

## Bullying among Egyptian medical students is real: A cross-sectional study

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### Abstract:

**Background:** Medical students are one particular group with a high risk for bullying with its subsequent negative impact on their well-being, morale, and compassion. **Objectives:** to assess the prevalence of different forms of bullying among Egyptian medical students, their socio-demographic characteristics as well as the presence of associated mental health problems. **Methods:** A descriptive cross-sectional study was conducted on a convenience sample of 752 medical students in Egypt from nine universities between January 2020 and June 2020 using a structured pretested self-administered digital questionnaire based on validated literature. **Results:** Among our study participants, 97.2% encountered an act of bullying, whether as the bully, the victim, or a bystander. Being a victim in 83.3% while being a bully was reported by 57.7%. Students who experienced being both a victim and a bully represented 54.8%. The most prevailing type of bullying was verbal 53.7% as a bully and 72.9% as victims. Physical bullying was the least prevalent; 3.5% as a bully and 9.7% as a victim. Regression analysis showed that the presence of anxiety; depression and family violence were significant predictors of bullying experience. **Conclusion:** There is a high prevalence of bullying among university medical students especially verbal type, this might have an impact on the future of those students, and detrimental effect on the society.

**Keywords:** Bully, Bullying, Medical student, Victim

### Introduction:

Bullying is defined as the use of force, intimidation, or manipulation to harass, threaten, or aggressively control others. The action is often repeated and involves a power imbalance.

Studies of school bullying began with Olweus' work conducted in Scandinavian countries during the 1980s.<sup>(1)</sup> Since then, bullying evolved into a worldwide problem triggering the need for research and bullying prevention programs.<sup>(2)</sup>

Several bullying forms exist: a) physical, through injuring or affecting someone's

property. For example, hitting, and punching and damaging or stealing properties. b) Verbal, including calling names and spreading rumors, c) Emotional, with the purpose to damage someone's reputation or social status, is more common among youth, particularly girls.

It is usually not overt and can go unnoticed for a long time. d) Finally, cyber-bullying, by using communications and virtual technology to stalk, intimidate, embarrass, or target someone else. Email, instant messaging, social networking sites (like Facebook), text messages, and mobile phones are all under this category.<sup>(3-5)</sup>

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Bullying affects everyone involved, the bully, the bullied, and the bystanders (person witnessing the act of bullying). Its negative effect can be manifested as a feeling of sadness and isolation, changes in sleep and eating habits, as well as other symptoms of depression and distress.

Bullying may cause long-lasting and serious issues extending into adulthood such as mental disorders, drug abuse, and suicide. It often has a negative impact on social health and interaction with the community, contributing to human aggressive and agonistic behavior.<sup>(6)</sup>

According to studies conducted across, most western countries, bullying prevalence is quite significant with a 26% overall rate of involvement. The prevalence of bullying varies widely between genders. It ranges from 8.6 % to 45.2 % among boys from 4.8% to 35.8 % among girls, and always at a higher rate among boys.<sup>(6)</sup>

Cultural, and social differences, ethnicity, as well as national policies and programs, may play a role in the presence of such variations. Bullying tends to be more prevalent in marginalized communities and high-violent areas.<sup>(5,7)</sup>

Despite the prevalence and negative impact of bullying across the world regions, fewer researches were conducted in the

Middle East and Arab world. In these studies, a high prevalence of bullying was reported ranging from 20.9 % in the UAE up to 44.2 % in Jordan.<sup>(8)</sup> In Egypt, a study on a nationally representative sample of Egyptian adolescents registered a prevalence of 31% for physical fighting.<sup>(9)</sup>

Studies show that bullying is not limited to school children and adolescents but is a problem across all ages. It extends to adulthood whether at universities or the workplace.

However, fewer research have examined the prevalence and forms of bullying at the university level, and in particular medical students, a group known for high stressful environment, inciting bullying with a subsequent serious outcome.<sup>(10)</sup>

A study conducted in the United States in the beginning of the twenty-first century shows a high bullying prevalence (42%) among medical students,<sup>(11)</sup> other studies in Europe showed similar or higher prevalence.<sup>(12)</sup>

The main mission of medical schools is to provide skillful, knowledgeable, and empathetic medical graduates capable of fostering and improving population health. When medical students are victims of bullying, there is an observed negative impact on their well-being, morale,



compassion for patients as well as their retention in the profession.<sup>(13)</sup>

Nevertheless, limited to no information is available on the bullying prevalence among Middle East medical students, specifically in the Arab world.

In the current our study, the researchers aimed to assess the prevalence of different forms of bullying among Egyptian medical students, their associated socio-demographic characteristics as well as the presence of associated mental health problems such as anxiety and depression.

## Methods:

**Study design, settings, and duration:** A descriptive cross-sectional study was conducted on a sample of medical students in Egypt from different regional universities between January 2020 and June 2020. Nine universities were selected using a convenience sampling technique to represent the main socio-cultural regions in Egypt:

Upper Egypt was represented by Fayoum, Qena, Aswan and Assuit universities; Lower Egypt (Delta region) was represented by Benha, Zagazig, and Alexandria universities; while Metropolitan areas were represented by Suez Canal and Cairo University.

