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Cross-national time trends in bullying behaviour 1994–2006: findings from Europe and North America

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Abstract

Objectives: To identify trends over 12 years in the prevalence of bullying and associated victimization among adolescents in North American and European countries.

Methods: Cross-sectional self-report surveys were obtained from nationally representative samples of 11–15 year old school children in 21 countries in 1993/94 and in 27 countries in each of 1997/98, 2001/02 and 2005/06. Measures included involvement in bullying as either a perpetrator and/or victim.

Results: Consistent decreases in the prevalence of bullying were reported between 1993/94 to 2005/06 in most countries. Geographic patterns show consistent decreases in bullying in Western European countries and in most Eastern European countries. An increase or no change in prevalence was evident in almost all English speaking countries participating in the study (England, Scotland, Wales, Ireland and Canada, but not in the USA).

Conclusion: Study findings demonstrated a significant decrease in involvement in bullying behaviour in most participating countries. This is encouraging news for policy-makers and practitioners working in the field of bullying prevention.

Introduction

Bullying is an important and prevalent adolescent health problem in many countries, and has been the subject of considerable study over the last three decades^{1–3}. Previous studies have demonstrated a number of adverse health outcomes associated with bullying such as psychological maladjustment⁴, psychosomatic health problems^{4,6}, medicine use⁶, absenteeism from school⁶, impaired academic performance⁶, physical injury⁷, and in rare cases, premature death⁷. Bullying behaviour is also associated with involvement in a range of other risk behaviours such as drinking, smoking and drug use^{4,8–14}. The effects of bullying are not only acute, but may also persist into later adolescence and adulthood for victims as well as perpetrators^{15–21}. The effects of bullying are not limited to perpetrators and their victims; bystanders who witness bullying can also experience negative health outcomes²².

Despite the growing body of evidence indicating the adverse effects of bullying²³, some individuals still view bullying as a minor and common problem²⁴. Several types of bullying such as teasing, gossiping and humiliating may be dismissed as minor and therefore tolerable²⁵. Given the severity of outcomes associated with involvement in types of bullying (either as the perpetrator or the victim) and the many prevention efforts that have been established, yet not evaluated¹, it is important to investigate trends in the occurrence of bullying cross-nationally. There is much to be gained in terms of knowledge from those countries where a decrease in bullying behaviour is evident.

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To date, studies that have examined the epidemiology of bullying have been conducted at local or national levels^{27–31,8–9}; only a few cross-national studies have been published^{5,10,32}. To date, no existing study has presented international time trends in the occurrence of bullying. The current study therefore examines cross-national trends in the occurrence of both bullying and victimization at different levels of involvement using data from the Health Behaviour in School-Aged Children (HBSC) surveys.

Health Behaviour in School-Aged Children (HBSC) provides a unique opportunity to compare experiences with bullying across countries and over time. This WHO-collaborative survey was developed by an international network of researchers with measures, sampling, and administration procedures designed to be consistent across participating countries. The present study uses international HBSC data collected during four cycles and across 27 countries. The current analysis examines trends in the occurrence of bullying and associated victimization both temporally and geographically. It was hoped that this analysis would inform prevention efforts, by demonstrating those countries or geographic regions where the problem appears to be increasing or declining over time.

Methods

Study Population and Procedures

Initiated in 1982, the HBSC study collects data from nationally representative samples of 11-, 13- and 15-year old school-children every four years in each of the participating countries (41 countries in 2006). Data are collected in the classroom using an anonymous self-administrated questionnaire, and following the common HBSC research protocol³³. Classes within schools form the sampling units. Statistical criteria specify that samples submitted for international comparisons are sufficient to provide confidence intervals of $\pm 3\%$ for representative estimates with sample design effects no more than 1.4 times greater than would be obtained from a simple random sample for each of the survey years. The current study utilized data collected from 21 countries from the 1993/1994 survey, and from 27 countries from each of the 1997/1998; 2001/2002 and 2005/2006 surveys (Austria, Belgium (Flemish), Belgium (French), Canada, Czech Republic, Denmark, England, Estonia, Finland, France, Germany, Greece, Greenland, Hungary, Ireland, Israel, Latvia, Lithuania, Norway, Poland, Portugal, Russia, Scotland, Sweden, Switzerland, USA, Wales). The current analysis was based on the experiences in 27 countries, allowing for time-trend analysis over four points in time in 21 countries, and three points in time for an additional six countries. Sample sizes included in this analy-

sis were 102,799 in 1993/94; 125,732 in 1997/98; 129,240 in 2001/02; and 133,981 in 2005/06.

