5.15
Marital status	Single	189	96.92	93.45	98.58
	Married	2	1.03	0.28	3.66
	Other	4	2.05	0.80	5.15
Monthly income	R\$ 1,000-R\$ 5,000	98	50.26	43.30	57.20
	R\$ 5,000-R\$ 10,000	36	18.46	13.64	24.50
	R\$ 10,000-R\$ 15,000	29	14.87	10.56	20.54
	R\$ 15,000-R\$ 20,000	16	8.21	5.11	12.91
	Over R\$ 20,000	16	8.21	5.11	12.91
Course year	1st year	47	24.10	18.64	30.57
	2nd year	30	15.38	10.99	21.11
	3rd year	37	18.97	14.09	25.06
	4th year	32	16.41	11.87	22.25
	5th year	27	13.85	9.69	19.40
	6th year	22	11.28	7.57	16.49
Course satisfaction	Satisfied	162	83.08	77.19	87.69
	Dissatisfied	33	16.92	12.31	22.81
Leisure time	Sufficient	82	42.05	35.34	49.07
	Insufficient	113	57.95	50.93	64.66
Course drop out	No	144	73.85	67.26	79.51
	Yes	51	26.15	20.49	32.74

*: absolute frequency; #: relative frequency; &: lower and upper 95% confidence interval

Table 1 also presents the course-specific characteristics of the participants. Most students were in the first course year (24.10%). Regarding course satisfaction, 83.08% reported being satisfied but 57.95% stated they had insufficient leisure time. Additionally, most undergraduates (73.85%) never considered dropping out.

Table 2 evinces that 46.67% (n=91) of the students are classified as possible CMD cases, whereas 53.33% (n=104) presented no CMD. Students were categorized according to how frequently they were victims of aggression, abuse, or mistreatment; that is, whether they experienced these negative events five or more times during their undergraduate studies. Of the total sample, 3.59% (n=7) were yelled or

shouted at in public places, 4.62% (n=9) were victims of derogatory and humiliating acts in addition to having the credit for their work attributed to other people, and 2.56% (n=5) frequently received tasks for punitive rather than educational purposes.

Additionally, 1.54% (n=3) were threatened by their superiors with punishment or failing grades during the course, 3.59% (n=7) were victims of sexual harassment or discrimination, and 1.03% (n=2) of race- or creed-based harassment or discrimination. Finally, 0.51% (n=1) were frequently threatened with physical assault, but no student were frequently victimized by it, and 8.72% (n=17) already received negative comments about their future specialization.

Table 2. Classification of medical students regarding the prevalence of possible CMD cases and being frequent victims (five or more times) of aggression, abuse, or mistreatment during their undergraduate studies

Variable	Category	N*	%#	95%CI&	
				L	U
CMD classification	No	104	53.33	46.33	60.20
	Yes	91	46.67	39.80	53.67
Shouted or screamed at	No	188	96.41	92.78	98.25
	Yes	7	3.59	1.75	7.22
Humiliation or belittling	No	186	95.38	91.46	97.55
	Yes	9	4.62	2.45	8.54
Assignment of punitive and non-educational tasks	No	190	97.44	94.14	98.90
	Yes	5	2.56	1.10	5.86
Someone received credit for work you did	No	186	95.38	91.46	97.55
	Yes	9	4.62	2.45	8.54
Threat of harm	No	192	98.46	95.58	99.48
	Yes	3	1.54	0.52	4.42
Threat of physical assault	No	194	99.49	97.15	99.91
	Yes	1	0.51	0.091	2.85
Physical assault	No	195	100.00	98.07	100.00
	Yes	0	0.00	0.00	0.00
Sexual harassment or discrimination	No	188	96.41	92.78	98.25
	Yes	7	3.59	1.75	7.22
Racial or religious discrimination	No	193	98.97	96.34	99.72
	Yes	2	1.03	0.28	3.66
Threat of failure	No	192	98.46	95.58	99.48
	Yes	3	1.54	0.52	4.42
Negative comments about the future specialty	No	178	91.28	86.48	94.49
	Yes	17	8.72	5.51	13.52

*: absolute frequency; #: relative frequency; &: lower and upper 95% confidence interval

Physicians (71.4%) were the main perpetrators of frequent aggression, abuse, and mistreatment incidents, followed by nurses (31.4%), teaching assistants or supervisors (31.4%), resident physicians (25.7%), other professionals and staff (22.9%), and patients, family members, or caregivers (17.1%).