**Study Participants and sampling:** The researchers targeted all medical students from the selected universities across the 6 years of medical studies. We used all available means of communication: posting on medical students' formal social media platforms, sending e-messages blasts across the different medical student's informal groups in addition to in-person invitations by fellow colleagues to fill in the online questionnaire.

The appropriate sample size needed was calculated using open epi with the following assumption: prevalence of bullying among university students 50%, to obtain maximum sample size, confidence interval 95%, effect size 2, and precision level 5%. The calculated sample size was 750.

A total of 752 undergraduates, responded by filling out the online questionnaire. The participants gave their consent as a pre-step before filling out the form anonymously.

## Study Tools:

**Data collection:** A self-administered digital questionnaire based on validated literature was constructed using the Google Forms platform and distributed to selected universities. Personal communication with a representative from each selected university was established to disseminate and promote the questionnaires among medical students.



All efforts were made to include as many participants as possible including having small group sessions for students who needed internet access to fill the forms.

The questionnaire included the following sections: -

A. Socio-demographic Section: Thirteen questions about participants' characteristics were included. The section covered age, gender, year of study, university, place of residence, family socio-cultural characteristics as well as personal habits such as smoking. Use of alcohol was not included as it is socially and religiously prohibited raising concerns on the accuracy of the answers.

B. Bullying Section: It included 25 questions. Questions covered the different types of bullying (physical, verbal, emotional, and cyberbullying). Nine questions for Verbal, five for physical, five for emotional and six for cyberbullying. Each question had three dimensions a bully, a victim, or a bystander, and is answered using a score from one to five based on the number of bullying events. One for "Never"; Two For "rarely" (once or twice); Three for "sometimes" (3-5 times); Four for "almost" (6-8 times); Five for "Always" (more than 8 times)}. The overall score for each type of bullying is based on the

sum of Likert scale scores. Hence verbal score lies between nine and forty five, while physical and emotional are between a minimum of 5 and a maximum of 25, as for cyberbullying, it is between six and thirty.

**Construction of bullying questionnaire:** Both the Multi-dimensional bullying Victimization scale developed for university students (VS)<sup>(14)</sup>, and the validated Arabic version of the Olweus scale (OS)<sup>(10,15)</sup> were used to develop the questionnaire.

The cyber, verbal and emotional questionnaires were based mainly on the VS, while the OS was used for the physical dimension lacking in the VS. Items in the OS were reformulated to fit with the questionnaire format used.

Questions that were inappropriate according to local social standards, or not relevant to our sample were excluded to avoid false responses which would affect the accuracy of the results. These were questions regarding sexual preference, color and race.

Translation and backward translation of the questionnaire was done by independent translators for clarity and accuracy. In addition, the final version used was bilingual, where every question was written in both Arabic and English, as some

descriptions and terms are more commonly known by their English name.

Before administering the questionnaire, a pilot study on 40 medical students was conducted to test the validity and reliability of the questionnaire. Cronbach's  $\alpha$  for reliability was 0.892, whereas content validity was checked by professors in the public health

**Operational defining of presence of bullying act:** As no consensus exists among researchers on the minimum number, type, or frequency of aggression events needed to be considered a bullying act, we conducted a focus group among 4<sup>th</sup>-year medical students. The consensus reached was to consider the presence of bullying if a student chooses a score of three, corresponding to 'sometimes' for at least one question of the bullying questionnaires.

C. Mental health status Section: This section included scales for both anxiety and depression assessment.

- Anxiety was assessed among students using the General Anxiety Disorders – 7 (GAD-7) scale. Arabic version.<sup>(16)</sup> The GAD-7 is a 7-item self-report measure designed to screen for the presence of GAD and to measure the severity of symptoms following the Diagnostic and Statistical Manual of mental disorders fourth edition (DSM-

IV) criteria. Psychometric evaluations of the GAD-7 suggest that it is a reliable and valid measure of GAD symptoms in the general population.<sup>(17)</sup> The Cronbach's Alpha of GAD-7 in our work was 0.91

- Depression was measured using the Patient Health Questionnaire-9 (PHQ-9)<sup>(18)</sup> a nine-item instrument based on the nine DSM-V criteria. The reliability and validity of the Arabic version have been tested in a previous study conducted in Saudi Arabia.<sup>(19)</sup> Cronbach's Alpha of PHQ-9 in our work was 0.90.

#### Data analysis:

Data were analyzed using the software, statistical package for the social sciences (SPSS) version 18 (SPSS Inc., Chicago, Illinois, USA). Frequency distribution as a percentage, and descriptive statistics in the form of mean, median and SD were calculated.

Chi-square ( $\chi^2$ -Test), student *t*-test, and correlations were done when indicated. Logistic regression analysis was performed to identify associated risk factors of being a bully and victim. *P* value of < 0.05 was considered a significant.

#### Ethical approval:

The current study was approved by the research Ethical committee, Faculty of Medicine, Fayoum University, the students



were informed of the purpose of the study, its consequences, and the confidentiality of data. All participants had the right not to participate in the study.

### Results:

Based on the 752 participants socio-demographic characteristics the mean age was  $20.5 \pm 1.5$ . Females constituted (72.9%) of the sample. The majority of students 731 (97%) had married parents; only 2% of students had divorced /widow parents.

