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# Role of physical and dentofacial features in bullying among United Arab Emirates schoolchildren and its impact on school performance – A cross-sectional study

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## Abstract

**BACKGROUND:** Bullying has a lasting effect on young, vulnerable minds, especially among school-aged youngsters. With the help of this study, we intended to examine how physical and dentofacial characteristics contribute to bullying among kids and how it affects their academic performance.

**METHODS:** This retrospective cross-sectional study consisted of a self-reported anonymous, pretested questionnaire divided into three major domains, with due institutional ethical clearance being obtained before the study's commencement.

**RESULTS:** The study population consisted of 269 schoolchildren, with 49.8% being males and the majority (55.0%) residing in Ajman. Among the schoolchildren, 35.7% reported being victims of bullying. The majority of bully victims (27.1%) skipped school because of bullying. Additionally, 64.3% of the students had a nickname, primarily used by siblings, and approximately half of the bully victims disliked their nicknames. In terms of happiness, 45.0% of students were neither happy nor unhappy in classes, while 10.8% were very unhappy. Outside of school, 56.9% of participants were very happy, and only 1.1% were very unhappy. Most students (58.7%) did not believe that bullying harms their grades, while 19.7% believed it does. Furthermore, 71.7% of students did not experience bullying due to good grades or showing interest in schoolwork.

**CONCLUSION:** Based on results, physical and dentofacial features in bullying among schoolchildren and its impact on school performance, sociodemographic patterns, and factors associated with bullying victimization highlight the need for targeted interventions and preventive strategies to address this issue. Thus, can create a safe and supportive school environment that promotes the well-being and academic success of all schoolchildren.

## Keywords:

Bullying, craniofacial features, dentofacial anatomy, schoolchildren

## Introduction

Bullying refers to repeated aggressive behavior that occurs within a power imbalance, where an individual or group intentionally inflicts harm, physically or

psychologically, upon another individual who is unable to defend themselves adequately.<sup>[1]</sup> It is a pervasive social issue that can manifest in various settings, including schools, workplaces, and online platforms. Bullying can take various forms, such as verbal, physical, relational, or

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cyberbullying, each having distinct characteristics and impacts on the individuals involved.<sup>[2]</sup> Verbal bullying involves the use of derogatory language, insults, or teasing to belittle or demean the target. Physical bullying entails direct physical aggression, such as hitting, kicking, or pushing.<sup>[3]</sup> Relational bullying, also known as social bullying, revolves around damaging social relationships through exclusion, spreading rumors, or manipulating social dynamics.<sup>[4]</sup> Cyberbullying, a relatively recent form facilitated by digital platforms, involves using electronic communication tools to harass, intimidate, or humiliate others.<sup>[4]</sup>

Arguably, the most significant impact bullying has is on young school-going children, both in the short-term and the long term.<sup>[5]</sup> It is a distressing experience that can have detrimental effects on various aspects of their lives, including their physical, emotional, and social well-being.<sup>[6]</sup> One of the immediate impacts of bullying is the emotional toll it takes on children. Being subjected to bullying can lead to feelings of fear, anxiety, sadness, and low self-esteem.<sup>[7]</sup> It erodes their sense of safety and security, making them reluctant to attend school or engage in social activities.<sup>[8]</sup> The constant fear of being targeted can lead to heightened stress levels, which may adversely affect their concentration, academic performance, and overall school experience.

There are different aspects of how this act affects a young individual. Bullying can also have long-term psychological consequences.<sup>[9,10]</sup> Children who experience bullying are at an increased risk of developing mental health issues such as depression, anxiety disorders, and even suicidal ideation. The persistent emotional distress can have a lasting impact on their self-confidence, self-worth, and ability to form trusting relationships with peers and adults. These negative effects may extend into adolescence and adulthood, affecting their overall psychosocial development and quality of life.<sup>[11]</sup>

Furthermore, bullying can have a detrimental effect on children's social interactions. It can lead to social isolation and a sense of alienation from their peers. Bullied children may struggle to make friends, experience difficulties in establishing and maintaining positive relationships, and may exhibit social withdrawal as a protective mechanism. These social challenges can hinder their social skills development, limit their opportunities for socialization, and contribute to feelings of loneliness and exclusion.<sup>[12]</sup> Academically, bullying can disrupt children's educational progress. The distress caused by bullying can impede their concentration, attention, and ability to fully engage in classroom activities. They may experience a decline in academic performance, increased absenteeism, and decreased motivation to participate in educational activities.<sup>[13]</sup> Over time, these academic

setbacks can have long-lasting consequences for their educational attainment and prospects.