Principal Investigators in each participating country obtained approval to conduct the survey from the ethics review board or equivalent regulatory body associated with the institution conducting each respective national survey.

Measures

Two mandatory questions on bullying and victimization are included in the survey, following a short paragraph that defines the concepts of bullying. The questions and the introductory paragraph were developed by Olweus¹⁶. Translation and back-translation of the prose were conducted to ensure that the meaning of each question was not lost between languages.

Bullying: In the 1993/94 and 1997/98 surveys, the question for bullying was phrased “How often have you taken part in bullying other students in school this term?” with response options ‘I haven’t bullied others in school this term’, ‘once or twice’, ‘sometimes’, ‘about once a week’, ‘several times a week’. In 2001/02 and 2005/06 a slightly different phrasing was used: “How often have you taken part in bullying other students at school in the past couple of months?” with response options ‘I haven’t bullied other students in the past couple of months’, ‘it has only happened once or twice’, ‘two or three times a month’, ‘about once a week’, ‘several times a week’.

Engagement in bullying was defined using two levels, occasional and chronic. Binary outcomes for occasional bullying were based upon responses of ‘once or more’ vs. ‘never’. Binary outcomes for chronic bullying were ‘more than twice this term’ vs. ‘twice or less’ on the earlier version and ‘2 or more times this months’ vs. ‘twice or less in the last couple of months’ on the later version. These cut-offs are recommended by researchers in the field¹⁷.

Victimization from bullying: Questions about being bullied (victimization) and response categories were analogous to those for bullying. The question on bullying victimization was changed between 1997/98 and 2005/06 from “How often have you been bullied in school this term?” with response options ‘I haven’t been bullied in school this term’, ‘once or twice’, ‘sometimes’, ‘about once a week’, ‘several times a week’, to “How often have you been bullied at school in the past couple of months?” with response options ‘I haven’t been bullied in the past couple of months’, ‘it has only happened once or twice’, ‘two or three times a month’, ‘about once a week’, ‘several times a week’. Bullying victimization was examined at two levels, occasional and chronic (as above).

Data analyses were initially conducted with SPSS 15 (SPSS Inc, Chicago, IL). A conservative design effect of 1.4 was

Table 1. Trends in prevalence of occasional bullying behaviour by gender, country and survey year.

