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Original article

Temporal Trends in Bullying Victimization Among Adolescents Aged 12–15 Years From 29 Countries: A Global Perspective

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A B S T R A C T

Purpose: Bullying victimization among adolescents is a major public health concern. However, multicountry studies investigating temporal trends of bullying victimization among adolescents are scarce, especially from a global perspective. Thus, we aimed to examine the temporal trends of bullying victimization among school-going adolescents between 2003 and 2017 in 29 countries from Africa (n = 5), Asia (n = 18), and the Americas (n = 6).
Methods: Data on 191,228 students aged 12–15 years [mean (standard deviation) age 13.7 (1.0) years; 48.9% boys] who participated in the Global School-based Student Health Survey were analyzed. Bullying victimization was based on self-report and referred to being bullied at least once in the past 30 days. The prevalence (95% confidence interval) of bullying victimization was calculated for each survey. Crude linear trends in bullying victimization were examined by linear regression models.
Results: The mean prevalence of bullying victimization across all surveys was 39.4%. There was a large variation in the trends of bullying victimization across countries with a significant increasing and decreasing trend being observed in 6 and 13 countries, respectively. Myanmar, Egypt, and the Philippines showed the sharpest increase. The decrease was modest in most countries which showed a decreasing trend. The remaining countries showed stable trends (n = 10) but some countries such as Seychelles showed consistently high prevalence over time (i.e., ≥ 50%).
Discussion: Decreasing trends of bullying victimization were more common than increasing or stable trends in our study including adolescents from 29 countries. However, a high prevalence of

IMPLICATIONS AND CONTRIBUTION

Decreasing trends of bullying victimization were more common than increasing or stable trends in our study including adolescents from 29 countries. However, a high prevalence of bullying was observed in most countries, and thus, further global efforts to combat bullying victimization are necessary.

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Bullying can be defined as repeated undesired aggressive behaviors perpetrated by a peer, or a group of peers, that involve a power imbalance favoring the perpetrator [1] and can take verbal (teasing and calling names), relational (excluding and spreading rumors), or physical (physical threats and harm) forms [2]. The global prevalence of bullying victimization among adolescents has been reported to be high (e.g., 36% based on a meta-analysis including 80 studies) [3]. Such a high prevalence of bullying is a major public health concern as bullying victimization is associated with a myriad of adverse health outcomes that can also be long-lasting. Specifically, consequences of bullying can be grouped into three broad categories including "educational consequences during childhood and adolescence" (e.g., more likely to skip school, feel anxious for a test, end education at a secondary level), "health consequences during childhood and adolescence" (e.g., poor mental health, sleeping difficulties, back pain, headaches, dizziness), and "all consequences during adulthood" (e.g., poor mental health, criminality, illicit substance use) [4]. Importantly, experiencing bullying during adolescence may be particularly problematic as adolescence is a crucial period in the development of the human life course with respect to intellectual capabilities and behavioral proclivities.

It is essential to understand the prevalence and temporal trends of bullying victimization among adolescents for service planning and policy development. However, despite the important public health concern in relation to bullying victimization in adolescents, there is little literature on temporal trends of bullying victimization. For example, in one multicountry study including adolescents aged 11–15 years from 33 countries from Europe and North America, it was shown that while still common in many countries, bullying victimization decreased between 2002 and 2010 [5]. In another study using data from the 2011–2019 United States high school student data from the National Youth Risk Behavior Survey, no declining trends in traditional victimization and cybervictimization were observed during 2011–2019 [6]. Other studies almost exclusively carried out in high-income countries have found that trends in bullying victimization have either not changed or increased [7–9]. It is clear that the literature on this topic is mixed with some studies finding a decrease while others finding no change or an increase. This may be due to factors such as different definitions of bullying across studies or genuine differences between countries due to different cultures or policies regarding bullying. Moreover, there is a scarcity of multicountry studies on bullying victimization trends as well as those that focus on low-income and middle-income countries (LMICs). It cannot be assumed that findings from the existing literature, predominantly from single high-income countries, mimic temporal trends of bullying victimization in LMICs, owing to social and political differences between such settings. Furthermore, multicountry studies using standard questionnaires across countries can provide information on whether trends are context-specific and may also provide clues on the reasons why some countries fare better or worse than others.

Given this background, the aim of the present study was to examine the temporal trend of bullying victimization in a sample of 191,228 students aged 12–15 years from 29 countries in Africa, Asia, and the Americas (predominantly LMICs) for which temporal trends of bullying victimization are largely unknown. We hypothesized that there will be varying directions of trends in bullying victimization between countries with a generally high prevalence. Since the present study included countries for which temporal trends in bullying victimization are largely unknown, the findings may contribute toward the development of policy and intervention and direct the context for future research that aims to identify correlates or risk factors for increasing trends in bullying victimization.