An inferential statistical analysis then investigated the associative intensity between being a frequent victim of aggression, abuse, and mistreatment during undergraduate studies and being classified as a possible CMD case. Table 3 shows that students significantly associated with the 'yes' classification in the CMD screening frequently experienced being 'shouted or screamed at' ($p=0.035$, $OR=7.27$), that is, undergraduates who are victims of this type of aggression are 7.27 times more likely to be classified as possible CMD cases. Similarly, victims of 'negative comments about the future specialty' ($p=0.039$, $OR=3.01$) are

3.01 times more likely to be classified as possible CMD cases.

'Humiliation or belittling' ($p=0.055$, $OR=4.25$), 'assignment of punitive and non-educational tasks' ($p=0.130$, $OR=4.74$), 'someone took credit for work you did' ($p=0.584$, $OR=1.45$), 'threat of harm' ($p=0.062$, $OR=0.00$), 'threat of physical assault' ($p=0.284$, $OR=0.00$), 'sexual harassment or discrimination' ($p=0.181$, $OR=2.97$), 'racial or religious discrimination' ($p=0.129$, $OR=0.00$), 'threat of failure' ($p=0.062$, $OR=0.00$) showed no statistically significant association with the CMD classification. Importantly, calculating the association between 'physical assault' and the other variables was not feasible due to $n=0$ of frequent victims. Even with some of the mentioned modalities resulting in $OR>1$, the respective confidence interval intersects the value 1, resulting in a lack of association.

Table 3. Analysis of the association between being a frequent victim (five times or more) of aggression, abuse, or mistreatment during medical school and being classified as a possible case of common mental disorder

Variable		CMD ^c						OR ^g	(95%)CI ^h		p ^d
		N ^a	Yes	No			%col		L	U	
			%ro [#]	%col [#]	N	%lin					
Shouted or screamed at	No	85	45.21	93.41	103	54.79	99.04	Ref	–	–	0.035
	Yes	6	85.71	6.59	1	14.29	0.96	7.27	3.86	61.57	
Humiliation or belittling	No	84	45.16	92.31	102	54.84	98.08	Ref	–	–	0.055
	Yes	7	77.78	7.69	2	22.22	1.92	4.25	0.86	21.00	
Assignment of punitive and non-educational tasks	No	87	45.79	95.60	103	54.21	99.04	Ref	–	–	0.130
	Yes	4	80	4.40	1	20	0.96	4.74	0.52	43.16	
Someone received credit for work you did	No	86	46.24	94.51	100.00	53.76	96.15	Ref	–	–	0.584
	Yes	5	55.56	5.49	4	44.44	3.85	1.45	0.38	5.58	
Threat of harm	No	88	45.83	96.70	104	54.17	100.00	Ref	–	–	0.062
	Yes	3	100.00	3.30	0	0	0	0.00	–	–	
Threat of physical assault	No	90	46.39	98.90	104	53.61	100.00	Ref	–	–	0.284
	Yes	1	100.00	1.10	0	0	0	0.00	–	–	
Physical assault	No	91	46.67	100.00	104	53.33	100.00	Ref	–	–	–
	Yes	0	0	0	0	0	0	0.00	–	–	
Sexual harassment or discrimination	No	86	45.74	94.51	102	54.26	98.08	Ref	–	–	0.181
	Yes	5	71.43	5.49	2	28.57	1.92	2.97	0.56	15.67	
Racial or religious discrimination	No	89	46.11	97.80	104	53.89	100.00	Ref	–	–	0.129
	Yes	2	100.00	2.20	0	0	0	0.00	–	–	

continues...

Table 3. Continuation

Variable			CMD ^ε					OR ^θ	(95%)CI ^ξ		p ^δ
	N [*]	Yes	No			%col	L		U		
		%ro [#]	%col [#]	N	%lin						
Threat of failure	No	88	45.83	96.70	104	54.17	100.00	Ref	–	–	0.062
	Yes	3	100.00	3.30	0	0	0	0.00	–	–	
Negative comments about the future specialty	No	79	44.38	86.81	99	55.62	95.19	Ref	–	–	0.039
	Yes	12	70.59	13.19	5	29.41	4.81	3.01	1.02	8.90	

*: absolute frequency; #: percentage of row (%ro) and column (%col); &: lower and upper 95% confidence interval;

ε: common mental disorder; θ: odds ratio; δ: Pearson's chi-squared test or Fisher's exact test if the expected frequency is less than 5; Ref: referential

Discussion

Since 1991, the Association of American Medical Colleges (AAMC) has conducted research on the mental health of medical students to identify and address critical issues for shaping the future of medical education, and to assess the well-being of these students by questioning them about their satisfaction with the ability of their educational program to prepare them for medical residency programs and about the academic violence experienced in the undergraduate learning environment ¹⁰.