Country	Boys						Girls													
	1993/94			1997/98			2001/02			2005/06			% Change							
	%	95% CI		%	95% CI		%	95% CI		%	95% CI		Rel.	Abs.						
Austria	77.8	±1.5	76.9	±1.8	58.1	±2.1	48.6	±2.1	-37.7*	-29.2*	59.0	±1.9	60.0	±2.0	42.6	±2.0	30.8	±1.9	-47.8*	-28.2*
Belgium (Flemish)	66.8	±2.0	58.4	±2.0	50.3	±1.8	36.9	±2.1	-44.9*	-29.9*	45.8	±2.0	40.3	±1.9	32.0	±1.6	26.3	±1.9	-42.6*	-19.5*
Belgium (French)	71.1	±1.9	62.0	±2.8	39.1	±2.1	42.3	±2.1	-40.5*	-28.8*	56.6	±1.8	44.0	±2.7	23.8	±1.7	29.2	±1.9	-48.4*	-27.4*
Canada	42.1	±1.8	48.0	±1.7	47.7	±2.2	41.9	±1.8	-0.5	-0.2	27.7	±1.5	32.6	±1.5	35.7	±1.9	33.9	±1.6	22.0*	6.2*
Czech Republic	43.5	±2.3	38.2	±2.2	19.7	±1.6	18.1	±1.5	-58.4*	-25.4*	32.1	±2.2	27.2	±2.1	12.3	±1.3	12.0	±1.3	-62.6*	-20.1*
Denmark	77.1	±1.9	74.8	±1.7	48.2	±2.0	38.6	±1.8	-49.9*	-38.5*	60.0	±2.2	52.5	±2.0	27.0	±1.8	22.0	±1.5	-63.3*	-38.0*
England			17.3	±1.4	33.2	±1.7	29.5	±1.9	70.5*	12.2*			9.9	±1.1	21.2	±1.5	19.4	±1.6	96.0*	9.5*
Estonia	63.4	±2.4	60.7	±3.4	53.1	±2.2	63.1	±2.0	-0.5	-0.3	35.4	±2.2	40.7	±3.1	38.5	±2.1	39.1	±2.0	10.5	3.7
Finland	56.1	±2.1	47.1	±2.0	37.5	±1.9	32.4	±1.8	-42.2*	-23.7*	29.9	±2.0	23.8	±1.7	18.1	±1.5	15.1	±1.3	-49.5*	-14.8*
France	50.1	±2.2	57.1	±2.2	39.4	±1.5	41.2	±1.6	-17.8*	-8.9*	41.7	±2.1	43.1	±2.1	31.4	±1.4	33.6	±1.6	-19.4*	-8.1*
Germany	82.9	±1.9	68.8	±1.8	53.6	±1.8	45.9	±1.6	-44.6*	-37.0*	66.8	±2.3	53.3	±2.0	37.4	±1.7	28.8	±1.5	-56.9*	-38.0*
Greece			30.7	±1.9	33.2	±2.1	59.4	±2.3	93.5*	28.7*			11.9	±1.3	15.7	±1.7	40.6	±2.2	241.2*	28.7*
Greenland	72.0	±3.6	68.0	±3.3	42.1	±5.2	58.0	±3.8	-19.4*	-14.0*	56.3	±3.9	58.2	±3.5	32.0	±4.2	49.6	±3.8	-11.9	-6.7
Hungary	54.3	±1.9	49.0	±2.3	33.0	±2.1	33.0	±2.2	-39.2*	-21.3*	27.9	±1.6	29.1	±2.1	19.6	±1.6	19.1	±1.9	-31.9*	-8.9*
Ireland			35.8	±2.1	28.7	±2.5	29.4	±1.8	-17.9*	-6.4*			13.6	±1.4	15.8	±1.8	14.8	±1.5	8.1	1.1
Israel	61.9	±2.1	57.3	±2.0	44.7	±1.5	40.1	±1.0	-35.2*	-21.8*	33.0	±2.0	27.3	±2.1	21.8	±1.1	18.6	±0.8	-43.6*	-14.4*
Latvia	51.6	±2.4	58.8	±2.4	56.0	±2.4	66.4	±2.1	28.7*	14.8*	37.0	±2.1	43.6	±2.1	39.8	±2.2	56.0	±2.1	51.4*	19.0*
Lithuania	67.9	±1.9	69.7	±1.9	72.7	±1.6	61.9	±1.8	-8.8*	-6.0*	48.9	±1.8	54.9	±2.1	59.5	±1.8	47.7	±1.9	-2.5	-1.2
Norway	50.1	±2.0	41.1	±1.9	47.0	±1.9	35.0	±1.9	-30.1*	-15.1*	22.6	±1.7	17.2	±1.5	23.3	±1.7	15.6	±1.5	-31.0*	-7.0*
Poland	44.7	±2.1	37.4	±2.1	45.7	±1.7	44.1	±1.9	-1.3	-0.6	20.0	±1.4	19.2	±1.6	28.3	±1.6	21.3	±1.5	5.4	1.1
Portugal			46.9	±2.4	42.5	±2.6	42.7	±2.3	-9.0	-4.2			27.7	±1.9	31.5	±2.3	30.9	±2.0	11.6	3.2
Russia	49.5	±2.2	48.5	±2.2	40.9	±1.6	39.3	±1.5	-20.6*	-10.2*	40.5	±2.1	34.8	±2.0	27.6	±1.3	31.0	±1.4	-23.5*	-9.5*
Scotland	33.0	±1.9	29.5	±1.7	30.5	±1.9	29.9	±1.7	-9.4	-3.1	18.4	±1.5	17.0	±1.4	19.7	±1.7	17.9	±1.4	-2.7	-0.5
Sweden	25.4	±2.0	19.7	±1.8	18.9	±1.7	20.8	±1.7	-18.1*	-4.6*	10.8	±1.4	9.4	±1.4	9.9	±1.4	10.0	±1.2	-7.4	-0.8
Switzerland			65.4	±1.8	55.8	±2.0	54.3	±2.1	-17.1*	-11.2*			47.7	±1.9	37.9	±1.9	34.1	±1.9	-28.3*	-13.5*
USA			47.7	±2.0	42.6	±2.0	40.3	±2.3	-15.5*	-7.4*			32.0	±1.8	32.7	±1.8	30.7	±2.1	-4.1	-1.3
Wales	25.8	±2.1	26.9	±1.7	26.8	±2.0	25.9	±1.9	0.4	0.1	14.5	±1.5	15.7	±1.5	15.8	±1.6	18.1	±1.7	24.8*	3.6*