Methods

The survey

Publicly available data from the Global School-based Student Health Survey (GSHS) were analyzed. Details on this survey can be found at https://www.who.int/teams/noncommunicable-diseases/surveillance/data and http://www.cdc.gov/gshs. Briefly, the GSHS was jointly developed by the World Health Organization and the United States Centers for Disease Control and Prevention and other U.N. allies. The core aim of this survey was to assess and quantify risk and protective factors of major noncommunicable diseases. The survey used a standardized two-stage probability sampling design for the selection process within each participating country. For the first stage, schools were selected with probability proportional to size sampling. The second stage involved the random selection of classrooms which included students aged 13–15 years within each selected school. All students in the selected classrooms were eligible to participate in the survey regardless of age. Thus, the sample was not restricted to those aged 13–15 years. Data collection was performed during one regular class period. The questionnaire was translated into the local language in each country and consisted of multiple-choice response options and students recorded their response on computer-scannable sheets. All GSHS surveys were approved, in each country, by both a national government administration (most often the Ministry of Health or Education) and an institutional review board or ethics committee. Student privacy was protected through anonymous and voluntary participation, and informed consent was obtained as appropriate from the students, parents, and/or school officials. Data were weighted for nonresponse and probability selection.

From the publicly available data, we selected all nationally representative datasets that included the variables pertaining to our analysis and for which data on at least two waves were available from the same country. A total of 29 countries were included in the present study. The characteristics of each country including the survey year, country income level, response rate, and sample size are provided in Table 1. The surveys included in

Table 1
Survey characteristics

Region	Country	Country income	Year	Response rate (%)	N[a]
AFR	Benin	L	2009	90	1,170
		L	2016	78	717
	Mauritius	UM	2007	88	1,961
		UM	2011	82	2,074
		UM	2017	84	1,955
	Namibia	LM	2004	82	4,529
		UM	2013	89	1,936
	Seychelles	UM	2007	82	1,154
		H	2015	82	2,061
	Swaziland	LM	2003	96	6,866
		LM	2013	97	1,318
AMR	Argentina	UM	2007	77	1,537
		UM	2012	71	21,528
	Guyana	LM	2004	80	1,070
		LM	2010	76	1,973
	Jamaica	UM	2010	72	1,204
		UM	2017	60	1,061
	Suriname	UM	2009	89	1,046
		UM	2016	83	1,453
	Trinidad & Tobago	H	2007	78	2,450
		H	2011	90	2,363
		H	2017	89	2,763
	Uruguay	UM	2006	71	2,882
		H	2012	77	2,869
EMR	Egypt	LM	2006	87	4,981
		LM	2011	85	2,364
	Jordan	LM	2004	95	1,848
		LM	2007	99.8	1,648
	Kuwait	H	2011	85	2,298
		H	2015	78	2,034
	Lebanon	UM	2005	88	4,524
		UM	2011	87	1,982
		UM	2017	82	3,347
	Morocco	LM	2006	84	1,986
		LM	2010	92	2,405
		LM	2016	91	3,975
	Oman	UM	2005	97	2,426
		H	2010	89	1,000
		H	2015	92	1,669
	United Arab Emirates	H	2005	89	12,819
		H	2010	91	2,302
		H	2016	80	3,471
	Yemen	L	2008	82	905
		LM	2014	75	1,553
SEAR	Indonesia	LM	2007	93	3,022
		LM	2015	94	8,806
	Maldives	LM	2009	80	1,981
		UM	2014	60	1,781
	Myanmar	L	2007	95	2,227
		LM	2016	86	2,237
	Sri Lanka	LM	2008	89	2,504
		LM	2016	89	2,254
	Thailand	LM	2008	93	2,675
		UM	2015	89	4,132
WPR	Fiji	LM	2010	90	1,495
		UM	2016	79	1,537
	Philippines	LM	2003	84	4,198
		LM	2007	81	3,484
		LM	2011	82	3,845
		LM	2015	79	6,162
	Samoa	LM	2011	79	2,200
		LM	2017	59	1,058
	Tonga	LM	2010	80	1,946
		UM	2017	90	2,067
	Vanuatu	LM	2011	72	852
		LM	2016	57	1,288

AFR = African Region; AMR = Region of the Americas; EMR = Eastern Mediterranean Region; SEAR = South-East Asia Region; WPR = Western Pacific Region; H = High-income; L = Low-income; LM = Lower middle-income; UM = Upper middle-income.
[a] Based on sample aged 12–15 years.

Table 2
Trends in prevalence (%) of bullying victimization in 29 countries (overall)