Our research sample is similar to that analyzed by other studies on the same topic, such as Teshome and collaborators ¹¹, in which 31% of participants were women, white, and heterosexual. Henning and collaborators ¹², who sought to identify the association between quality of life and harassment among medical students in New Zealand, found a mean age of 23.75 years, close to that found in our sample.

The results described revealed a high CMD prevalence among university students, since 46.67% were classified as possible CMD cases, an interpretation further highlighted by the screening nature of the SRQ-20. This finding aligns with the systematic review by Soares and collaborators ¹³, in which the combined CMD prevalence rate was 43.3% among Brazilian medical students. Pacheco and collaborators ¹⁴, in turn, found a 31.5% CMD prevalence among university students in Brazil, without discriminating the respective course.

Here, most students were in their first year of undergraduate studies, meaning they had started

the course a few months before the research was conducted, and the proportion of first-year participants contributed to the high rate of possible CMD cases. This can be explained by the high degree of stress observed in pre-university courses and the absence of adequate psychological care, factors that, according to Soares and collaborators ¹³, can lead to the persistence or worsening of mental health risk indicators as university education progresses.

According to the meta-analysis by Pacheco and collaborators ¹⁴, anxiety is the most prevalent CMD among medical students (89.6%), frequently related to a positive past pathological history before entering university, especially among individuals selected in highly competitive entrance exams, such as the medical exam.

Henning and collaborators ¹² opted excluding first-years and selected only undergraduate students from the fourth year onwards (clinical residency) to better understand the association between quality of life and harassment in the university environment and to minimize the interference of previous psychological factors. Results evinced that medical students have concerns regarding their quality of life and provide evidence that their mental health may be at risk. Moreover, compared with the general non-university population, these students present a lower quality of life rating.

University plays a fundamental role in the training and educational process of medical students, not only as a space for acquiring technical knowledge, but also for personal and professional development. A healthy and welcoming environment promotes motivation, self-satisfaction, and well-being in

students, essential elements for effective learning and for building clinical and ethical skills. However, in a hostile and unfair university environment where aggression, abuse, or mistreatment occurs, the mental health of students is negatively affected, even diminishing their learning capacity.

In this perspective, Vilchez-Cornejo and collaborators⁴ analyzed the prevalence of abuse and depressive disorder during internship. The authors concluded that depression is a significant CMD in the final years, associated with being a victim of abuse throughout the undergraduate program, since approximately 25.4% of interns presented a positive screening assessment for this disorder. Conversely, the meta-analysis of Pacheco and collaborators¹⁴ found a downward trend regarding depression prevalence in the final years of medical school. This result can be explained by the search for psychological and psychiatric treatments during the course, by the increased level of satisfaction with the choice of profession, or by the dropout of severely depressed students.

Medical internships represent a crucial and challenging phase in the training of medical students. During this period, they begin to apply the theoretical knowledge acquired throughout the course in practice, facing an intense workload and high pressure to make complex clinical decisions, in addition to the growing responsibility in patient care and closer contact with delivering bad news and dealing with death. These demands generate concerns, anxieties, and doubts that, if not properly addressed, compromise mental health, students' academic performance, and professional self-realization.

The decision to focus our analysis on situations of frequent negative experiences during undergraduate studies is justified by the understanding that isolated and sporadic occurrences of aggression, abuse, and mistreatment, while concerning, do not reflect the impact on students' mental health. On the other hand, its persistence can compromise the emotional well-being of students and make them more susceptible to developing CMDs.

Teshome and collaborators¹¹ found that 46% of medical students reported experiences of aggression, abuse, and mistreatment during their undergraduate studies, whereas Espinoza-Riffo and collaborators³, conducting a study with Chilean

students, reported that 98.11% were victims of these negative experiences in the semester prior to the research. But these studies do not distinguish between isolated situations and frequent occurrences, thus leading to misinterpretations if the results are associated with any mental disorders arising from this university environment.

Henning and collaborators¹² identified a significant correlation between high levels of harassment and low levels of quality of life among students, corroborating our analysis which also revealed that certain negative experiences, such as receiving negative comments about their future specialty and being victims of verbal abuse, are significantly associated with classifying students as potential CMD cases.

In a recent Finnish study on aggression and abuse suffered by medical students, Rautio and collaborators¹⁵ identified that shouting and yelling was the most common form of belittling and humiliation practiced against university students. Similarly, Henning and collaborators¹² identified verbal harassment, including shouting and name-calling, as one of the main predictors of psychological distress among medical students, with a 90% occurrence rate throughout the course.