* $p < 0.05$, based on inflated Confidence Intervals by 1.4 to account for design effect

Table 2. Trends in prevalence of occasional victimization by gender, country and survey year.

Country	Boys					Girls																			
	1993/94					1997/98					2001/02					2005/06					% Change				
	%	95% CI	%	95% CI	%	%	95% CI	%	95% CI	%	%	95% CI	%	%	95% CI	%	%	95% CI	%	%	95% CI	Rel.	Abs.		
Austria	49.7	±1.9	50.6	±2.2	47.7	±2.1	45.7	±2.0	−8.0	−4.0	39.1	±1.9	36.4	±2.0	41.2	±2.1	36.0	±1.9	−7.9	−3.1					
Belgium (Flemish)	48.8	±2.1	40.6	±1.9	32.8	±1.7	25.1	±1.9	−48.6*	−23.7*	36.6	±2.0	35.5	±1.9	27.7	±1.5	22.4	±1.8	−38.8*	−14.2*					
Belgium (French)	75.6	±1.8	73.9	±2.5	50.5	±2.1	56.2	±2.1	−25.7*	−19.4*	63.5	±1.8	56.7	±2.7	33.6	±2.0	39.0	±2.1	−38.6*	−24.5*					
Canada	33.9	±1.6	37.6	±1.7	38.4	±2.2	35.6	±1.7	5.0	1.7	26.5	±1.4	32.8	±1.6	37.0	±1.9	34.7	±1.7	30.6*	8.1*					
Czech Republic	40.5	±2.3	40.1	±2.3	17.2	±1.5	17.0	±1.5	−58.0*	−23.5*	36.8	±2.2	33.6	±2.2	14.9	±1.4	15.5	±1.5	−57.9*	−21.3*					
Denmark	52.4	±2.2	51.9	±2.0	31.3	±2.0	24.3	±1.6	−53.6*	−28.1*	49.0	±2.2	49.0	±2.0	32.1	±1.9	24.9	±1.6	−49.2*	−24.1*					
England			24.5	±1.5	38.1	±1.8	30.3	±1.9	23.7*	5.8*			20.9	±1.4	34.8	±1.6	26.8	±1.8	28.2*	5.9*					
Estonia	58.6	±2.4	55.3	±3.4	46.5	±2.2	48.2	±2.1	−17.7*	−10.4*	45.1	±2.3	46.8	±3.1	42.4	±2.1	42.7	±2.1	−5.3	−2.4					
Finland	52.9	±2.1	43.0	±2.0	27.1	±1.7	27.4	±1.8	−48.4*	−25.6*	39.8	±2.1	33.2	±1.9	21.0	±1.5	22.0	±1.5	−44.7*	−17.8*					
France	51.3	±2.3	37.4	±2.1	34.3	±1.5	33.3	±1.5	−34.9*	−17.9*	53.4	±2.2	36.5	±2.0	36.0	±1.5	35.1	±1.5	−34.3*	−18.3*					
Germany	66.1	±2.3	62.9	±1.9	39.5	±1.8	35.7	±1.5	−46.0*	−30.4*	54.1	±2.4	55.9	±2.0	33.8	±1.8	32.9	±1.5	−39.2*	−21.2*					
Greece			35.6	±2.1	26.4	±2.0	51.8	±2.4	45.5*	16.2*			22.5	±1.7	22.5	±1.9	51.7	±2.2	129.3*	29.1*					