Country	Year	%	[95% CI]	Beta[a]	[95% CI]	p for trend[a]
AFR						
Benin	2009	42.0	[36.4, 47.8]	0.92	[−0.85, 2.69]	.297
	2016	48.4	[38.2, 58.8]			
Mauritius	2007	40.2	[33.9, 46.9]	−1.51	[−2.21, −0.80]	< .001
	2011	35.2	[31.7, 38.7]			
	2017	25.3	[22.1, 28.9]			
Namibia	2004	52.1	[48.6, 55.7]	−0.69	[−1.30, −0.07]	.028
	2013	45.9	[41.8, 50.1]			
Seychelles	2007	52.7	[52.1, 53.3]	−0.23	[−0.70, 0.24]	.332
	2015	50.8	[47.1, 54.5]			
Swaziland	2003	39.5	[37.2, 41.9]	−0.74	[−1.09, −0.39]	< .001
	2013	32.1	[29.6, 34.8]			
AMR						
Argentina	2007	25.9	[22.1, 30.2]	−0.31	[−1.18, 0.57]	.491
	2012	24.4	[22.9, 25.9]			
Guyana	2004	40.0	[36.1, 44.0]	−0.26	[−1.31, 0.80]	.624
	2010	38.4	[33.9, 43.2]			
Jamaica	2010	40.4	[35.3, 45.6]	−2.08	[−2.98, −1.18]	< .001
	2017	25.8	[22.8, 29.0]			
Suriname	2009	26.2	[23.1, 29.4]	−0.18	[−0.84, 0.48]	.589
	2016	24.9	[22.0, 28.1]			
Trinidad & Tobago	2007	21.2	[17.9, 24.9]	−0.50	[−0.89, −0.10]	.014
	2011	14.5	[12.9, 16.4]			
	2017	15.8	[13.9, 17.9]			
Uruguay	2006	22.6	[21.0, 24.3]	−0.57	[−0.99, −0.16]	.007
	2012	19.1	[17.4, 21.0]			
EMR						
Egypt	2006	60.9	[54.2, 67.3]	1.83	[0.12, 3.55]	.037
	2011	70.1	[64.7, 75.0]			
Jordan	2004	46.5	[43.7, 49.4]	−1.72	[−4.01, 0.57]	.135
	2007	41.3	[35.6, 47.3]			
Kuwait	2011	27.8	[24.2, 31.6]	0.95	[−0.48, 2.38]	.184
	2015	31.6	[27.6, 35.8]			
Lebanon	2005	33.8	[31.9, 35.9]	−1.38	[−1.62, −1.13]	< .001
	2011	24.9	[22.9, 27.0]			
	2017	17.2	[15.3, 19.4]			
Morocco	2006	32.6	[29.7, 35.6]	0.92	[0.56, 1.27]	< .001
	2010	18.5	[15.9, 21.4]			
	2016	37.4	[35.5, 39.4]			
Oman	2005	38.7	[35.5, 41.9]	0.49	[0.08, 0.91]	.021
	2010	47.4	[44.0, 50.9]			
	2015	42.6	[40.5, 44.8]			
United Arab Emirates	2005	21.2	[19.8, 22.6]	0.59	[0.28, 0.90]	< .001
	2010	22.5	[20.2, 24.9]			
	2016	27.5	[24.6, 30.6]			
Yemen	2008	41.0	[33.6, 48.7]	0.18	[−1.47, 1.84]	.824
	2014	42.0	[36.5, 47.8]			
SEAR						
Indonesia	2007	49.6	[44.7, 54.5]	−3.58	[−4.25, −2.91]	< .001
	2015	21.0	[19.1, 22.9]			
Maldives	2009	37.0	[34.0, 40.1]	−1.32	[−2.16, −0.48]	.002
	2014	30.4	[27.6, 33.4]			
Myanmar	2007	20.0	[15.7, 25.1]	3.29	[2.58, 4.00]	< .001
	2016	49.6	[45.5, 53.7]			
Sri Lanka	2008	37.6	[33.4, 42.0]	0.24	[−0.59, 1.07]	.560
	2016	39.5	[34.8, 44.3]			
Thailand	2008	27.9	[24.6, 31.5]	0.69	[−0.09, 1.48]	.082
	2015	32.7	[28.8, 37.0]			
WPR						
Fiji	2010	42.1	[37.1, 47.3]	−2.02	[−3.14, −0.89]	.001
	2016	30.0	[26.2, 34.1]			
Philippines	2003	37.2	[34.4, 40.1]	1.00	[0.62, 1.39]	< .001
	2007	48.0	[44.0, 51.9]			
	2011	48.2	[44.6, 51.8]			
	2015	51.5	[48.0, 54.9]			
Samoa	2011	74.1	[68.7, 78.9]	−5.93	[−7.14, −4.71]	< .001
	2017	38.6	[33.7, 43.7]			
Tonga	2010	50.6	[46.6, 54.6]	−1.31	[−2.05, −0.56]	.001
	2017	41.4	[38.2, 44.7]			

(continued on next page)

Table 2
Continued

Country	Year	%	[95% CI]	Beta[a]	[95% CI]	p for trend[a]
Vanuatu	2011	67.9	[60.4, 74.6]	−3.02	[−4.85, −1.20]	.002
	2016	52.8	[47.4, 58.1]			

CI = Confidence interval; AFR = African Region; AMR = Region of the Americas; EMR = Eastern Mediterranean Region; SEAR = South-East Asia Region; WPR = Western Pacific Region.
[a] The beta and p for trend are based on linear regression including survey year as a continuous variable. The beta can be interpreted as the average percentage point change in prevalence per year.

the present study were conducted between 2003 and 2017 and were mainly from LMICs.

Bullying victimization

First, the students were provided the following definition of bullying: "Bullying occurs when a student or group of students say or do bad and unpleasant things to another student. It is also bullying when a student is teased a lot in an unpleasant way or when a student is left out of things on purpose. It is not bullying when two students of about the same strength or power argue or fight or when teasing is done in a friendly and fun way." Subsequently, bullying victimization was assessed by the question "During the past 30 days, on how many days were you bullied?" Those who were bullied on at least one day were considered to be a victim of bullying [10].

