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### Bullying behaviors among medical sciences students in clinical settings: a cross-sectional study

**Background:** The prevalence of bullying behaviors in clinical education environments is an important obstacle for students' learning, because it has severe psychological consequences. This study was conducted with the aim of determining the incidence of bullying behaviors among medical students in clinical education environments.

**Method:** This cross-sectional study was conducted in 2019-2020 among medical, undergraduate nursing, midwifery, operating room technology, and anesthesiology students. The research environment consisted of selected teaching hospitals in Zanjan city, Iran, while the sampling method was stratified random sampling. Data were collected using the 18-item Bullying Behaviors in Nursing Education (BBNE) questionnaire and analyzed using SPSS software version 24.

**Results:** Of the 391 participants, the majority (61.9%) were women, single, with an average age of  $22.88 \pm 1.71$  years. The total bullying score was  $16.46 \pm 13.44$ , which was considered low on the range of 0-90. The dimension of aggression towards the student's personality had the highest score of  $7.29 \pm 6.54$ . A significant relationship existed between the total bullying score and age, field of study, marital status, place of residence, and semester ( $P < 0.05$ ).

**Conclusion:** The findings indicated a low occurrence of bullying among medical students. Additionally, those who were married, older, and highly educated were more vulnerable to being bullied. Universities ought to improve students' capacity to recognize bullying in clinical education surroundings and instruct them on how to react.

**Keywords:** Bullying, Learning, Medical students, Clinical environment, Violence

### سلوكيات التنمر بين طلاب العلوم الطبية في البيئات السريرية: دراسة مقطعية

**الخلفية:** يعد انتشار سلوكيات التنمر في بيئات التعليم السريري عائقاً هاماً أمام تعلم الطلاب، لما له من عواقب نفسية وخيمة. أجريت هذه الدراسة بهدف تحديد مدى حدوث سلوكيات التنمر بين طلاب الطب في بيئات التعليم السريري. **الطريقة:** أجريت هذه الدراسة المقطعية في 2019-2020 بين طلاب الطب والتمريض الجامعي والقبالة وتكنولوجيا غرف العمليات وطلاب التخدير. تكونت بيئة البحث من مستشفيات تعليمية مختارة في مدينة زنجان، إيران، في حين كانت طريقة أخذ العينات هي أخذ العينات العشوائية الطبقية. تم جمع البيانات باستخدام استبيان سلوكيات التنمر في تعليم التمريض (BBNE) المكون من 18 عنصراً وتم تحليلها باستخدام الإصدار 24 من برنامج SPSS.

**النتائج:** من بين 391 مشاركاً، كانت الأغلبية (61,9%) من النساء، عازبات، بمتوسط عمر  $22,88 \pm 1,71$  سنة، وكانت النتيجة الإجمالية للتنمر  $16,46 \pm 13,44$ ، والتي كانت تعتبر منخفضة في نطاق 0-90. وتوجد علاقة ذات دلالة إحصائية بين الدرجة الكلية للتنمر والعمر ومجال الدراسة والحالة الاجتماعية ومكان الإقامة والفصل الدراسي ( $P < 0,05$ ).

**الاستنتاج:** أشارت النتائج إلى انخفاض معدل حدوث التنمر بين طلاب الطب. بالإضافة إلى ذلك، كان المتزوجون والأكثر سناً والمتعلمون عالياً أكثر عرضة للتنمر. يجب على الجامعات تحسين قدرة الطلاب على التعرف على التنمر في بيئة التعليم السريري وإرشادهم حول كيفية الرد.

**الكلمات المفتاحية:** التنمر، تعلم، طلاب الطب، البيئة السريرية، العنف

### رفتارهای قلدری در بین دانشجویان علوم پزشکی در محیط های آموزشی بالینی: یک مطالعه مقطعی

**زمینه و هدف:** شیوع رفتارهای قلدری در محیط های آموزشی بالینی مانع مهمی برای یادگیری دانشجویان است، زیرا می تواند پیامدهای روانی شدیدی را به دنبال داشته باشد. این مطالعه با هدف تعیین میزان بروز رفتارهای قلدری در بین دانشجویان علوم پزشکی در محیط های آموزشی بالینی انجام شد.