Despite growing research on bullying among schoolchildren, there are still significant literature gaps related to its impact on school performance. First, limited research has explored the specific physical and dentofacial features that are targeted in bullying incidents.<sup>[11-13]</sup> Investigating which physical attributes or facial characteristics are more commonly associated with bullying can help identify specific risk factors and inform targeted interventions. Understanding the underlying factors that contribute to the selection of these features as bullying targets can provide valuable knowledge for developing prevention strategies. Furthermore, the impact of bullying on school performance concerning physical and dentofacial features is an area that requires further investigation. While it is acknowledged that bullying can have adverse effects on academic performance, the specific role of physical and dentofacial features in exacerbating or mitigating these impacts is not well understood. Exploring the mechanisms through which bullying based on physical appearance influences school performance can provide insights into the pathways and potential interventions to support affected students. Hence, the most important aim of this cross-sectional study conducted on the role of physical and dentofacial features in bullying among United Arab Emirates (UAE) schoolchildren and its impact on school performance was to examine the relationship between these factors. Specifically, the study aimed to investigate the prevalence of bullying behaviors among UAE schoolchildren and explore whether physical and dentofacial features played a significant role in being targeted for bullying incidents. Additionally, the study sought to assess the impact of bullying based on physical appearance on the academic performance of the affected students.

## Materials and Methods

### Study design

This was a cross-sectional study with a retrospective questionnaire-based design.

### Study population

The study population consisted of school children in the sixth and seventh grades, specifically aged 11-12 years.

### Sample size calculation

The sample size was determined using the formula  $N = 4PQ/L^2$ , where P represents the estimated prevalence of bullying, which was approximated to be close to 50% based on a previous study conducted in the UAE in 2022,<sup>[14]</sup> Q is the complementary probability to P, L is the allowable error set at 5%, and N represents

the desired sample size for each gender, which was determined to be 400.

### Inclusion and exclusion criterion

The inclusion criteria for participation in the study were school children aged 11–12 years whose parents provided written informed consent for their participation, as well as students who volunteered to take part in the study. Students with congenital anomalies and mentally challenged students were excluded from the study.

### Sampling method

The study utilized a stratified cluster random sampling method. The list of schools in the UAE was obtained from the Ministry of Education directory. Permission to conduct the study was sought from the head of each school (cluster), and information packs containing a letter explaining the study objectives, a consent form, and a questionnaire were distributed to parents. The questionnaire was administered in the classroom in the presence of a teacher, and any necessary clarifications were provided.

### Data collection instruments

The data collection instruments included a self-reported anonymous, pretested questionnaire divided into three domains: demographic characteristics, personal experiences of bullying among schoolchildren, and perceived effects of bullying on academic performance. Additionally, a parental questionnaire was used to collect demographic information and cross-verify the child's bullying experiences, enhancing the study's internal validity.

### Ethical considerations

Ethical clearance was obtained from the ethical approval committee at Ajman University before the study commenced. Written informed consent from parents was mandatory for their child's participation. Permission was also obtained from the head of the institution and the principal of selected schools.

### Data management and analysis

Data was coded and analyzed using SPSS version 22.0. The data was stored for 6 months and then appropriately disposed of. The statistical analysis aimed to maintain a level of statistical significance at  $P \leq 0.05$ .

## Results

Tables 1 and 2 provide the frequencies, percentages, and differences (by bullying status) for the study population according to sociodemographic background and bullying experience as perceived by students. Of 269 students, 134 (49.8%) were males, and the vast majority of students, 148 (55.0%), lived in Ajman, while only 18 students lived