Statistical analysis

Statistical analyses were performed with Stata 14.2 (Stata Corp LP, College station, Texas). The analysis was restricted to those aged 12–15 years as most students were within this age group, while information on the exact age outside of this age range was not available. The prevalence and 95% confidence intervals (CIs) of bullying victimization were calculated for the overall sample and by sex for each survey. Crude linear trends in bullying victimization were assessed by linear regression models across surveys within the same country to estimate regression coefficients (beta) and 95% CI for every one-year change. *P* for trends was estimated using the survey year as a continuous variable. We also conducted interaction analysis to assess whether there are differing trends among boys and girls by including an interaction term (survey year X sex) in the model. Furthermore, to assess whether the trends observed can be due to changes in sample composition of these factors, we also conducted sensitivity analysis by adjusting for age and sex for the analysis using the overall sample and for age in the sex-stratified analysis. Crude linear trends were also assessed for ≥ 3 days of bullying victimization in the past 30 days [11] to assess whether differing trends would be observed for more frequent levels of bullying victimization. Sampling weights and the clustered sampling design of the surveys were considered in all analyses.

Results

Data on 191,228 students aged 12–15 years (mean [standard deviation] age 13.7 [1.0] years; 48.9% boys) were used for the current analysis. The mean prevalence of bullying victimization across all surveys was 39.4%. The lowest prevalence of bullying victimization was observed in Trinidad and Tobago in 2011 (14.5%) and the highest in Samoa in 2011 (74.1%). The trends in

bullying victimization of the overall sample including both boys and girls are shown in Table 2 and Figure 1.

Of the 29 countries included in the study, significant increasing trends for bullying victimization were found in six countries: Egypt between 2006 (60.9%) and 2011 (70.1%) (beta = 1.83; 95% CI = 0.12, 3.55), Morocco between 2006 (32.6%) and 2016 (37.4%) (beta = 0.92; 95% CI = 0.56, 1.27), Oman between 2005 (38.7%) and 2015 (42.6%) (beta = 0.49; 95% CI = 0.08, 0.91), United Arab Emirates between 2005 (21.2%) and 2016 (27.5%) (beta = 0.59; 95% CI = 0.28, 0.90), Myanmar between 2007 (20.0%) and 2016 (49.6%) (beta = 3.29; 95% CI = 2.58, 4.00), and Philippines between 2003 (37.2%) and 2015 (51.5%) (beta = 1.00; 95% CI = 0.62, 1.39). The beta can be interpreted as the average point change in prevalence (%) per year.

In contrast, significant declining trends were found in 13 counties: Mauritius between 2007 (40.2%) and 2011 (35.2%) (beta = −1.51; 95% CI = −2.21, -0.80), Namibia between 2004 (52.1%) and 2013 (45.9%) (beta = −0.69; 95% CI = −1.30, −0.07), Swaziland between 2003 (39.5%) and 2013 (32.1%) (beta = −0.74; 95% CI = −1.09, −0.39), Jamaica between 2010 (40.4%) and 2017 (25.8%) (beta = −2.08; 95% CI = −2.98, −1.18), Trinidad and Tobago between 2007 (21.2%) and 2017 (14.5%) (beta = −0.50; 95% CI = −0.89, -0.10), Uruguay between 2006 (22.6%) and 2012 (19.1%) (beta = −0.57; 95% CI = −0.99, −0.16), Lebanon between 2005 (33.8%) and 2017 (17.2%) (beta = −1.38; 95% CI = −1.62, −1.13), Indonesia between 2007 (49.6%) and 2015 (21.0%) (beta = −3.58; 95% CI = −4.25, −2.91), Maldives between 2009 (37.0%) and 2014 (30.4%) (beta = −1.32; 95% CI = −2.16, −0.48), Fiji between 2010 (42.1%) and 2016 (30.0%) (beta = −2.02; 95% CI = −3.14, −0.89), Samoa between 2011 (74.1%) and 2017 (38.6%) (beta = −5.93; 95% CI = −7.14, −4.71), Tonga between 2010 (50.6%) and 2017 (41.4%) (beta = −1.31; 95% CI = −2.05, −0.56), and Vanuatu between 2011 (67.9%) and 2016 (52.8%) (beta = −3.02; 95% CI = −4.85, −1.20).

Significant increasing or decreasing trends were not found in the remaining 10 countries (Benin, Seychelles, Argentina, Guyana, Suriname, Jordan, Kuwait, Yemen, Sri Lanka, and Thailand). The trends in prevalence of bullying victimization by sex are shown in Table 3. The trends between both sexes were similar in most countries but interaction analysis showed that trends are significantly different in seven countries (i.e., Indonesia, Kuwait, Seychelles, Tonga, Trinidad and Tobago, Uruguay, and Vanuatu). Specifically, significant decreasing trends were only found among boys in Seychelles, Trinidad and Tobago, and Uruguay. In contrast, in Tonga and Vanuatu, significant decreasing trends were only found in girls. Furthermore, significant increasing trends were only found among girls in Kuwait. Finally, in Indonesia, significant decreasing trends were found in both boys and girls, but the magnitude was more pronounced among boys.