In the analysis conducted, being a frequent victim of negative comments about the future specialty increased three-fold the chance of being classified as a possible CMD case. Choosing one's future specialty is an important milestone, with personal and social expectations linked to students' professional future. Negative comments about this decision can create an identity crisis, in which the student begins to doubt their choices and the path they have chosen to follow. This, in turn, can compromise their mental health and impair their commitment and motivation during the remaining program time, since throughout their undergraduate years students undergo a process of self-discovery and consolidation of their values and interests in medicine.

Moreover, compared to episodes of sexual harassment, racial discrimination, and physical assault, which tend to be recognized and combated in a more targeted manner, receiving negative comments about one's future specialization is a more subtle and insidious form of aggression. Its detrimental effect on the mental health of victims

can become entrenched due to its cumulative impact within a constant microenvironment of negative experiences, where the student feels discredited and devalued. Thus, this type of aggression is particularly harmful to the psychological well-being of these students.

The main perpetrators of frequent aggression, abuse, and mistreatment incidents throughout medical school were physicians, teaching assistants, and supervisors. According to Sousa, Silva and Caldas¹⁶, students see these professionals as role models and influencers in shaping their own career identity, especially in choosing their future specialty. Thus, negative comments from these professionals can weaken the mentor-student relationship and generate insecurities and doubts about students' decisions, affecting their mental health and sense of competence.

Barrett and Scott¹⁷ highlight that most abuses against medical students were perpetrated by physicians, including professors in clinical settings and classrooms. These authors introduced the concept of a 'rite of passage' to explain the perpetuation of abusive behaviors between physicians and students, a cycle in which victims become aggressors, consolidating a model of teaching 'by humiliation.' Different types of negative experiences can impact not only the formation of the professional identity of future doctors, but also the quality of care they will provide to patients, as well as subsequent generations of healthcare professionals, due to continuous cycles of inappropriate behaviors.

Study limitations includes its cross-sectional design, which hinders determining causal relations between variables due to a lack of longitudinal follow-up of the participants; limited sample size; and the possibility of bias in the answers, since the participants may have omitted information for fear

of possible retaliation, given the sensitivity of the topic investigated.

Final considerations

Results evinced that the aggression, abuse, and mistreatment experienced by medical students constitute a significant problem with wide-ranging repercussions on their mental health. The high CMD prevalence identified in this and other studies reinforces the need for educational interventions aimed at protecting and providing psychological support to students throughout their medical education. University's culture of hierarchy and humiliation must be changed to promote an ethical and humanized medical education. It is also essential that the educational environment promotes constructive support and guidance, respects students' choices, and helps them build a solid and healthy professional identity.

Advancements in addressing this issue requires strengthening public health policies focused on the mental health of university students, ensuring broader access to psychology and psychiatry services, and support groups specifically for this population. Another relevant proposal involves establishing permanent centers for welcoming and mediating conflicts, as well as secure reporting channels capable of guaranteeing student protection and confidentiality.

Finally, administrators and public policy makers must encourage the establishment of healthy academic environments in which horizontal relations, mutual respect and encouragement of personal and professional development prevail. In addition to protecting students' mental health, these measures contribute to training more conscientious, ethical physicians who are better prepared to care for others holistically.

References

1. Broad J, Matheson M, Verrall F, Taylor AK, Zahra D, Alldridge L, Feder G. Discrimination, harassment and non-reporting in UK medical education. *Med Educ* [Internet]. 2018 [acesso 20 ago 2025];52(4):414-26. DOI: 10.1111/medu.13529
2. Hill KA, Samuels EA, Gross CP, Desai MM, Sitkin Zelin N, Latimore D *et al.* Assessment of the Prevalence of Medical Student Mistreatment by Sex, Race/Ethnicity, and Sexual Orientation. *JAMA Intern Med* [Internet]. 2020 [acesso 20 ago 2025];180(5):653-65. DOI: 10.1001/jamainternmed.2020.0030