**Table 1: Participant characteristics and their related information**

Variable	Group	Frequency	Percentage
Gender	Males	134	49.8%
	Females	135	50.2%
	Ajman	148	55.0%
	Sharjah	18	6.7%
Student address	Dubai	28	10.4%
	Abu Dhabi	75	27.9%
Nationality	UAE Citizens	142	52.8%
	Non-UAE Citizens	127	47.2%
	<5000 AED	43	16.0%
	5,000-10,000 AED	37	13.8%
Family monthly income	10,000-15,000 AED	32	11.9%
	15,000-20,000 AED	47	17.5%
	>20,000	110	40.9%
Student age Category	8-11 Yrs.	56	20.8%
	12-15 Yrs.	170	63.2%
	16-18 Yrs.	43	16.0%

in Sharjah. In regard to nationality, 142 (52.8%) were UAE citizens. The majority of the students were between the ages of (12–5 years.) 170 (63.2%), then (8–11 years.). However, 56 (20.0%) and 43 (16%) of the students were between the ages of (16–18 years). In terms of family monthly income, 110 (40.9%) families earned more than 20,000 AED, while 43 (16%) earned less than 5000 AED [Table 1].

Of 269 schoolchildren, 96 (35.7%) were bully victims. The majority of 96 (27.1%) bully victims skipped school because of bullying. Also, 173 (64.3%) of the students had a nickname, and 73 (27.1%) were used primarily by siblings. Of these nicknames, 93 (34.6%) were disliked by around half of the bully-victims. Moreover, 121 (45.0%) of the students were neither happy nor unhappy in classes at school, while 29 (10.8%) were very unhappy. However, 153 (56.9%) of the participants were very happy outside the school, and the minority was very unhappy 3 (1.1%). In addition, the majority 158 (58.7%) of the students do not think that bullying harms their grades, while 53 students (19.7%) believe that bullying harms their grades. Finally, 193 (71.7%) students did not get bullied because of good grades or for showing interest in schoolwork [Table 2].

Physical bullying, in the form of weight, was the highest among students (11.9%) followed by heights (7.1%) and having a gap between teeth (3.3%). Although (1.9%) of the students were bullied because of the nose, (1.5%) of students were bullied due to both hair and wearing glasses.

A Chi-squared test showed a significant association between bullying victimization and gender, nationality, family income, school skipping, age, having a nickname,

**Table 2: Conceptual variables about bullying as answered by respondents**

Variables	Group	Frequency	Percentage
Have you been bullied by any student(s) from school in the past month?	Yes	96	35.7%
	No	173	64.3%
Have you ever skipped school because of bullying?	Yes	73	27.1%
	No	196	72.9%
Do you have a nickname?	Yes	173	64.3%
	No	96	35.7%
	Siblings	73	27.1%
Who calls you by this name?	Peers	35	13.0%
	Others	66	24.5%
	I like it	29	10.8%
What do you think about being called by this nickname?	I do not mind it	52	19.3%
	I do not like it	93	34.6%
	Neither happy nor unhappy	121	45.0%
How happy are you in your classes at school?	Somewhat happy	22	8.2%
	Somewhat unhappy	20	7.4%
	Very happy	77	28.6%
	Very unhappy	29	10.8%
	Neither happy nor unhappy	64	23.8%
	Somewhat happy	46	17.1%
How happy are you outside of classes?	Somewhat unhappy	2	0.7%
	Very happy	153	56.9%
	Very unhappy	3	1.1%
How much do you think that school bullying harms your grades?	Not at all	158	58.7%
	Very little	58	21.6%
	A lot	53	19.7%
How much do you get bullied because of good grades or for showing interest in schoolwork?	Not at all	193	71.7%
	Very little	76	28.3%

and being called by the nickname. As indicated by a  $P$  value  $< 0.05$ , 58 (21.6%) more females than males were bullied ( $P < 0.05$ ). Similarly, bullying victimization was higher among non-UAE citizens, 58 (21.6%) versus 38 (14.1%) since ( $P < 0.001$ ). In addition, a Chi-squared test revealed a significant association between family monthly income and bullying, with the highest rates of bullying victimization occurring in families with a monthly income of 5,000 AED 27 (10%), followed by 5,000–10,000 AED 26 (9.7%),  $P < 0.001$ . There was a significant association between having a nickname, feeling about the nickname, and skipping school due to bullying and being bullied ( $P < 0.05$ ). Additionally, 67 (24.9%) 12- to 15-year-olds were bullied the most ( $P < 0.05$ ). In contrast, there was no statistical significance between place of residence and bullying victimization ( $P = .251$ ) [Table 3].