Greenland	64.6	±3.8	60.8	±3.4	40.5	±5.1	49.1	±3.9	−24.0*	−15.5*	62.1	±3.8	63.0	±3.4	45.9	±4.4	52.4	±3.8	−15.6*	−9.7*					
Hungary	43.5	±1.8	37.8	±2.3	22.7	±1.9	24.2	±2.1	−44.4*	−19.3*	33.4	±1.6	37.3	±2.2	23.8	±1.7	26.1	±2.0	−21.9*	−7.3*					
Ireland			31.6	±2.0	28.8	±2.5	26.7	±1.8	−15.5*	−4.9*			19.7	±1.7	23.6	±2.1	25.2	±1.7	27.9*	5.5*					
Israel	61.9	±2.1	56.7	±2.0	43.6	±0.5	39.6	±1.0	−36.0*	−22.3*	45.1	±2.1	38.8	±1.9	26.4	±1.2	26.9	±0.8	−40.4*	−18.2*					
Latvia	52.1	±2.4	56.5	±2.3	52.3	±2.4	50.3	±2.2	−3.5	−1.8	41.4	±2.1	52.0	±2.2	44.8	±2.3	46.5	±2.1	12.3*	5.1*					
Lithuania	66.6	±1.8	71.0	±1.9	65.0	±1.8	56.4	±1.9	−15.4*	−10.3*	59.7	±1.8	66.1	±1.9	63.6	±1.8	56.2	±1.9	−5.9	−3.5					
Norway	36.0	±1.9	32.2	±1.8	35.0	±1.8	29.5	±1.9	−18.1*	−6.5*	27.5	±1.8	22.9	±1.7	29.7	±1.8	23.1	±1.7	−16.0*	−4.4*					
Poland	39.8	±2.0	34.8	±1.9	33.2	±1.6	31.2	±1.8	−21.6*	−8.6*	24.2	±1.8	24.1	±1.7	27.3	±1.5	21.3	±1.5	−12.0	−2.9					
Portugal			59.3	±2.4	55.6	±2.6	46.2	±2.3	−22.1*	−13.1*			37.0	±2.0	44.0	±2.5	37.5	±2.2	1.4	0.5					
Russia	65.9	±2.1	51.4	±2.2	40.4	±1.5	35.5	±1.6	−46.1*	−30.4*	60.4	±2.1	40.2	±2.1	35.1	±1.5	34.3	±1.4	−43.2*	−26.1*					
Scotland	29.3	±1.8	28.1	±1.7	27.8	±1.9	26.6	±1.6	−9.2	−2.7	27.4	±1.8	28.4	±1.7	30.1	±2.0	26.3	±1.5	−4.0	−1.1					
Sweden	18.4	±1.8	18.2	±1.7	15.2	±1.6	15.7	±1.5	−14.7	−2.7	15.3	±1.7	12.9	±1.5	14.7	±1.6	13.6	±1.4	−11.1	−1.7					
Switzerland			53.5	±1.9	42.3	±2.0	41.5	±2.0	−22.4*	−12.0*			46.8	±1.8	38.7	±2.0	34.3	±1.9	−26.7*	−12.5*					
USA			39.7	±2.0	35.6	±2.0	29.9	±2.1	−24.7*	−9.8*			29.4	±1.7	32.6	±1.7	29.2	±1.9	−0.7	−0.2					
Wales	31.5	±2.1	30.2	±1.9	28.6	±2.0	30.1	±2.0	−4.4	−1.4	27.2	±1.9	28.6	±1.9	30.6	±2.1	31.7	±1.9	16.5*	4.5*					

* p < 0.05, based on inflated Confidence Intervals by 1.4 to account for design effect

Table 3. Trends in prevalence of chronic bullying behaviour by gender, country and survey year.