3. Espinoza-Riffo M, Parra-Ponce P, Matus-Betanocurt O, Toirkens-Niklitschek J. Maltrato en el pregrado de la carrera de Medicina: percepción de los estudiantes. *Rev Med Chile* [Internet]. 2021 [acesso 20 ago 2025];149(5):617-25. DOI: 10.4067/S0034-98872021000500617
4. Vilchez-Cornejo J, Viera-Morón RD, Larico-Calla G, Alvarez-Cutipa DC, Sánchez-Vicente JC, Taminche-Canayo R *et al.* Depression and abuse during medical internships in Peruvian hospitals. *Rev Colomb Psiquiatr* [Internet]. 2020 [acesso 20 ago 2025];49(2):76-83. DOI: 10.1016/j.rcp.2018.08.001
5. Samuels EA, Boatright DH, Wong AH, Cramer LD, Desai MM, Solotke MT *et al.* Association Between Sexual Orientation, Mistreatment, and Burnout Among US Medical Students. *JAMA Netw Open* [Internet]. 2021 [acesso 20 ago 2025];4(2):e2036136. DOI: 10.1001/jamanetworkopen.2020.36136
6. Quek TTC, Tam WWS, Tran BX, Zhang M, Zhang Z, Ho CSH, HO RCM. The global prevalence of anxiety among medical students: a meta-analysis. *Int J Environ Res Public Health* [Internet]. 2019 [acesso 20 ago 2025];16(15):1-19. DOI: 10.3390/ijerph16152735
7. Conselho Nacional de Saúde. Resolução nº 466, de 12 de dezembro de 2012. Aprova diretrizes e normas regulamentadoras de pesquisas envolvendo seres humanos. *Diário Oficial da União* [Internet]. Brasília, 2013 [acesso 20 ago 2025]. Disponível: <https://bit.ly/45Oq5Kf>
8. Barreto AD, Babler F, Quaresma IY, Arakaki JN, Peres MF. Projeto QUARA – prevalência de abusos, maus-tratos e outras agressões durante a formação médica: um estudo de corte transversal em São Paulo, Brasil, 2013. *Rev Med (São Paulo)* [Internet]. 2015 [acesso 20 ago 2025];94(1):6-14. DOI: 10.11606/issn.1679-9836.v.94i1p6-14
9. Mari JJ, Williams P. A validity study of a psychiatric screening questionnaire (SRQ-20) in primary care in the city of São Paulo. *Br J Psychiatry* [Internet]. 1986 [acesso 20 ago 2025];148:23-6. DOI: 10.1192/bjp.148.1.23
10. Graduation Questionnaire (GQ) [Internet]. Washington, DC: AAMC; 2021 [acesso 20 ago 2025]. Disponível: <https://bit.ly/4amQHDH>
11. Teshome BG, Desai MM, Gross CP, Hill KA, Li F, Samuels EA *et al.* Marginalized identities, mistreatment, discrimination, and burnout among US medical students: cross sectional survey and retrospective cohort study. *BMJ* [Internet]. 2022 [acesso 20 ago 2025];376. DOI: 10.1136/bmj-2021-065984
12. Henning MA, Stonyer J, Chen Y, ten Hove BA, Moir F, Coomber T, Webster CS. Medical students' quality of life and its association with harassment and social support. *Med Sci Educ* [Internet]. 2022 [acesso 20 ago 2025];32(1):165-74. DOI: 10.1007/s40670-021-01463-z
13. Soares SJB, Fernandes CFG, Tabalipa R, Kogima F, Jubini MAM, Dias IMV *et al.* Transtornos mentais comuns entre estudantes de medicina: revisão sistemática e meta-análise de estudos brasileiros. *Sao Paulo Med J* [Internet]. 2022 [acesso 20 ago 2025];140(4):615-22. DOI: 10.1590/1516-3180.2022.0182.R1.08042022
14. Pacheco JPG, Giacomini HT, Tam WW, Ribeiro TB, Arab C, Bezerra IM, Pinasco GC. Mental health problems among medical students in Brazil: a systematic review and meta-analysis. *Rev Bras Psiquiatr* [Internet]. 2017 [acesso 20 ago 2025];39(4):369-78. DOI: 10.1590/1516-4446-2017-2223
15. Rautio A, Sunnari V, Nuutinen M, Laitala M. Mistreatment of university students most common during medical studies. *BMC Med Educ* [Internet]. 2005 [acesso 20 ago 2025];5:36. DOI: 10.1186/1472-6920-5-36
16. Sousa IQ, Silva CP, Caldas CAM. Especialidade médica: escolhas e influências. *Rev Bras Educ Med* [Internet]. 2014 [acesso 20 ago 2025];38(1):79-86. DOI: 10.1590/S0100-55022014000100011
17. Barrett J, Scott K. "Constantly ignored and told to disappear": A review of the literature on "teaching by humiliation" in medicine. *Focus Heal Prof Educ A Multi-Professional J* [Internet]. 2015 [acesso 20 ago 2025];16(4):3-14. DOI: 10.11157/fohpe.v16i4.94

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Luana Martins de Oliveira participated in project preparation, data collection, data analysis and manuscript writing. Tatiana Menezes Garcia Cordeiro, Ricardo Gomes and Flamarion de Barros Cordeiro participated in data analysis and manuscript writing. Felício de Freitas Netto participated in project elaboration, data collection, data analysis and manuscript writing.

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