Table 4 below shows that bullying victims were Neither happy nor unhappy in classes 43 (16.0%), and 20 (7.4%) were Very unhappy, only 12 (4.5%) were Very happy ( $P < 0.001$ ). In contrast, 41 (15.3%) of bullying victims were very happy outside of classes, followed by 27 (10.1%) Somewhat happy, while only 1 (0.4%) were very unhappy outside of classes ( $< 0.021$ ). Neither bullying harms students' grades nor bullied for showing interest in schoolwork was not statistically significant with bullying victimization ( $P < 0.05$ ). [Table 4].

The results of the questionnaire were further adjusted using binary logistic regression analysis to ascertain the factors associated with being a bully victim. The factors that were entered into the regression model included those that dictated the children's sociodemographic profile and the effect of bullying victimization on their academic abilities and school attendance. Age group of the schoolchildren, feelings inside class, feelings outside class, effect on school grades, and extent of bullying victimization because of good grades or showing an interest in school ( $P < 0.05$ ) The rest of the factors were not associated with bullying victimization ( $P > 0.05$ ). Compared to schoolchildren who were 12–15 years old, there were 3.01 times (95% confidence interval (CI):.024-.781). In addition, those who were bullied were 26.314 times somewhat unhappy in school (CI: 3.109–222.711). Non-UAE Citizens students were exposed to bullying 2.380 times compared to UAE Citizens students (CI: 1.057–5.361). Moreover, bullying victimization for someone who was somewhat happy outside of school was 9.886 times (CI):.465–210.234 higher compared to other students. On the other hand, compared to schoolchildren who reported being subjected to a lot of bullying because of their family's monthly income of 5,000–10,000 AED, they had 4.18 times (CI:.031–.502) higher odds of being bully victims [Table 5].



**Table 3: Sociodemographic characteristics of study participants and association with bullying (n=269)**

Variable	Category	Bully Victim (n=269)		P
		Yes	No	
Gender	Males	38 (14.1%)	96 (35.7%)	P=0.015
	Females	58 (21.6%)	77 (28.6%)	
Nationality	UAE Citizens	38 (14.1%)	104 (38.7%)	P<0.001*
	Non-UAE Citizens	58 (21.6%)	69 (25.7%)	
	<5000 AED	27 (10.0%)	17 (6.3%)	
Family monthly income	5,000-10,000 AED	26 (9.7%)	10 (3.7%)	<0.001*
	10,000-15,000 AED	10 (3.7%)	22 (8.2%)	
	15,000-20,000 AED	10 (3.7%)	37 (13.8%)	
	>20,000	23 (8.6%)	87 (32.3%)	
Student age Category	8-11 Yrs.	21 (7.8%)	35 (13.0%)	P=0.037
	12-15 Yrs.	67 (24.9%)	103 (38.3%)	
	16-18 Yrs.	8 (3.0%)	35 (13.0%)	
	Ajman	52 (19.3%)	96 (35.7%)	
Residence region in the UAE	Sharjah	10 (3.7%)	8 (3.0%)	P=0.251
	Dubai	11 (4.1%)	17 (6.3%)	
	Abu Dhabi	23 (8.6%)	52 (19.3%)	
Have you ever skipped school because of bullying?	Yes	48 (17.8%)	25 (9.3%)	<0.001*
	No	46 (16.8%)	150 (56.0%)	
Do you have a nickname?	Yes	68 (25.3%)	99 (36.8%)	0.036
	No	28 (10.4%)	74 (27.5%)	
What do you think about being called by this nickname?	I like it	12 (6.9%)	17 (9.8%)	0.045
	I do not mind it	17 (9.8%)	35 (20.1%)	
	I do not like it	35 (20.1%)	58 (33.3%)	

\*According to Chi-squared and Fisher's exact tests, \* this indicates a statistically significant difference (P<0:05)