The sensitivity analysis adjusting for age and sex (overall sample) and age (sex-stratified sample) showed that the results
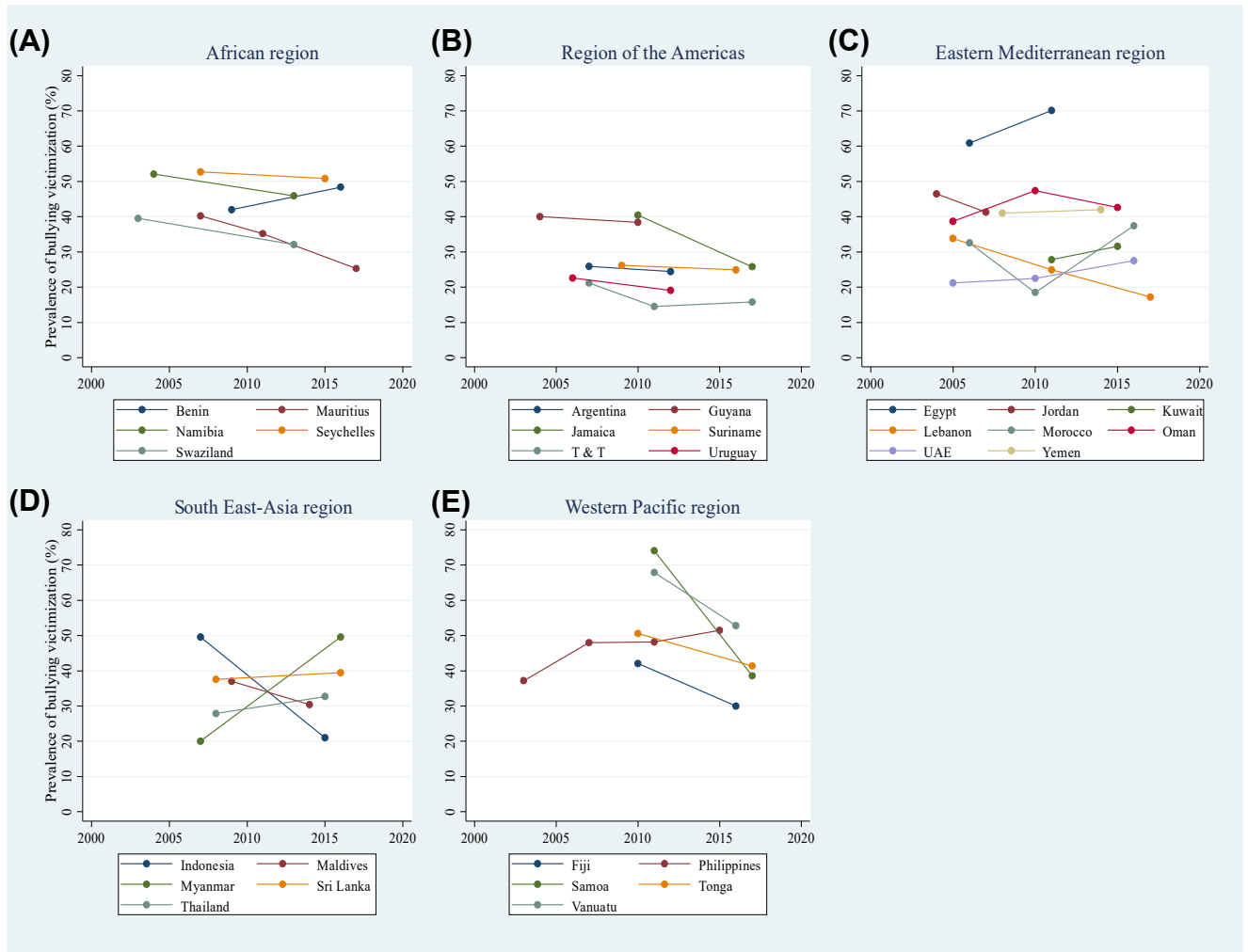
Figure 1. Trends in prevalence (%) of bullying victimization by country and region. Abbreviation: T & T = Trinidad and Tobago; UAE = United Arab Emirates.

were almost the same as the original analysis (Table A1 of the Appendix). The trends for ≥ 3 days of bullying victimization in the past 30 days were similar to those of at least one day in the overall sample (Table A2 of the Appendix) and sex-stratified samples (Table A3 of the Appendix). Specifically, in the overall sample, there were 12 countries with a significant decreasing trend and seven countries with a significant increasing trend. Thailand showed a significant increasing trend only for ≥ 3 days of bullying victimization.

Discussion

Main findings

In the present multicountry study including 191,228 students aged 12−15 years from 29 countries, we found that the prevalence of bullying victimization was high in most of the countries, with an increasing trend in six countries. A decreasing trend was found in 13 countries, but the decrease was relatively limited for many countries. Myanmar showed the most pronounced increasing trend in bullying victimization, and Samoa showed the largest decreasing trend. While 10 countries showed a stable

trend, the prevalence of bullying victimization was still relatively high in some of these countries. For example, in Seychelles, more than half of the students experienced bullying victimization across multiple years. Although the temporal trend was similar among both boys and girls in most countries, some countries had differing trends between sexes. To the best of our knowledge, this is the first study on bullying victimization trends among adolescents with data from multiple continents (predominantly LMICs), including countries for which trends were largely unknown.