**روش:** این مطالعه مقطعی در سال 99-1398 در بین دانشجویان پزشکی، کارشناسی پرستاری، مامایی، تکنولوژی اتاق عمل و هوشبری انجام شد. محیط پژوهش شامل بیمارستانهای آموزشی شهر زنجان، ایران بود. روش نمونه گیری تصادفی طبقه ای بود. از پرسشنامه 18 سوالی رفتارهای قلدری در آموزش پرستاری (BBNE) استفاده شد. تجزیه و تحلیل داده ها با استفاده از نرم افزار SPSS نسخه 24 انجام شد.

**یافته ها:** از 391 شرکت کننده، اکثریت (61,9%) زن، مجرد با میانگین سنی  $22,88 \pm 1,71$  سال بودند. نمره کلی قلدری  $16,46 \pm 13,44$  بود که در محدوده 0-90 پایین تلقی شد. بعد تعرض نسبت به شخصیت دانشجویان با میانگین  $7,29 \pm 6,54$  بالاترین نمره را داشت. بین نمره کل قلدری با سن، رشته تحصیلی، وضعیت تأهل، محل سکونت و ترم تحصیلی ارتباط معنی داری مشاهده شد ( $P < 0,05$ ).

**نتیجه گیری:** این مطالعه نشان می دهد که میزان بروز قلدری در بین دانشجویان علوم پزشکی کم است و افرادی که مسن تر، متاهل و دارای تحصیلات عالی هستند، بیشتر به قلدری آسیب پذیر هستند. دانشگاه ها باید توانایی دانشجویان را در تشخیص قلدری در محیط های آموزشی بالینی افزایش داده و پاسخ های مناسب نسبت به این نوع رفتارها را به آنها آموزش دهند.

**واژه های کلیدی:** قلدری، یادگیری، دانشجویان علوم پزشکی، محیط بالینی، خشونت

### طبی ترتیبات میں میڈیکل سائنسز کے طلباء کے درمیان غنڈہ گردی کے رویے: ایک کراس سیکشنل مطالعہ

**پس منظر:** طبی تعلیم کے ماحول میں غنڈہ گردی کے رویوں کا پھیلاؤ طلباء کے سیکھنے میں ایک اہم رکاوٹ ہے، کیونکہ اس کے سنگین نفسیاتی نتائج ہوتے ہیں۔ یہ مطالعہ طبی تعلیم کے ماحول میں طبی طلباء کے درمیان غنڈہ گردی کے رویوں کے واقعات کا تعین کرنے کے مقصد سے کیا گیا تھا۔

**طریقہ:** یہ کراس سیکشنل مطالعہ 2019-2020 میں میڈیکل، انڈرگریجویٹ نرسنگ، مڈوائفری، آپریشنگ روم ٹیکنالوجی، اور اینسٹھیزیاالوجی کے طلباء کے درمیان کیا گیا تھا۔ تحقیقی ماحول ایران کے شہر زنجان میں منتخب تدریسی اسپتالوں پر مشتمل تھا، جب کہ نمونے لینے کا طریقہ بے ترتیب نمونے لینے کا تھا۔ نرسنگ ایجوکیشن (BBNE) کے سوالنامے میں 18-آئٹم بلیننگ بیہیوریز کا استعمال کرتے ہوئے ڈیٹا اکٹھا کیا گیا اور SPSS سافٹ ویئر ورژن 24 کا استعمال کرتے ہوئے تجزیہ کیا گیا۔

**نتائج:** 391 شرکاء میں سے، اکثریت (61,9%) خواتین تھیں، اکیلی، جن کی اوسط عمر  $22,88 \pm 1,71$  سال تھی۔ دھونس کا کل سکور  $16,46 \pm 13,44$  تھا، جسے 0-90 کی حد میں کم سمجھا جاتا تھا۔ طالب علم کی شخصیت کی طرف جارحیت کی جہت کا سب سے زیادہ اسکور  $7,29 \pm 6,54$  تھا۔ غنڈہ گردی کے کل سکور اور عمر، مطالعہ کے میدان، ازدواجی حیثیت، رہائش کی جگہ، اور سمسٹر ( $P < 0,05$ ) کے درمیان ایک اہم رشتہ موجود تھا۔