Urban residency represented 59% of the sample. Parents were university graduates in 65.3% of fathers and 63.2% of mothers. Fathers had professional jobs in 65% of the sample and 57% of the mothers were working. Smoking and family violence were reported in 2.1% and 11.2% of students respectively (Table-1).

In the current study, 97.2% of our participants encountered an act of bullying at least three times, whether as the bully, the victim or a bystander. Being a bystander was reported by 94.1% of the sample, while 83.3% reported being victims and 57.7% being the bully. Being both a victim and a bully was reported by 54.8% of our participants.

The most prevailing type of bullying was verbal, reaching 53.7% as a bully, and 72.9% as a victim. The highest prevalent

act was ‘insulting others and talking about someone behind his back’.

Physical bullying was the least prevalent among university students; 3.5% as bully and 9.7% as victim. For cyberbullying, students reported being victims in 44% especially for “adding someone on a website without his permission” while only 8.5% reported being a cyberbully (Table 2, 3).

When cross-matched with the socio-demographic characteristics (Table-4), physical bullying was significantly higher in males than females. Victims and bystanders of physical bullying were significantly higher in younger age ( $\leq 20$  years old), while cyberbullying victims were higher in older age group  $> 20$  years. Emotional bullying was significantly higher in those with widowed /divorced parents (Table-4).

No relation was found between experiencing bullying and the parents’ education or the father’s work. While verbal and emotional bullying were higher among students with working mother versus non-working mothers, ( $14.5 \pm 4.1$  and  $6.2 \pm 1.7$  versus  $13.7 \pm 3.6$  and  $5.9 \pm 1.4$ ) respectively.

As regards to the familial environment, all types of bullying were significantly higher in those students experiencing family violence ( $p < 0.001$ ). Based on the geographical distribution, victims of



emotional bullying were significantly higher in Upper Egypt than in other universities in Lower Egypt and metropolitan areas ( $8.5244 \pm 2.9$  vs.  $8.0298 \pm 2.7$ ,  $p 0.015$ ) (Table 5).

In the assessment of mental state of the participants, we found that according to GAD and (PHQ-9) scores, about 78.1% of students had anxiety and 93% had depression. Moderate and severe anxiety were represented by 24.3% and 14.6%, while moderate and severe depression were 27.9% and 35.6% respectively.

A positive correlation with anxiety and depression ( $P < 0.001$ ) was present across all types of bullying (verbal, physical, emotional, cyber) in all three dimensions (bully, victim, bystander).

The logistic regression analysis showed that the presence of anxiety, depression, and family violence were significant predictors of bullying experience as a bully or a victim. Other factors such as age, sex, residence, university type, and smoking status were not associated with bullying experience (Table 6).

### Discussion:

Bullying has been on the rise in all its forms, affecting not only school children but young adults as well and is quite common among university students.<sup>(10,11)</sup> Its long-term detrimental effect on the person

involved and his community circle has been well documented.<sup>(20)</sup> Medical students are not spared, hampering their patient care ability and their role as a medical professional in the management of the negative impact of bullying.

The objective of this study was to fill an existing gap in the literature on the presence of bullying among medical undergraduate students and its effect on the mental well-being of students.

To our knowledge, our study is the only one in Egypt and the Middle East to analyze a wide sample across several public universities representing all the regions in the country for the presence of bullying, anxiety and depression, and associated socio-demographic factors.

Our findings revealed a high prevalence of bullying among medical students across public universities in both rural and urban communities in Egypt. About 97.2% of our participants were either bullies, bystanders or victims.

The majority reported being bystander (94.1%), while 57.7% were bully and 83.3% were victims of at least one type of bullying. Our study reported that those who experienced both being a victim and a bully represented more than half of our participants. Our findings support the



conclusion of other studies that bullies are usually people whom were victims of a bullying act themselves.<sup>(21)</sup>

Even though, our numbers were higher than the ones reported in other countries; 40% in the United States,<sup>(10)</sup> 62% among medical students of Pakistan,<sup>(22)</sup> similar findings of increased bullying prevalence, (91.7%) were reported by Maida *et al.*<sup>(23)</sup>.

While a study conducted in Finland by Uhari *et al.*<sup>(12)</sup> reported that 3 out of every 4 students were bullied during their course of medical studies. A recent study at Tanta University in Egypt revealed that 71.1% of the studied sample faced bullying during their Medical study.<sup>(4)</sup>

Verbal bullying was more prevalent than other types, where 73.9% of our sample were victims and 53.7% were bullies. The least prevalent form was physical bullying 9.4% as the victim and 3.5% as the bully.

These findings are similar to the proportions reported by Elghazally *et al.*<sup>(4)</sup> among Tanta University students where verbal bullying constituted 51.9% and physical bullying (15.8%).

This could be explained by the higher number of females in our sample (73%), where verbal bullying is the common form and the fact that physical tend to occur at

younger ages at school and decrease as they grow older.<sup>(24)</sup>

Cyberbullying was high on the list of bullying forms, only second to verbal one. It occurred significantly more in the older group (>20 years of age) but no significant difference was seen between males and females.