**Table 4: Feelings toward school and the relationship of academic performance and bullying**

Variable	Category	Bully Victim (n=269)		P
		Yes	No	
How happy are you in your classes at school?	Neither happy nor unhappy	43 (16.0%)	78 (29.0%)	<0.001*
	Somewhat happy	3 (1.1%)	19 (7.1%)	
	Somewhat unhappy	18 (6.7%)	2 (0.7%)	
	Very happy	12 (4.5%)	65 (24.2%)	
	Very unhappy	20 (7.4%)	9 (3.3%)	
How happy are you outside of classes?	Neither happy nor unhappy	24 (9.0%)	40 (14.9%)	<0.021
	Somewhat happy	27 (10.1%)	19 (7.1%)	
	Somewhat unhappy	2 (0.7%)	0 (0.0%)	
	Very happy	41 (15.3%)	112 (41.8%)	
	Very unhappy	1 (0.4%)	2 (0.7%)	
How much do you think that school bullying harms your grades?	Not at all	35 (13.0%)	123 (45.7%)	<0.561
	Very little	32 (11.9%)	26 (9.7%)	
	A lot	29 (10.8%)	24 (8.9%)	
How much do you get bullied because of good grades or for showing interest in schoolwork?	Not at all	48 (17.8%)	145 (53.9%)	<0.771
	Very little	48 (17.8%)	28 (10.4%)	

\*According to Chi-squared and Fisher's exact tests, \* this indicates a statistically significant difference (P<0:05)

## Discussion

The findings from this study can have significant implications for understanding and addressing this issue. The study revealed important sociodemographic patterns and differences associated with bullying victimization among schoolchildren. It was observed that females experienced higher rates of bullying compared to males, and non-UAE citizens were more vulnerable to

bullying than UAE citizens. Family income also played a role, with higher rates of bullying victimization observed in families with lower monthly incomes. Furthermore, the study identified certain factors that were significantly associated with bullying victimization. These factors included age, feelings inside and outside of class, and the effect of bullying on school grades. Schoolchildren aged 12–15 years were found to be at higher risk of bullying victimization compared to other age groups.

**Table 5: Logistic regression analysis of factors associated with bullying victimization**

Variables	Group	S.E.	Sig.	Odds Ratio	95% C.I. for Odds Ratio	
					Lower	Upper
Gender		0.419	0.006	3.191	1.403	7.256
Nationality		0.414	0.036	2.380	1.057	5.361
Extent of bullying because of interest in school or good grades		0.557	0.349	1.685	0.347	4.274
Skipped school because of bullying		0.483	0.076	0.425	0.165	1.095
Happy at School	Neither happy nor unhappy		0.000			
	Somewhat happy	0.671	0.060	3.536	0.949	13.179
	Somewhat unhappy	1.090	0.003	26.314	3.109	222.711
	Very happy	1.136	0.071	0.128	0.014	1.190
	Very unhappy	0.738	0.023	5.335	1.256	22.656
	Neither happy nor unhappy		0.002			
Happy outside the school	Somewhat happy	1.560	0.142	9.886	0.465	210.234
	Somewhat unhappy	1.532	0.895	0.818	0.041	16.467
	Very happy	1.979	1.000	0.000	0.000	.
	Very unhappy	1.514	0.165	8.170	0.420	158.909
	< 5000 AED		0.001			
Family monthly income	5,000-10,000 AED	0.711	0.003	4.18	0.031	0.502
	10,000-15,000 AED	0.678	0.000	0.074	0.020	0.281
	15,000-20,000 AED	0.671	0.313	0.508	0.136	1.893
	> 20,0000	0.655	0.886	0.910	0.252	3.285
Age	8-11 Years		0.028			
	12-15 Years	0.883	0.138	3.01	0.024	0.781
	16-18 Years	0.806	0.008	0.116	0.024	0.565
Constant		1.799	0.861	0.730		

Those who reported feeling somewhat unhappy in school and somewhat happy outside of school were also more likely to experience bullying. Additionally, the study highlighted the importance of addressing bullying related to family income, as schoolchildren who reported being bullied because of their family's monthly income of 5,000–10,000 AED had higher odds of being bully victims. The results of this study contribute to the existing literature by providing insights into the specific sociodemographic factors associated with bullying victimization among UAE schoolchildren. These findings can inform the development and implementation of targeted interventions and preventive strategies to reduce bullying incidents and their impact on school performance. By addressing the identified risk factors, such as age, feelings inside and outside of class, and the effect of bullying on school grades, educators, policymakers, and parents can work together to create a supportive and inclusive school environment that promotes the well-being and academic success of all students.