Country	Boys						Girls						% Change											
	1993/94			2001/02			2005/06			% Change			1993/94			2001/02			2005/06			% Change		
	%	95% CI	%	95% CI	%	95% CI	%	95% CI	%	95% CI	Rel.	Abs.	%	95% CI	%	95% CI	%	95% CI	Rel.	Abs.	%	95% CI	Rel.	Abs.
Austria	44.0	±1.8	42.2	±2.1	22.9	±1.7	20.7	±1.6	-53.0*	-23.3*	26.3	±1.7	26.4	±1.9	11.8	±1.3	9.0	±1.2	-65.8*	-17.3*				
Belgium (Flemish)	33.7	±2.0	29.4	±1.9	17.4	±1.3	9.8	±1.3	-70.9*	-23.9*	19.2	±1.6	17.5	±1.5	6.8	±0.9	5.0	±1.0	-74.0*	-14.2*				
Belgium (French)	35.4	±2.0	27.2	±2.5	15.1	±1.6	16.1	±1.6	-54.5*	-19.3*	22.7	±1.6	15.6	±2.0	7.2	±1.1	8.2	±1.2	-63.9*	-14.5*				
Canada	17.8	±1.3	19.9	±1.4	15.3	±1.6	12.2	±1.3	-32.0*	-5.7*	8.9	±0.9	9.0	±1.0	8.4	±1.1	6.3	±0.9	-29.2*	-2.6*				
Czech Republic	17.7	±1.8	14.7	±1.6	5.4	±0.9	4.7	±0.8	-73.4*	-13.0*	13.1	±1.6	9.9	±1.4	2.4	±0.6	2.2	±0.6	-83.2*	-10.9*				
Denmark	43.4	±2.2	43.3	±1.9	17.7	±1.6	10.7	±1.2	-75.3*	-32.7*	22.7	±1.9	20.2	±1.5	6.3	±1.0	3.8	±0.6	-83.3*	-18.9*				
England			4.2	±0.7	8.7	±1.1	7.2	±1.0	71.4*	3.0*			2.7	±0.6	3.9	±0.7	4.1	±0.8	51.9	1.4				
Estonia	28.6	±2.2	25.4	±3.0	17.8	±1.7	29.4	±1.9	2.1	0.6	13.1	±1.5	14.1	±2.1	8.7	±1.2	11.0	±1.3	-16.0	-2.1				
Finland	17.3	±1.6	13.3	±1.4	9.1	±1.1	6.3	±0.9	-63.6*	-11.0*	4.4	±0.9	4.7	±0.9	3.5	±0.7	2.5	±0.6	-43.2*	-1.9*				
France	33.4	±2.3	23.4	±1.9	14.0	±1.1	15.4	±1.2	-53.9*	-18.0*	26.4	±1.9	13.4	±1.4	8.6	±0.9	8.2	±0.9	-68.9*	-18.2*				
Germany	47.3	±2.5	38.9	±1.9	21.9	±1.5	16.0	±1.2	-65.8*	-31.3*	29.5	±2.2	23.7	±1.7	12.0	±1.2	7.1	±0.9	-75.9*	-22.4*				
Greece			13.9	±1.5	14.0	±1.5	27.6	±2.1	98.6*	13.7*			5.2	±0.9	4.3	±0.9	11.5	±1.4	121.2*	6.3*				
Greenland	44.4	±4.0	38.6	±3.5	20.5	±4.3	27.3	±3.4	-38.5*	-17.1*	26.6	±3.5	25.1	±3.1	17.1	±3.4	19.7	±2.9	-25.9*	-6.9*				
Hungary	18.1	±1.4	20.7	±1.9	8.2	±1.3	6.9	±1.3	-61.9*	-11.2*	8.3	±1.0	9.5	±1.4	2.6	±0.7	2.8	±0.8	-66.3*	-5.5*				
Ireland			9.5	±1.2	7.2	±1.4	7.3	±1.0	-23.2	-2.2			2.2	±0.6	2.3	±0.8	2.4	±0.6	9.1	0.2				
Israel	24.0	±1.9	26.0	±1.8	17.1	±1.2	20.1	±0.8	-16.3*	-3.9*	9.4	±1.3	7.8	±1.2	5.6	±0.6	7.1	±0.5	-24.5*	-2.3*				
Latvia	25.2	±2.1	31.6	±2.2	22.7	±2.0	29.2	±2.0	15.9	4.0	18.5	±1.7	21.1	±1.7	10.2	±1.4	18.5	±1.6	0.0	0.0				
Lithuania	40.3	±2.0	40.3	±2.1	41.3	±1.8	30.4	±1.7	-24.6*	-9.9*	27.9	±1.6	29.1	±1.8	26.5	±1.6	16.7	±1.4	-40.5*	-11.3*				
Norway	20.3	±1.6	17.1	±1.5	11.2	±1.3	8.0	±1.1	-60.6*	-12.3*	6.3	±1.0	4.4	±0.8	3.7	±0.7	1.7	±0.5	-73.0*	-4.6*				
Poland	20.0	±1.7	15.6	±1.4	18.6	±1.3	15.9	±1.4	-20.5*	-4.1*	6.8	±1.0	7.4	±1.0	5.5	±0.8	5.5	±0.9	-19.1	-1.3				
Portugal			17.2	±1.8	14.6	±1.9	14.0	±1.6	-18.6	-3.2			7.2	±1.1	7.3	±1.3	8.5	±1.2	18.1	1.3				
Russia	26.2	±2.0	24.7	±1.9	20.7	±1.3	20.3	±1.3	-22.9*	-6.0*	22.4	±1.8	18.5	±1.7	11.7	±0.9	13.2	±1.0	-41.1*	-9.2*				
Scotland	8.1	±1.1	6.7	±1.0	6.5	±1.0	7.6	±0.9	-6.2	-0.5	3.6	±0.7	3.9	±0.7	3.7	±0.8	3.2	±0.7	-11.1	-0.4				
Sweden	6.1	±1.1	5.4	±1.0	4.3	±0.9	5.2	±1.0	-14.8	-0.9	2.8	±0.8	2.3	±0.7	1.9	±0.6	1.5	±0.5	-46.4	-1.3				
Switzerland			28.3	±1.7	23.3	±1.7	18.1	±1.6	-36.0*	-10.2*			16.0	±1.4	9.9	±1.2	8.4	±1.1	-47.5*	-7.6*				
USA			21.0	±1.6	16.2	±1.5	13.2	±1.5	-37.4*	-7.8*			9.6	±1.1	8.2	±1.1	8.0	±1.2	-16.7	-1.6				
Wales	6.5	±1.2	5.8	±0.9	5.4	±1.0	4.7	±0.9	-27.7	-1.8	4.2	±0.9	3.6	±0.8	2.4	±0.7	2.8	±0.7	-33.3*	-17.3*				