Forty-four percent reported cyber bullying victimization by being added without permission onto different social media websites, while only 8.5% reported being cyber bullies. Even though the high prevalence aligns with the current rise in the cyberbullying worldwide,<sup>(25, 26, 27)</sup> and the numbers reported (48%) in an Egyptian study among Benisweif University students<sup>(28)</sup> in this specific type of cyber bullying mentioned, there might a cultural perception seeing it as a normal harmless act based on the current local discussions and consensus. Further scientific studies are needed to verify the local perception of what constitutes cyberbullying.

Overall, the prevalence of bystanders was much higher than being a bully or a victim. Even though the consequence of a silent bystanders on a victim is more harmful than the act of bullying itself<sup>(29)</sup>. The harm extends to the bystanders, having to deal with the feeling of guilt, fear, and anxiety.<sup>(30)</sup>



In the present study, the association between sociodemographic factors and bullying was in line with similar studies regarding age, where physical bullying decreases as you grow older and cyberbullying increases with age till adulthood. In older ages, cyberbullying start decreasing till it reaches the lowest rate in the age group older than 66 years.<sup>(25,27,31)</sup>

Only a few studies have shown no or inverse relationship with age.<sup>(28, 32)</sup> As for gender differences, previous research presented mixed results,<sup>(30,32, 33)</sup> while in our studies, males were significantly more likely to experience bullying across all its dimensions. These differences may depend on the environment as well as cultural and educational background.

Family violence was statistically significant across all types of bullying. This may be attributed to the fact that exposure to violence reduce the perception of the negative impact of aggressive behavior, subsequently lowering the inhibition against bullying.<sup>(34)</sup>

Previous research regarding the association of other parental factors such as family household composition, parent's education and work with bullying presented conflicting results. Our study did not show an effect of these factors on the occurrence of bullying.

The lack of association might be due to differences in how these factors were measured, as well as the supportive effect of the tight and strong kinship relations between family members beyond the parent - the extended family culture- present in Egypt as a collectivist society.<sup>(35, 36)</sup>

The Geographical distribution of the universities represented in the sample showed that victims of emotional bullying were significantly higher in the rural underserved region (Upper Egypt), than in the metropolitan or more privileged area of Lower Egypt. This might be explained by the prominence of the familial male-dominant hierarchy and the role limitation and subordinations of women in Upper Egypt.<sup>(36)</sup>

In parallel with the high prevalence of bullying our findings showed the presence of anxiety and depression in a large number of the sample with a strong correlation to bullying. Along with family violence, anxiety, and depression were significant predictors of bullying experience.

These findings are similar to previous studies published.<sup>(37)</sup> However, the numbers enrolled in the current study was higher than the published prevalence.<sup>(4, 13)</sup>

The high prevalence of anxiety and depression, regardless of whether it is a



result or an inciting factor for bullying, illustrates the existence of a serious problem among medical student hindering their healthy development and performance and need to be addressed.<sup>(38)</sup>

### Limitations of the study:

Due to its cross-sectional design, the researchers could not confirm the association between bullying and its effect on anxiety and depression. Subgrouping analysis based on university locale could not be done due to the small sample size and further studies identifying the difference in factors associated with bullying across local should be undertaken to inform the strategy to address bullying at the institutional level

**Conclusion,** our study showed an alarming high prevalence of bullying among medical students in Egypt, especially the verbal type, this might negatively impact their future as well as the society at large. Urgent anti-bullying action is needed calling for a large-scale program at the medical institution level as well as the national level, and channeling resources to study and eliminate the underlying factors.

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**Table (1): demographic characteristics of study participants.**

| Demographic characteristics     |                                | N        | %    |
|---------------------------------|--------------------------------|----------|------|
| <b>Sex</b>                      | ▪ Female                       | 548      | 72.9 |
|                                 | ▪ Male                         | 204      | 27.1 |
| <b>Age</b>                      | ▪ ≤20                          | 376      | 50.0 |
|                                 | ▪ 20-22                        | 376      | 50.0 |
|                                 | ▪ Mean ±SD                     | 20.5±1.5 |      |
| <b>Residence</b>                | ▪ Urban                        | 446      | 59.3 |
|                                 | ▪ Rural                        | 306      | 40.7 |
| <b>Grade</b>                    | ▪ 1 <sup>st</sup>              | 188      | 25.0 |
|                                 | ▪ 2 <sup>nd</sup>              | 137      | 18.2 |
|                                 | ▪ 3 <sup>rd</sup>              | 180      | 23.9 |
|                                 | ▪ 4 <sup>th</sup>              | 140      | 18.6 |
|                                 | ▪ 5 <sup>th</sup>              | 89       | 11.8 |
|                                 | ▪ 6 <sup>th</sup>              | 18       | 2.4  |
| <b>University</b>               | ▪ Lower Egypt                  | 225      | 29.9 |
|                                 | ▪ Metropolitan areas           | 178      | 23.7 |
|                                 | ▪ Upper Egypt                  | 349      | 46.4 |
| <b>Marital status of parent</b> | ▪ Married                      | 731      | 97.2 |
|                                 | ▪ Divorced                     | 15       | 2    |
|                                 | ▪ Father had a second marriage | 6        | 0.8  |
| <b>Father education</b>         | ▪ Uneducated                   | 65       | 8.6  |
|                                 | ▪ Secondary education          | 84       | 11.2 |
|                                 | ▪ University education         | 491      | 65.3 |
|                                 | ▪ Postgraduate studies         | 112      | 14.9 |
| <b>mother education</b>         | ▪ Uneducated                   | 102      | 13.6 |
|                                 | ▪ Secondary education          | 111      | 14.8 |
|                                 | ▪ University education         | 475      | 63.2 |
|                                 | ▪ Postgraduate studies         | 64       | 8.5  |
| <b>Father occupation</b>        | ▪ No work                      | 15       | 2.0  |
|                                 | ▪ Unstable                     | 10       | 1.3  |
|                                 | ▪ Farmer                       | 50       | 6.6  |
|                                 | ▪ Skilled worker               | 42       | 5.6  |
|                                 | ▪ Employee                     | 144      | 19.1 |
|                                 | ▪ Professional                 | 491      | 65.3 |
| <b>Mother working status</b>    | ▪ Not-working                  | 320      | 42.6 |
|                                 | ▪ Working                      | 432      | 57.4 |
| <b>Smoking</b>                  | ▪ No                           | 736      | 97.9 |
|                                 | ▪ Yes                          | 16       | 2.1  |
| <b>Family violence</b>          | ▪ No                           | 668      | 88.8 |
|                                 | ▪ Yes                          | 84       | 11.2 |