**نتیجہ:** نتائج نے طبی طلباء میں غنڈہ گردی کے کم واقعات کی نشاندہی کی۔ مزید برآں، شادی شدہ، بوڑھے اور اعلیٰ تعلیم یافتہ لوگ غنڈہ گردی کا شکار ہونے کا زیادہ خطرہ رکھتے تھے۔ یونیورسٹیوں کو چاہیے کہ وہ طالب علموں کی کلینیکل تعلیم کے ماحول میں غنڈہ گردی کو پہچاننے کی صلاحیت کو بہتر بنائیں اور انہیں اس بارے میں ہدایات دیں کہ وہ کیسے رد عمل ظاہر کریں۔

**مطلوبہ الفاظ:** غنڈہ گردی، سیکھنا، طبی طلباء، طبی ماحول، تشدد

## INTRODUCTION

Medical science education is imperative due to its direct impact on human life (1). To ensure effective and accurate learning, it is crucial for teaching to be conducted at the patient's bedside (2). In the medical field, clinical training is essential for complementing theoretical education and is the most significant aspect of medical training (3). Clinical education comprises more than 50% of the educational programme for medical students (4).

Clinical education fosters creative thinking skills in students, enabling them to develop problem-solving abilities (5). Through clinical education, students can translate their theoretical knowledge into the practical mental, psychological, and physical skills required for patient treatment and care (6). Clinical education forms a fundamental and vital part of medical science education, without which training competent and skilled professionals is challenging or impossible (7).

Learning clinical skills is crucial for providing safe care, facilitating clinical decision-making, and creating professional interest.

Given the significance of clinical education in the medical sciences fields, identifying learning barriers and taking the necessary measures to reduce and eliminate them are essential (8). Studies indicate that significant barriers include clinical training instructors, clinical environments, hospital personnel, educational planning, management factors such as lack of time or facilities, and students' personality traits across different fields (4, 9-12).

Bullying behavior in clinical education environments is one of the primary obstacles to students' learning (13). Bullying in educational settings frequently and continuously occurs, including verbal, physical, relational, and social bullying, across various fields of medical science (14). A multinational study highlighted that verbal bullying is the most common type of bullying among students (15).

Medical science students have experienced different forms of bullying since they entered university, from theory classes to clinical training.

These behaviors strongly affect students emotionally and psychologically (16, 17).

Bullying behavior from the academic standpoint of students can lead to decreased interest in the field, absenteeism from clinical training, delayed internship attendance, increased errors, a lack of teamwork in clinical environments, and even dropping out of school (18). These behaviors can also result in a decrease in students' learning levels (20, 21), a decrease in the quality of care and treatment services provided (19), and a reduction in patients' satisfaction with the services delivered. They can lead to students dropping out of school and changing majors (20). A study reported that 10.9% of nursing students were inclined to leave the field due to bullying behaviors in clinical environments (21).

Furthermore, these behaviors can affect students' personal lives and lead to stress, depression, mental health problems, a decrease in quality of life (22), and a decrease in job satisfaction (23). Bullying behaviors can also lead students to use antidepressants and psychoactive drugs and even turn to substance abuse (24). Given the increased number of

hospitalized patients and the spread of various diseases, such as the COVID-19 pandemic, the need for trained healthcare professionals has doubled (25). A decrease in job satisfaction and a change in major due to bullying behaviors in clinical education environments could lead to irreparable damage to the healthcare system in the future (26).

Given the significance of bullying behavior as a global problem in clinical education environments for students, it is crucial to investigate and identify this behavior, particularly among medical students who will be future healthcare professionals. Hence, this study aimed to determine bullying behaviors among medical students in clinical education environments.

## METHODS

### *Design and setting*

This descriptive and analytical cross-sectional study was conducted from September 2019 to October 2020 at Zanjan University of Medical Sciences (ZUMS) in Iran.

### *Participants and sampling*

Three hundred ninety-one students from medicine, nursing, midwifery, operating room technology, and anesthesiology fields participated in this study. A stratified random sampling method was employed, and the inclusion criterion for participating in the research was having at least one year of internship experience in clinical environments and willingness to participate. Questionnaires that were incomplete were excluded from the study.