Implication of the study findings

The present study which used standardized methods across all surveys showed that trends in bullying victimization may differ substantially between countries. Overall, it is promising to see that bullying victimization has declined in many more countries (13/29, 45%) than it has increased (6/29, 21%). These declines may be partly due to country-wide policies implemented to combat bullying victimization. For example, in Jamaica, where a decline from 40.0% in 2010 to 26.2% in 2017 was observed in our data, there has been strong political leadership

Table 3
Trends in prevalence (%) of bullying victimization in 29 countries (by sex)

Country	Year	Boys					Girls				
		%	[95% CI]	Beta[a]	[95% CI]	p for trend[a]	%	[95% CI]	Beta[a]	[95% CI]	p for trend[a]
AFR											
Benin	2009	42.6	[36.7, 48.7]	0.60	[−1.35, 2.56]	.537	40.7	[33.3, 48.5]	1.45	[−0.64, 3.54]	.169
	2016	46.8	[35.4, 58.5]				50.8	[39.1, 62.5]			
Mauritius	2007	47.4	[41.6, 53.2]	−1.87	[−2.69, −1.06]	< .001	34.1	[27.7, 41.2]	−1.20	[−1.94, −0.46]	.002
	2011	42.2	[38.5, 45.9]				28.4	[24.2, 33.1]			
	2017	29.1	[23.9, 34.9]				21.9	[18.5, 25.8]			
Namibia	2004	56.6	[53.2, 60.0]	−1.05	[−1.65, −0.45]	.001	48.2	[43.8, 52.5]	−0.38	[−1.15, 0.38]	.324
	2013	47.2	[43.1, 51.3]				44.7	[39.6, 50.0]			
Seychelles[b]	2007	55.3	[54.4, 56.3]	−0.69	[−1.28, −0.10]	.022	50.3	[49.1, 51.4]	0.20	[−0.38, 0.77]	.499
	2015	49.8	[45.2, 54.4]				51.9	[47.4, 56.2]			
Swaziland	2003	42.8	[39.9, 45.8]	−0.93	[−1.44,−0.42]	< .001	37.8	[35.3, 40.4]	−0.67	[−1.11, −0.23]	.003
	2013	33.5	[29.5, 37.8]				31.1	[27.6, 34.8]			
AMR											
Argentina	2007	26.6	[21.6, 32.3]	−0.42	[−1.60, 0.77]	.491	25.6	[22.0, 29.6]	−0.29	[−1.17, 0.58]	.514
	2012	24.5	[22.1, 27.2]				24.1	[22.1, 26.3]			
Guyana	2004	42.9	[37.7, 48.2]	−0.45	[−1.86, 0.95]	.515	37.3	[32.6, 42.2]	−0.09	[−1.23, 1.04]	.868
	2010	40.1	[34.1, 46.4]				36.7	[32.4, 41.3]			
Jamaica	2010	40.5	[34.3, 47.1]	−2.01	[−3.16, −0.87]	.001	39.2	[32.8, 46.0]	−2.02	[−3.24, −0.81]	.002
	2017	26.5	[22.4, 30.9]				25.0	[20.5, 30.1]			
Suriname	2009	26.3	[23.0, 29.8]	−0.14	[−0.93, 0.65]	.716	25.9	[22.2, 30.0]	−0.23	[−1.07, 0.61]	.584
	2016	25.3	[21.5, 29.5]				24.3	[20.5, 28.5]			
Trinidad and Tobago[b]	2007	22.8	[18.7, 27.4]	−0.81	[−1.32, −0.30]	.002	19.6	[15.7, 24.2]	−0.20	[−0.65, 0.24]	.370
	2011	17.2	[14.1, 20.8]				11.9	[9.7, 14.5]			
	2017	14.5	[11.8, 17.6]				16.9	[15.1, 18.8]			
Uruguay[b]	2006	24.3	[21.7, 27.1]	−1.11	[−1.70, −0.51]	< .001	21.3	[19.1, 23.6]	−0.12	[−0.69, 0.44]	.664
	2012	17.6	[15.5, 20.0]				20.5	[18.2,23.1]			
EMR											
Egypt	2006	64.4	[55.6, 72.3]	1.35	[−0.82, 3.51]	.218	56.9	[49.1, 64.3]	2.39	[0.26, 4.52]	.028
	2011	71.1	[64.4, 77.1]				68.8	[61.4, 75.4]			
Jordan	2004	50.0	[46.9, 53.1]	−1.33	[−3.07, 0.42]	.130	42.9	[37.5, 48.5]	−1.92	[−5.40, 1.57]	.269
	2007	46.0	[42.2, 49.9]				37.2	[29.3, 45.8]			
Kuwait[b]	2011	36.6	[31.4, 42.1]	−0.28	[−2.31, 1.75]	.779	18.5	[16.6, 20.6]	2.29	[1.18, 3.40]	< .001
	2015	35.5	[30.1, 41.2]				27.7	[24.2, 31.6]			
Lebanon	2005	39.1	[36.3, 41.9]	−1.28	[−1.63, −0.94]	< .001	29.3	[26.7, 32.1]	−1.48	[−1.78, −1.18]	< .001
	2011	34.9	[31.3, 38.7]				16.1	[12.6, 20.3]			
	2017	24.0	[21.2, 27.0]				11.2	[9.3, 13.5]			
Morocco	2006	41.1	[37.9, 44.3]	0.89	[0.41, 1.36]	< .001	24.1	[20.9, 27.6]	0.90	[0.52, 1.27]	< .001
	2010	17.1	[14.8, 19.7]				19.9	[16.3, 24.0]			
	2016	43.0	[40.4, 45.6]				31.2	[29.2, 33.3]			
Oman	2005	39.4	[35.5, 43.4]	0.68	[0.12, 1.24]	.019	37.7	[33.4, 42.3]	0.29	[−0.29, 0.87]	.323
	2010	45.3	[39.2, 51.5]				48.0	[43.9, 52.0]			
	2015	45.8	[42.2, 49.3]				39.6	[36.7, 42.5]			
United Arab Emirates	2005	25.4	[23.5, 27.4]	0.73	[0.28, 1.17]	.001	17.4	[15.8, 19.0]	0.43	[0.13, 0.74]	.005
	2010	25.7	[23.0, 28.7]				20.1	[17.2, 23.4]			
	2016	33.1	[29.0, 37.5]				22.2	[19.5, 25.1]			
Yemen	2008	46.1	[38.7, 53.7]	0.24	[−1.48, 1.96]	.774	31.3	[21.2, 43.6]	0.49	[−1.86, 2.84]	.674
	2014	47.5	[41.3, 53.9]				34.2	[27.4, 41.7]			
SEAR											
Indonesia[b]	2007	55.2	[48.9, 61.3]	−3.91	[−4.77, −3.04]	< .001	44.2	[40.2, 48.3]	−3.26	[−3.83, −2.69]	< .001
	2015	23.9	[21.4, 26.7]				18.2	[16.4, 20.2]			
Maldives	2009	40.0	[35.9, 44.2]	−1.92	[−3.03, −.81]	.001	34.3	[30.8, 37.9]	−0.90	[−1.90, 0.10]	.077
	2014	30.4	[26.9, 34.2]				29.8	[26.4, 33.3]			
Myanmar	2007	24.2	[19.1, 30.1]	3.02	[2.19, 3.85]	< .001	16.1	[12.3, 20.6]	3.54	[2.83, 4.24]	< .001
	2016	51.3	[46.5, 56.1]				47.9	[43.3, 52.5]			
Sri Lanka	2008	46.6	[41.9, 51.4]	0.48	[−0.47, 1.43]	.313	28.6	[25.2, 32.3]	0.02	[−0.78, 0.83]	.954
	2016	50.5	[44.8, 56.1]				28.8	[24.0, 34.1]			
Thailand	2008	33.3	[29.0, 37.8]	0.83	[−0.25, 1.91]	.129	23.0	[20.0, 26.3]	0.49	[−0.16, 1.14]	.133
	2015	39.1	[33.4, 45.1]				26.5	[23.5, 29.7]			
WPR											
Fiji	2010	45.9	[39.2, 52.6]	−2.11	[−3.51, −0.71]	.004	38.7	[33.4, 44.3]	−2.18	[−3.38, −0.98]	.001
	2016	33.2	[29.0, 37.7]				25.7	[21.7, 30.1]			
Philippines	2003	36.7	[32.9, 40.6]	1.24	[0.78, 1.69]	< .001	37.3	[33.5, 41.2]	0.82	[0.37, 1.27]	< .001
	2007	47.9	[42.5, 53.4]				48.0	[43.9, 52.1]			
	2011	47.7	[42.6, 52.8]				48.7	[45.0, 52.4]			
	2015	53.8	[50.2, 57.4]				49.3	[45.3, 53.3]			
Samoa	2011	79.0	[74.0, 83.2]	−5.73	[−7.20, −4.27]	< .001	69.0	[62.2, 75.1]	−5.98	[−7.40, −4.56]	< .001
	2017	44.6	[37.4, 51.9]				33.2	[28.1, 38.7]			
Tonga[b]	2010	48.5	[42.0, 54.9]	0.05	[−1.08, 1.18]	.927	52.6	[48.4, 56.7]	−2.68	[−3.49, −1.88]	< .001
	2017	48.8	[44.4, 53.2]				33.8	[30.1, 37.7]			