Numerous studies demonstrate bullying's pervasiveness in various ways. A study that examined bullying used data from 40 different nations. According to the survey, the proportion of boys varied between 8.6% and 45.2%, while the proportion of girls varied between 4.8% and 35.8%.<sup>[15]</sup> However, 52.7% of students in elementary school and 28% of students in universities in Mexico,

according to another paper.<sup>[16]</sup> Bullying and physical violence in schools are prevalent, with a prevalence of around 24% and 21%, respectively, in the Kingdom of Saudi Arabia's (KSA) first nationally representative sample of teenagers.<sup>[17]</sup>

Our data revealed a prevalence of bullying of 35.7%, which was marginally higher than that of comparable studies.<sup>[3]</sup> Nevertheless, a recent survey of teenagers revealed that bullying was rather uncommon, with only 1.5% of the teenagers reporting being the victim.<sup>[18]</sup> According to our study, peer victimization and social support (from family and peers) are negatively correlated. These findings align with earlier studies<sup>[19]</sup> and were anticipated. On the other side, a lack of independence and the inability to address problems can negatively impact teenagers, making it harder for them to tolerate bullying.<sup>[20]</sup>

According to a study,<sup>[5]</sup> having more friends protects against traditional and relational bullying. Another study<sup>[21]</sup> assessed that whereas older adolescents rely more on peer social support, younger children rely more on their parents and other authority figures for social support. As a result, perceived peer support can have good outcomes such as enhanced physical and mental health,<sup>[22]</sup> increased resilience,<sup>[23]</sup> and higher self-esteem,<sup>[24]</sup> which lowers the likelihood of bullying. The fact that those who are frequently bullied at school also have low self-esteem and diminished social

skills, which may precede victimization and affect the subject's ability to evade or tolerate intimidation, is one explanation for this adverse relationship between victimization and peer support.<sup>[25]</sup> As a result, peer victimization may further lower their self-esteem, creating a vicious cycle and increasing their susceptibility to bullying's negative impacts. The idea that many kids hated their bullied friends because they thought they were too "needy" and "demanding" has also been put up.<sup>[26]</sup> The likelihood that bullied children will be rejected by their peers might considerably increase due to this possible stigma, proving that the peer group may operate as a deterrent to peer victimization.<sup>[27]</sup>

Another study found that teenagers were less likely to experience bullying if their parents had interacted with their friends, heard their thoughts, and communicated with one another.<sup>[28]</sup> These connections may be a result of parent-child interaction and communication. According to other research, children who had more maternal warmth, parental involvement, and family engagement<sup>[29]</sup> were less likely to experience bullying or other forms of victimization from their peers.<sup>[30]</sup> Additionally, studies conducted in the USA have revealed a connection between bullying limited parental involvement, and high levels of family conflict.<sup>[31]</sup> According to another study,<sup>[32]</sup> bullying was strongly connected with aggressive or nearly little parent-child interaction. Children who lack an emotional parent, who have experienced abuse or neglect from their parents, or who do not have regular communication with their parents, frequently experience problems with emotional regulation, which can affect their interactions with their peers.<sup>[33]</sup> Additionally, they could become docile, reclusive, and secluded, which increases their vulnerability to bullying, intimidation, and unintentional attack.<sup>[34]</sup> These findings highlight the significance of key models of effective interventions (training and educating parents) to reduce bullying and highlight how parental traits and behaviors can affect child bullying.<sup>[35]</sup> However, bullying behavior itself determines whether the parents communicate positively and frequently with their child and whether they are a source of support and capacity for that child.

However, it is important to acknowledge some limitations of this study. The cross-sectional design limits the ability to establish causal relationships between physical and dentofacial features, bullying, and school performance. Longitudinal studies and further research are needed to explore these relationships over time. Additionally, the study focused on a specific age group and geographical location, which may limit the generalizability of the findings to other populations and contexts. Future studies should consider including a wider age range and diverse geographic locations to enhance the external validity of the findings.

## Conclusion

This study provides valuable insights into the role of physical and dentofacial features in bullying among schoolchildren and its impact on school performance in this part of the world. The identified sociodemographic patterns and factors associated with bullying victimization highlight the need for targeted interventions and preventive strategies to address this issue. By addressing these gaps and implementing evidence-based approaches, it is possible to create a safe and supportive school environment that promotes the well-being and academic success of all schoolchildren. Further research is warranted to build upon these findings and develop comprehensive approaches to tackle bullying in educational settings.

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## Conflicts of interest

There are no conflicts of interest.

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