**Table (2): Prevalence of bullying among study participants (n=752)**

| <b>Prevalence of bullying</b>    | <b>N</b>   | <b>%</b>    |
|----------------------------------|------------|-------------|
| <b>Victims</b>                   | <b>630</b> | <b>83.8</b> |
| ▪ Physical bullying              | 71         | 9.4         |
| ▪ Verbal bullying                | 548        | 72.9        |
| ▪ Emotional bullying             | 373        | 49.6        |
| ▪ Cyber bullying                 | 331        | 44.0        |
| <b>Bully</b>                     | <b>434</b> | <b>57.7</b> |
| ▪ Physical bullying              | 26         | 3.5         |
| ▪ Verbal bullying                | 404        | 53.7        |
| ▪ Emotional bullying             | 113        | 15          |
| ▪ Cyber bullying                 | 64         | 8.5         |
| <b>Combined victim and bully</b> | <b>412</b> | <b>54.8</b> |



**Table (3): Prevalence of different types of bullying**

| Types of bullying  | Bully |      | Victim |      | Bystander |      |
|--|-------|------|--------|------|-----------|------|
|  | N     | %    | N      | %    | N         | %    |
| <b>Verbal</b>  |       |      |        |      |           |      |
| ▪ Ridicule friends by repeating what he says because I think it is stupid/foolish/nonsense | 125   | 16.6 | 209    | 27.8 | 521       | 69.3 |
| ▪ Ridiculing in front of the colleagues and friends  | 44    | 5.9  | 121    | 16.1 | 463       | 61.6 |
| ▪ Starting dispute and arguments between friends   | 25    | 3.3  | 126    | 16.8 | 392       | 52.1 |
| ▪ Shouting at friend's face  | 241   | 32.0 | 263    | 35.0 | 529       | 70.3 |
| ▪ Insulting others   | 90    | 12.0 | 83     | 11.0 | 553       | 73.5 |
| ▪ Teasing/provoking  | 102   | 13.6 | 309    | 41.1 | 502       | 66.8 |
| ▪ Spreading rumors   | 13    | 1.7  | 178    | 23.7 | 448       | 59.6 |
| ▪ Some try to ridicule me by saying things around me                                       | 68    | 9.0  | 198    | 26.3 | 479       | 63.7 |
| ▪ Talking about someone behind him   | 124   | 16.5 | 303    | 40.3 | 550       | 73.1 |
| <b>Physical</b>  |       |      |        |      |           |      |
| ▪ Hitting , Kicking, pushing,  | 43    | 5.7  | 64     | 8.5  | 273       | 36.3 |
| ▪ Throwing someone things  | 30    | 4.0  | 45     | 6.0  | 185       | 24.6 |
| ▪ Broking and smashing someone things  | 19    | 2.5  | 62     | 8.2  | 168       | 22.3 |
| ▪ Taking someone things  | 18    | 2.4  | 87     | 11.6 | 207       | 27.5 |
| ▪ Concerning or blocking movement  | 8     | 1.1  | 18     | 2.4  | 125       | 16.6 |
| <b>Emotional bullying</b>  |       |      |        |      |           |      |
| ▪ Influencing the relationship with friends.   | 17    | 2.3  | 179    | 23.8 | 374       | 49.7 |
| ▪ Forbidding new friendships with unpleasant people.                                       | 48    | 6.4  | 122    | 16.2 | 285       | 37.9 |
| ▪ Discrediting others by telling false stories   | 16    | 2.1  | 198    | 26.3 | 402       | 53.5 |
| ▪ Racism towards skin color  | 7     | 0.9  | 37     | 4.9  | 248       | 33.0 |
| ▪ Racism Towards Beliefs   | 63    | 8.4  | 116    | 15.4 | 359       | 47.7 |
| <b>Cyber-bullying</b>  |       |      |        |      |           |      |
| ▪ Sending defamatory text message (false harmful allegation) through cell phone            | 3     | 0.4  | 48     | 6.4  | 168       | 22.3 |
| ▪ Sending anonymous threat messages  | 5     | 0.7  | 27     | 3.6  | 98        | 13.0 |
| ▪ Posting some pictures on personal web page to annoy others                               | 19    | 2.5  | 30     | 4.0  | 264       | 35.1 |
| ▪ Adding on some websites without permission   | 37    | 4.9  | 293    | 39.0 | 285       | 37.9 |
| ▪ Using internet password without permission   | 11    | 1.5  | 19     | 2.5  | 127       | 16.9 |
| ▪ posting personal information online without my permission                                | 4     | 0.5  | 15     | 2.0  | 177       | 23.5 |