Table 3
Continued

Country	Year	Boys					Girls				
		%	[95% CI]	Beta[a]	[95% CI]	p for trend[a]	%	[95% CI]	Beta[a]	[95% CI]	p for trend[a]
Vanuatu[b]	2011	68.7	[60.4, 75.9]	−1.60	[−3.78, 0.59]	.149	67.1	[58.3, 74.8]	−4.32	[−6.43, −2.21]	< .001
	2016	60.7	[53.1, 67.7]				45.5	[39.5, 51.7]			

CI = Confidence interval; AFR = African Region; AMR = Region of the Americas; EMR = Eastern Mediterranean Region; SEAR = South-East Asia Region; WPR = Western Pacific Region.
[a] The beta and P for trend are based on linear regression including survey year as a continuous variable. The beta can be interpreted as the average percentage point change in prevalence per year.
[b] Significant interaction in trends by sex ($p < .05$).

for proposed amendments to the Education Act to ban corporal punishment in schools and for promotion of the use of positive discipline. A related factor to this is recognition of the need to address school violence and bullying to ensure universal access to quality education. Furthermore, in Lebanon which showed a decline in the prevalence of bullying victimization from 33.8% in 2005 to 17.2% in 2017 based on our data, the Policy for the Protection of Students in the School Environment (2017) reflects government commitment to Sustainable Development Goal 4 [12]. Finally, in Uruguay, which also saw a decline in the prevalence of bullying victimization, efforts to tackle school violence have been part of wider reforms in the education sector to improve access to education.