* $p < 0.05$, based on inflated Confidence Intervals by 1.4 to account for design effect

used in the inflation of standard error estimates and associated 95 % confidence intervals to account for the cluster-based sampling³³. The prevalence of young people that reported bullying others or being a victim of bullying at the two severity levels (occasional, chronic) were calculated for each participating country by gender and survey year. Statistical differences in reported rates between survey years were inferred from non-overlapping confidence intervals. For each of the measures, the prevalence and the time trends are presented in alphabetic order by country and gender, together with absolute changes (percentages) and relative changes (*percentage points*). A summary of the overall trend in rates over time is then presented.

Results

Table 1 presents the prevalence of occasional bullying by country and gender. The largest decrease was reported in the Czech Republic, with a 58.4 % relative decrease among boys (from 43.5 % in 1993/94 to 18.1 % in 2005/06) and 62.6 % among girls (from 32.1 % to 12.0 %), followed by Denmark with 49.9 % decrease among boys (from 77.1 % to 38.6 %) and 63.3 % among girls (from 60.0 % to 22.0 %). Pronounced increases in the prevalence of bullying are evident in Greece and England between 1997/98 and 2005/06

Similar to occasional bullying, decreases in occasional victimization were evident in most countries (Table 2). These were mainly attributable to changes observed between 1997/98 and 2001/02. The largest relative decrease is found in the Czech Republic and the largest increases were found in Greece and England. Interestingly, in most countries when a change was evident (whether decrease or increase) it was larger among girls.