**Table (4): Bullying according to sociodemographic characters**

|                |                | Bully             |               | Victims           |    | bystanders |    |
|----------------|----------------|-------------------|---------------|-------------------|----|------------|----|
|                |                | Mean              | SD            | Mean              | SD | Mean       | SD |
| <b>Age</b>     |                |                   |               |                   |    |            |    |
| Verbal         | ≤20            | 14.016±3.89       | 18.29±5.97    | 23.448±6.39       |    |            |    |
|                | > 20           | 14.369±3.959      | 17.78±5.22    | 23.14±5.73        |    |            |    |
|                | <b>P value</b> | <b>0.229</b>      | <b>0.233</b>  | <b>0.494</b>      |    |            |    |
| Emotional      | ≤20            | 6.11±1.66         | 8.41±2.85     | 12.07±3.96        |    |            |    |
|                | > 20           | 6.073±1.465       | 8.07±2.64     | 11.84±3.58        |    |            |    |
|                | <b>P value</b> | <b>0.718</b>      | <b>0.097</b>  | <b>0.396</b>      |    |            |    |
| Physical       | ≤20            | 6.16±1.863        | 7.13±2.67     | 9.58±4.11         |    |            |    |
|                | > 20           | 5.97±1.862        | 6.56±2.361    | 8.78±3.82         |    |            |    |
|                | <b>P value</b> | <b>0.172</b>      | <b>0.002*</b> | <b>0.006*</b>     |    |            |    |
| Cyberbullying  | ≤20            | 6.61±1.09         | 8.05±2.27     | 11.18±4.12        |    |            |    |
|                | > 20           | 6.69±1.23         | 8.39±2.04     | 10.9±3.7          |    |            |    |
|                | <b>P value</b> | <b>0.348</b>      | <b>0.03*</b>  | <b>0.417</b>      |    |            |    |
| <b>Gender</b>  |                |                   |               |                   |    |            |    |
| Verbal         | Female         | 13.82±3.71        | 17.821±5.58   | 22.95±6.07        |    |            |    |
|                | Male           | 15.11±4.30670     | 18.68±5.798   | 24.19±6.01        |    |            |    |
|                | <b>P value</b> | <b>&lt;0.001*</b> | <b>0.065</b>  | <b>0.013*</b>     |    |            |    |
| Emotional      | Female         | 5.93±1.41         | 8.23±2.79     | 11.99±3.78        |    |            |    |
|                | Male           | 6.5147±1.84       | 8.3382±2.73   | 11.84±3.78        |    |            |    |
|                | <b>P value</b> | <b>&lt;0.001*</b> | <b>0.635</b>  | <b>0.606</b>      |    |            |    |
| Physical       | Female         | 5.927±1.783       | 6.7354±2.46   | 8.71±3.78         |    |            |    |
|                | Male           | 6.43±2.029        | 7.2206±2.82   | 10.42±4.27        |    |            |    |
|                | <b>P value</b> | <b>0.001*</b>     | <b>0.022*</b> | <b>&lt;0.001*</b> |    |            |    |
| Cyberbullying  | Female         | 6.60±1.066        | 8.32±2.23     | 10.99±3.99        |    |            |    |
|                | Male           | 6.75±1.38         | 7.98±2.0      | 11.27±3.81        |    |            |    |
|                | <b>P value</b> | <b>0.086</b>      | <b>0.061</b>  | <b>0.390</b>      |    |            |    |
| <b>Parents</b> |                |                   |               |                   |    |            |    |
| Verbal         | Married        | 14.19±3.95        | 18.06±5.68    | 23.34±6.11        |    |            |    |
|                | Died /divorced | 14.012±3.67       | 18.07±5.355   | 23.30±5.53        |    |            |    |
|                | <b>P value</b> | <b>0.696</b>      | <b>0.951</b>  | <b>0.831</b>      |    |            |    |
| Emotional      | Married        | 6.029±1.512       | 6.39±1.75     | 11.92±3.793       |    |            |    |
|                | Died /divorced | 6.5696±1.84       | 6.86±1.98     | 12.24±3.64        |    |            |    |
|                | <b>P value</b> | <b>0.004*</b>     | <b>0.428</b>  | <b>0.471</b>      |    |            |    |
| Physical       | Married        | 6.058±1.89        | 6.83±2.55     | 9.0951±3.94       |    |            |    |
|                | Died /divorced | 6.101±1.56        | 7.2025±2.80   | 9.9114±4.33       |    |            |    |
|                | <b>P value</b> | <b>0.845</b>      | <b>0.221</b>  | <b>0.085</b>      |    |            |    |
| cyberbullying  | Married        | 7.84±1.75         | 8.2169±2.218  | 11.01±3.980       |    |            |    |
|                | Died /divorced | 7.98±1.514        | 8.34±1.88     | 11.56±3.65        |    |            |    |
|                | <b>P value</b> | <b>0.984</b>      | <b>0.631</b>  | <b>0.243</b>      |    |            |    |