The research environment included educational hospitals affiliated with ZUMS, including Ayatollah Mousavi, Valiasr, and Shahid Beheshti Hospital. The sample size 385 was estimated using Cochran's formula ( $\alpha=0.05$ ,  $z=1.96$ ,  $p=50\%$ , and  $d=0.05$ ). After the questionnaires were distributed and collected, 391 complete questionnaires were analyzed using SPSS version 24 software.

### *Tools/Instruments*

This study investigated various demographic information about the students, including age, sex, field of study, academic semester, marital status, place of residence, ethnic status, number of children, place of residence, and employment status.

### **Bullying Behaviors in Nursing Education (BBNE)**

The study utilized the 18-item Bullying Behaviors in Nursing Education (BBNE) questionnaire, the validity and reliability of which were 0.93, to determine the bullying behaviors experienced by medical students in clinical education environments. The BBNE was adapted from the Workplace Psychologically Violent Behaviors (WPVB) scale, which was initially designed and psychometrically evaluated by Dilek and Aytolan (2008) to identify psychologically violent behaviors in the workplace (27).

The BBNE comprises 18 items with four subscales, namely, Isolation of students from the education environment (four items), Attack on academic achievement (four items), attack on personality (six items), and direct negative behaviors (directly toward students (four items) (28). The questionnaire's internal consistency was evaluated using Cronbach's alpha, with a coefficient of 0.93 (32-37). After obtaining permission from the questionnaire designer and translating it, a list of prepared items related to bullying behaviors in clinical education environments was sent to six academic staff members of

Zanjan University of Medical Sciences to determine the content validity ratio (CVR) and content validity index (CVI). Based on their opinions and recommendations, necessary modifications were made, and the final version of the questionnaire was developed, which included 18 items and four subscales. The finalized questionnaire was retranslated and approved by the questionnaire designer.

Responses to the BBNE questionnaire were recorded on a six-point Likert scale ranging from 0 (never experienced) to 5 (experience a few times a day), with higher scores indicating more frequent experiences of bullying. All the items on the questionnaire were positively worded, and there were no reverse-scored items. The lowest possible score on the questionnaire was zero, while the highest possible score was 90. Participants were asked to indicate the frequency of exposure to bullying behavior in clinical education environments during the last 12 months.

**Data collection methods**

The project was approved at the Education Development Center of ZUMS, and the Research Ethics Committee of ZUMS provided the code of ethics. The questionnaire was stratified randomly distributed among medical, nursing, midwifery, operating room technology, and anesthesiology students who were receiving clinical training at different departments of the Ayatollah Mousavi, Shahid Beheshti, and Valiasr teaching hospitals. The questionnaires were collected after distribution.

**Data analysis**

The statistical data were analyzed using SPSS version 24 software. Descriptive statistical methods were used to describe participants based on classified and quantitative demographic variables. For inferential statistics, Pearson correlation tests and one-way analysis of variance were used.

A significance level less than 0.05 was used to indicate statistical significance.

At the beginning of the study, the participants were informed about the goals and process of the study, and written consent was obtained for their informed participation. It was explained to them that their participation or nonparticipation in the study would not affect their academic progress and that the research results would be available to them upon request. The questionnaire was then distributed to the participants by the researcher, and it was collected upon completion. Participants were assured that their information would be kept confidential.

**RESULTS**

Three hundred ninety-one students from five fields, including medicine (general doctorate), nursing (bachelor's degree), midwifery, operating room technology, and anesthesiology, participated in this study. The mean age of the participants was  $22.88 \pm 1.71$  years, and the mean number of academic semesters was  $7.31 \pm 2.72$ . Nursing (37.6%) and medicine (34.8%) were the fields with the most participants. Most participants were female (61.9%), single (91.6%), living in a dormitory (47.3%), nonnative (55.8%), or unemployed (89.3%). The mean total score for bullying among students was  $16.46 \pm 13.44$  out of a possible 90, which was in the low range. Medical students had the highest bullying score ( $21.21 \pm 14.09$ ), while midwifery students had the lowest ( $10.39 \pm 10.13$ ) ( $P < 0.001$ ). The correlations between total bullying score and age ( $P = 0.003$ ,  $r = 0.15$ ) and academic semester ( $P < 0.001$ ,  $r = 0.54$ ) were positive and significant. Married students had higher bullying scores than single students did ( $P = 0.047$ ), and students who lived in rented houses had higher bullying scores than did the other students ( $P = 0.003$ ) (Table 1).