The present study found increasing trends of bullying victimization across six countries (Egypt, Morocco, Oman, United Arab Emirates, Myanmar, and the Philippines), and this highlights the need to intensify efforts to reduce bullying in these countries. While it is difficult to explain the underlying reasons for the increasing trends, in some settings, it could be due to ongoing conflicts or social unrest that may foment discrimination against certain ethnic and religious groups. For example, in our study, the most pronounced increase in the prevalence of bullying victimization was observed in Myanmar (20.0% in 2007 to 49.6% in 2016). In Myanmar, there is restricted access to services, travel, and rights for some religious and ethnic minority groups, whereas some other ethnic groups could be under pressure to assimilate culturally and linguistically to access opportunities, by choosing Burmese names, learning the Burmese language, and adopting Burmese dress. Indeed, in a study conducted in 2016—2017, it was shown that a high percentage of adolescents were made fun of in school for their nationality, race, or color in Myanmar [6—8,13]. Future research is now required in countries that have experienced increasing trends to further shed light on the underlying mechanisms to aid in the development of intervention and policy.

While the temporal trends of bullying victimization were similar between boys and girls in the majority of the countries included in our study, sex differences were observed in seven countries. The reasons for sex differences are elusive and could be due to factors such as cultural diversity, targeted campaigns, gender-specific discipline, or types of bullying. For example, girls are more likely to be bullied for physical appearance, while psychological bullying is also more common among girls. Moreover, boys are more likely than girls to experience corporal punishment perpetrated by teachers [12]. Further research (e.g., qualitative studies) is needed to elucidate on the sex differences observed in some countries.

Policy implications

Data from the present study suggest that bullying victimization is a global problem and that further efforts to reduce bullying among adolescents are required even in countries where there are decreasing trends. For example, in countries such as Vanuatu, we found a significant decreasing trend (i.e., 67.9% in 2011 to 52.8% in 2016), but yet, more than half of the students were bullied in 2016. Considering that bullying victimization is a major public health issue, further global efforts to reduce bullying victimization are needed. For example, United Nations International Children's Emergency Fund is working with partners to train teachers on how to recognize peer harassment and tackle bullying more effectively in school. Furthermore, in Indonesia, a program called ROOTS works by asking students to nominate other pupils who they deem to have the widest number of social connections. The students considered the most influential are selected for 12 training sessions around the issue of bullying, how to create a positive environment, and action plans that are appropriate for their schools. Some schools implementing the program have reported a 30% decrease in bullying victimization over a year [14].

However, a meta-analysis found that school-based anti-bullying programs can decrease bullying victimization by an average of only 17% to 20% [15], highlighting the need to develop other interventions (e.g., screening for bullying). For victims of bullying, it has been suggested that interventions to enhance coping and problem-solving skills for psychological distress associated with bullying, increase social connectedness, improve conditions within the home, and cultivate inclusive and safe environments/spaces in schools might be effective [16].

Strengths and limitations

The large representative sample of school-going adolescents from 29 countries and the use of standard methodology across surveys are clear strengths of the present study. However, findings must be interpreted in light of the study's limitations. First, bullying victimization was self-reported, potentially introducing recall and social desirability bias into the findings. Second, the variability in the prevalence of bullying victimization across countries could be partly attributable to different cultural understandings of the survey question. Third, our study results only apply to school-going adolescents and are not generalizable to adolescents who do not attend school, although school attendance rates are high in the countries included in our study. Next,

data specifically on cyberbullying were not collected and it is possible that our variable on bullying was only interpreted as referring to traditional types of bullying. Finally, surveys were conducted in different years depending on the country and some countries provided more data points than others. Thus, the beta-coefficients observed in our study are not totally comparable across countries.

Conclusion

In the present study including 191,228 students aged 12–15 years from 29 countries in Africa, Asia, and the Americas, the prevalence of bullying victimization was high in most countries, while increasing, decreasing, and stable trends were found in 6, 13, and 10 countries, respectively. Although 13 of 29 countries showed decreasing trends, the rate of decrease was rather modest in many countries, highlighting the need to intensify efforts to reduce bullying even in these countries. Furthermore, sex differences of trends were observed in a few countries. Global efforts to combat bullying victimization should continue, and in some settings, gender-specific programs may be necessary. Indeed, the wider literature suggests that the indirect expression of violence in its verbal form is more common in girl-on-girl bullying, whereas physical violence is more common in boy-on-boy bullying [17]. This suggests that any educational or psychological interventions to address gender-specific bullying should target different bullying domains.

Supplementary Data

Supplementary data related to this article can be found at https://doi.org/10.1016/j.jadohealth.2023.04.031.

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