**Table (5): Bullying prevalence in relation to family violence, smoking and university type.**

| Variables              |                              | Bully             |    | Victims           |    | Bystanders        |    |
|------------------------|------------------------------|-------------------|----|-------------------|----|-------------------|----|
|                        |                              | Mean              | SD | Mean              | SD | Mean              | SD |
| <b>Family violence</b> |                              |                   |    |                   |    |                   |    |
| Verbal                 | Yes                          | 15.27±4.238       |    | 21.54±6.825       |    | 25.60±5.93        |    |
|                        | No                           | 14.04±3.858       |    | 17.62±5.33        |    | 22.99±6.033       |    |
|                        | <b>P value</b>               | <b>0.006*</b>     |    | <b>&lt;0.001*</b> |    | <b>&lt;0.001*</b> |    |
| emotional              | Yes                          | 6.58±1.92         |    | 9.88±3.17         |    | 13.69±3.71        |    |
|                        | No                           | 6.02±1.50         |    | 8.05±2.65         |    | 11.73±3.73        |    |
|                        | <b>P value</b>               | <b>0.002*</b>     |    | <b>&lt;0.001*</b> |    | <b>&lt;0.001*</b> |    |
| physical               | Yes                          | 6.77±2.35         |    | 8.73±3.63         |    | 10.72±4.19        |    |
|                        | No                           | 5.97±1.78         |    | 6.63±2.31         |    | 8.99±3.92         |    |
|                        | <b>P value</b>               | <b>&lt;0.001*</b> |    | <b>&lt;0.001*</b> |    | <b>&lt;0.001*</b> |    |
| cyberbullying          | Yes                          | 6.75±1.259        |    | 9.23±2.74         |    | 12.75±4.47        |    |
|                        | No                           | 6.63±1.15         |    | 8.103±2.07        |    | 10.85±3.82        |    |
|                        | <b>P value</b>               | <b>0.392</b>      |    | <b>&lt;0.001*</b> |    | <b>&lt;0.001*</b> |    |
| <b>Smoking habit</b>   |                              |                   |    |                   |    |                   |    |
| Verbal                 | Yes                          | 16.88±5.46        |    | 18.19±5.52        |    | 24.81±6.97        |    |
|                        | No                           | 14.12±3.86        |    | 16.19±4.35        |    | 23.30±6.025       |    |
|                        | <b>P value</b>               | <b>0.005*</b>     |    | <b>0.129</b>      |    | <b>0.324</b>      |    |
| emotional              | Yes                          | 6.9375±2.49       |    | 8.9375±2.56       |    | 24.81±6.97        |    |
|                        | No                           | 6.0679±1.53       |    | 8.2446±2.77       |    | 23.30±6.025       |    |
|                        | <b>P value</b>               | <b>0.028*</b>     |    | <b>0.324</b>      |    | <b>0.473</b>      |    |
| physical               | Yes                          | 7.1250±2.68       |    | 6.8750±2.28       |    | 10.50±4.31        |    |
|                        | No                           | 6.03±1.83         |    | 6.87±2.587        |    | 9.152±3.97        |    |
|                        | <b>P value</b>               | <b>0.022*</b>     |    | <b>0.990</b>      |    | <b>0.181</b>      |    |
| cyberbullying          | Yes                          | 7.19±2.17         |    | 9.44±4.130        |    | 11.50±4.39        |    |
|                        | No                           | 6.64±1.1314       |    | 8.20±2.120        |    | 11.05±3.94        |    |
|                        | <b>P value</b>               | <b>0.060</b>      |    | <b>0.025*</b>     |    | <b>0.657</b>      |    |
| <b>University Type</b> |                              |                   |    |                   |    |                   |    |
| verbal                 | Upper Egypt                  | 14.0287±3.87      |    | 18.1834±5.9       |    | 23.17±6.19        |    |
|                        | Lower Egypt and metropolitan | 14.3027±3.95      |    | 17.9603±5.7       |    | 23.39±5.97        |    |
|                        | <b>P value</b>               | <b>0.399</b>      |    | <b>0.590</b>      |    | <b>0.620</b>      |    |
| emotional              | Upper Egypt                  | 6.1289±1.55       |    | 8.5244±2.9        |    | 11.85±3.75        |    |
|                        | Lower Egypt and metropolitan | 6.0496±1.56       |    | 8.0298±2.7        |    | 12.03±3.79        |    |
|                        | <b>P value</b>               | <b>0.488</b>      |    | <b>0.015*</b>     |    | <b>0.520</b>      |    |
| physical               | Upper Egypt                  | 6.1891±2          |    | 7.0287±2.8        |    | 9.3266±3.97       |    |
|                        | Lower Egypt and metropolitan | 5.9529±1.7        |    | 6.7270±2.4        |    | 9.0546±3.99       |    |
|                        | <b>P value</b>               | <b>0.083</b>      |    | <b>0.109</b>      |    | <b>0.351</b>      |    |
| cyberbullying          | Upper Egypt                  | 6.59±1.03         |    | 8.0659±2.0        |    | 10.9742±3.8       |    |
|                        | Lower Egypt and metropolitan | 6.69±1.26         |    | 8.3722±2.3        |    | 11.146±4.11       |    |
|                        | <b>P value</b>               | <b>0.232</b>      |    | <b>0.055</b>      |    | <b>0.551</b>      |    |