**Table 1. Frequency distribution of research units according to the demographic characteristics of the participants and the difference in the mean scores of bullying students by demographic variables**

Variables	Demographic characteristics	Score for bullying among students	P- Value
	N (%)	Mean (SD)	
Field of Study	Nursing	147 (37.6)	13.96 (11.64)
	Midwifery	51 (13.00)	10.39 (10.13)
	Operating room technology	28 (7.20)	14.64 (13.28)
	Anesthesiology	29 (7.40)	19.38 (16.71)
	Medicine (general doctorate)	136 (34.80)	21.21 (14.09)
Gender	Male	149 (38.10)	17.51 (13.83)
	Female	242 (61.90)	15.82 (13.19)
Marital Status	Single	365 (91.60)	16.05 (12.67)
	Married	33 (8.40)	20.91 (19.74)
Habitat	Dormitory	185 (47.30)	14.63 (12.21)
	Rented houses	80 (20.50)	20.75 (14.39)
	Own homes (with family)	126 (32.20)	16.44 (13.44)
Nationality	Native	173 (44.20)	15.33 (13.50)
	Non- native	218 (55.80)	17.36 (13.36)
Employment status	Employed	42 (10.70)	17.12 (14.46)
	Unemployed	349 (89.30)	16.39 (13.33)

According to Table 2, among the different dimensions of bullying among students, the dimension that scored the highest was Attack on personality, with a score of  $7.29 \pm 6.54$ , while the dimension that had the lowest score was direct negative behaviors to the student, with a score of  $2.00 \pm 2.70$ .

**DISCUSSION**

With respect to the aim of this research, which was to identify bullying behavior among medical students in clinical training environments, the study's results indicated that the medical students experienced low levels of bullying ( $16.46 \pm 13.44$  out of a score of 90).

A study conducted in this area revealed that approximately 50% of nursing students had experienced at least one instance of bullying daily or weekly during their training (29). Additionally, a multinational study provided significant evidence suggesting that a considerable number of university students are victims of bullying by their peers or staff during their time in college (15).

While the research mentioned above highlights the prevalence of bullying behavior among students in the medical sciences, the results do not align with the findings of this study in terms of the level of bullying reported. The low intensity of bullying among the students surveyed in this study can be attributed to the shift toward virtual education and the limited physical presence of students in clinical environments.

The research findings revealed that the incidence of bullying was greater among medical students than among nursing, midwifery, operating room technology and anesthesiology students. Other studies have shown that the intensity of bullying in the medical sciences varies (27, 39, 40). For instance, a study conducted by Fathi et al. (2018) revealed that operating room technology students were more prone to violence (76.9%) than nursing and midwifery students (30). Another study that investigated the personal experiences of students in dealing with bullying during clinical education revealed that students in different disciplines expressed varying experiences of bullying depending on their clinical and educational environment (31).

Overall, these studies suggest differences in bullying among students, which is consistent with the present research findings. The higher prevalence of bullying among medical students can be attributed to differences in the clinical environment, especially among final-year medical students responsible for providing direct services to patients while

also learning. These students are more susceptible to bullying because they are not usually accompanied by an instructor, unlike students in nonmedical fields, who are typically supervised and protected by their instructors.

The present study also revealed significant relationships between demographic variables such as age, semester, field of study, marital status, place of residence, and bullying score.

The current research revealed a positive correlation between the incidence of bullying and variables such as age and academic term. Ahmer et al. (2008) and Frank et al. (2006) also showed that there is a positive correlation between the amount of bullying and the years of study of the students they analyzed (39, 40).