**Table (6): Logistic regression analysis to identify associated risk factors with bullying either victims or bully**

| Predictors   | Bully   |       |               | Victims |        |              |
|--|---------|-------|---------------|---------|--------|--------------|
|  | P value | OR    | 95.0% C.I.    | P value | OR     | 95.0% C.I.   |
| ▪ Gender<br>female/male  | 0.213   | 1.246 | 0.881-1.763   | 0.594   | 0.885  | 0.564 -1.388 |
| ▪ Residence<br>urban/ rural                                    | 0.747   | 1.052 | 0.772- 1.434  | 0.201   | 0.756  | 0.492 -1.161 |
| ▪ Marital status<br>divorced or widow/married parent           | 0.570   | 1.321 | 0.506 -3.451  | 0.186   | 4.067  | 0.507-32.596 |
| ▪ Age<br>> 21 years /< 21 years                                | 0.476   | .894  | 0.658 -1.216  | 0.149   | 1.360  | 0.896-2.067  |
| ▪ Smoking<br>non-smokers/smokers                               | 0.295   | .530  | 0.161 -1.740  | 0.260   | 0.301  | 0.037-2.428  |
| ▪ University<br>upper Egypt /lower and capital<br>governorates | 0.990   | 1.002 | 0.735-1.367   | 0.526   | 0.873  | 0.572-1.330  |
| ▪ Family violence<br>yes /no                                   | 0.012*  | 2.005 | 1.164-3.453   | 0.013*  | 12.555 | 1.708-92.303 |
| ▪ Anxiety<br>yes /no   | 0.002*  | 1.898 | 1.260-2.859   | <0.001* | 2.794  | 1.710- 4.566 |
| ▪ Depression<br>yes /no  | 0.004*  | 1.670 | 1.174 - 2.375 | 0.047*  | 1.617  | 1.006- 2.597 |
| ▪ Wald test  | 18.5,   |       |               | 271.8   |        |              |
| ▪ X2   | 49.38   |       |               | 69.75   |        |              |
| ▪ P value  | <0.001  |       |               | <0.001  |        |              |
| ▪ 2 Log likelihood   | 594.7   |       |               | 966.05  |        |              |
| ▪ Cox & Snell  | 0.090   |       |               | 0.064   |        |              |
| ▪ R <sup>2</sup> Nagelkerke                                    | 0.152   |       |               | 0.086   |        |              |



## الملخص العربي

## التنمر بين طلاب الطب المصريين أمر حقيقي: دراسة مقطعية

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**الخلفية:** طلاب الطب هم مجموعة معينة معرضة بدرجة عالية لخطر التنمر مع ما يترتب على ذلك من تأثير سلبي على رفاههم ومعنوياتهم وحالتهم العامة. **الأهداف:** تقييم مدى انتشار أشكال مختلفة من التنمر بين طلاب الطب المصريين، وخصائصهم الاجتماعية والديموغرافية بالإضافة إلى وجود مشاكل نفسية مرتبطة بها. الطريقة: أجريت دراسة وصفية مقطعية على عينة من ٧٥٢ طالب طب في مصر من تسع جامعات باستخدام استبيان منظم تم اختياره ذاتيًا بناءً على أدبيات تم التحقق من صحتها. **النتائج:** من بين المشاركين في دراستنا، واجه ٩٧,٢٪ عملاً من أعمال التنمر، سواء كان المتنمر أو الضحية أو المتفرج. تم الإبلاغ عن الوقوع ضحية بنسبة ٨٣,٣٪ أثناء التنمر في ٥٧,٧٪. الطلاب الذين عانوا من كونهم ضحية ومتنمر مثلوا ٥٤,٨٪. أكثر أنواع التنمر شيوعاً كان اللفظي ٥٣,٧٪ كمتنمر و ٧٢,٩٪ كضحية. كان التنمر الجسدي هو الأقل انتشاراً؛ ٣,٥٪ متنمر و ٩,٧٪ ضحية. أظهر تحليل الانحدار أن وجود القلق؛ الاكتئاب والعنف الأسري من العوامل الهامة للتنبؤ بتجربة التنمر. **الخلاصة:** هناك انتشار كبير للتنمر بين طلاب الطب الجامعيين وخاصة النوع اللفظي ، وقد يكون لذلك تأثير على مستقبل هؤلاء الطلاب وتأثير ضار على المجتمع.