These findings could be explained by the fact that as students get older and move on to higher academic semesters, their knowledge and skills improve. With increasing age, students' understanding and awareness of the realities of clinical environments increase. They have more communication and interactions with potential agents and sources of bullying, and their involvement in the provision of medical or care services increases the occurrence of this phenomenon.

Moreover, as students spend more time in internships during higher semesters, their expectations increase, while fewer theory units and more internship units can expose them to more bullying in the clinical environment.

Another significant finding of the present research was that married students experienced more bullying than single students did. This relationship between marital status and the level of student bullying has also been found in various other studies (32, 33). However, Abdelaziz's study did not reveal any significant relationship between bullying and students' marital status (34).

This finding in Iran could be attributed to the fact that married students may face more socioeconomic problems than single students, which could lead to more nervous behaviors and bullying. Additionally, this relationship could be mediated by variables such as age or more experience of married individuals, as the variables age and academic term showed a significant relationship. As a general rule, married people tend to be older or further involved in their academic careers, which means that they spend more time in clinical environments and are therefore more exposed to bullying. They may also be more familiar with the conditions of the work environment and bullying behaviors in this environment.

The findings of this research also showed a significant relationship between the place of residence and the level of

**Table 2. Frequency distribution of research units according to the amount of bullying and its dimensions among participating students**

Bullying and its dimensions	N	Minimum	Maximum	Mean(SD)
Total bullying score (range 0-90)	391	0	75	16.46(13.44)
1. Isolation of students from the education environment (range 0-20)	391	0	18	3.07(3.44)
2. Attack on academic achievement (range 0-20)	391	0	19	4.35 (3.84)
3. Attack on personality (range 0-30)	391	0	29	7.29 (6.54)
4. Direct negative behaviors (range 0-20)	391	0	18	2 (2.70)



bullying experienced by students. Specifically, students who lived in rented houses were found to be more exposed to bullying than those who live in dormitories or their own homes. Although few studies related to this topic exist, Qamar et al. (2015) reported that 50–85% of medical students living in dormitories experience bullying and abuse. Nevertheless, they did not compare this to nondormitory students (35). Therefore, it is difficult to determine whether this study is consistent with the current research.

However, it is possible to speculate that students living in dormitories or in their own homes may have fewer problems and less responsibility than those living in rented houses. Moreover, the current research showed that men are more likely to experience bullying. Since female and unmarried students mainly inhabit dormitories, this could explain why students in rented houses are more frequently exposed to bullying.

Like any other research, this study has several limitations when interpreting its findings. First, this study was conducted in Iran, and the educational conditions of this country are different from those of other societies. Therefore, the results of this study cannot be generalized to other populations or cultures.

Second, the outbreak of the COVID-19 pandemic affected the data collection process of this study, as part of the internships were virtualized at the beginning of the outbreak with strict health precautions. This made it difficult to wholly and accurately identify the different dimensions of bullying in educational environments. However, the researchers took measures to ensure the accuracy of their findings despite the limitations imposed by the pandemic.

Given the prevalence of bullying in clinical and educational environments for medical and paramedical students, educational officials and policymakers must take measures to control and reduce it. One way to achieve this goal is by creating workshops before students enter the universities,

this can help students become familiar with bullying behaviors, their forms, and how to address them (36).

Sharing bullying experiences with students, peers, family members, teachers, and clinical instructors can also effectively prevent bullying in clinical settings. This approach can help students feel more at ease and lead to the development of different solutions for addressing the phenomenon of bullying at the bedside (31).

By taking proactive measures to prevent bullying, educational institutions can create a safe and respectful environment for students, ultimately leading to better outcomes for students and patients.

## CONCLUSION

The findings of this study suggest that the incidence of bullying among medical students may be low. Nevertheless, certain groups, such as medical students and undergraduates in anesthesiology, are at greater risk. Furthermore, older, married students with higher education levels may also be more vulnerable to bullying. Therefore, universities should prioritize increasing students' ability to recognize bullying in clinical education settings and teaching appropriate responses. Identifying different forms of bullying and related factors in clinical environments can be effective in managing this phenomenon in educational settings.

## Ethical considerations

Ethical issues including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc. have been completely observed by the authors. This study was approved by the Ethics Committee of ZUMS (IR.ZUMS.REC.1398.104).

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