Overall, the percentage of children involved chronically in the bullying of others decreased over the years from 19.3 % in 1993/94, through 16.1 % in 1997/98 and 11.1 % in 2001/02, to 10.6 % in 2005/06. Decreases in these percentages were reported in 19 countries over the entire study period. As expected with the overall lower prevalence of chronic bullying, in most countries, decreases in the absolute prevalence of bullying were smaller than for the measures of occasional bullying. However, the *relative* percentage change in chronic bullying is larger than that of occasional bullying (Table 3). Similar country patterns are evident, with the largest decreases evident in the Czech Republic and Denmark, and the largest increases observed in Greece and England. Decreases in chronic victimization were mainly evident between 1993/94 and 1997/98. Decreases observed subsequent to those cycles were smaller in absolute terms, but statistically significant in

19 of the 27 countries. In relative terms, decreases in the prevalence of chronic victimization in both genders were more pronounced than that reported for occasional victimization (Table 4)

Overall, decreases in reported rates of bullying and victimization were observed in the majority of the 27 participating countries. Significant decreases in occasional bullying were reported in 16 countries over the study period. Significant decreases in the prevalence of occasional victimization and in the prevalence of chronic bullying were reported in 19 countries. Significant decreases in chronic victimization were reported in 21 countries. No significant changes were reported in 5–8 countries on all measures. Increases in rates of bullying were reported in 1 to 3 countries on all measures, although most of these changes were small (Table 5).

With respect to geographic patterns, decreases in bullying behaviour were reported over time in countries from the following areas: Scandinavia, Eastern Europe, most of Western Europe, and the Baltic countries. In English speaking countries in Europe and in North America, slight increases or no changes were reported over time for most measures. No clear patterns were evident in South/Mediterranean Europe, represented by three countries only. A decrease was reported in Israel for all measures, while increases were reported in Greece and no consistent changes in Portugal.

Discussion

Bullying and associated victimization are common in almost all participating countries. A third of the children in the overall sample report occasional bullying or victimization, and around 1 in 10 children report chronic involvement in bullying, either as a perpetrator or as a victim. The findings also reveal substantial cross-national differences in reports of bullying, with lows of 14.6 % and 15.4 % reporting victimization and bullying in Sweden, and highs of 56.3 % and 54.9 % reporting victimization and bullying in Lithuania.

Although cross-national variations in reports of bullying are evident, it is also clear that in most countries involvement in bullying behaviour is decreasing over time. As expected, when presented in absolute terms, these decreases appear to be more pronounced in the more prevalent 'occasional' category. However, when presented in relative terms, decreases in chronic bullying are as large, if not larger, than that of the occasional categories.

Significant variations were observed between countries with respect to the observed trends in rates of bullying and victimization. Speculatively, these variations may be due to national or more local prevention efforts. There are many potential

Table 4. Trends in prevalence of chronic victimization by gender, country and survey year.

Country	Boys					Girls					% Change									
	1993/94		1997/98		2001/02		2005/06		% Change		1993/94		1997/98		2001/02		2005/06		% Change	
	%	95% CI	%	95% CI	%	95% CI	%	95% CI	Rel.	Abs.	%	95% CI	%	95% CI	%	95% CI	%	95% CI	Rel.	Abs.
Austria	21.5	±1.6	20.2	±1.7	19.5	±1.7	19.6	±1.6	-8.8	-1.9	14.7	±1.4	14.7	±1.4	13.5	±1.4	12.1	±1.4	-17.7	-2.6
Belgium (Flemish)	28.1	±1.9	23.0	±1.7	13.8	±1.3	9.4	±1.2	-66.5*	-18.7*	19.5	±1.7	19.3	±1.5	10.1	±1.0	8.3	±1.2	-56.9*	-11.1*
Belgium (French)	40.1	±2.0	33.1	±2.7	19.8	±1.7	22.1	±1.7	-44.6*	-17.9*	32.6	±1.7	21.6	±2.3	11.5	±1.4	11.9	±1.4	-63.5*	-20.7*
Canada	15.8	±1.3	17.1	±1.3	16.4	±1.6	15.2	±1.3	-3.8	-0.6	11.5	±1.0	12.2	±1.1	14.4	±1.4	13.1	±1.2	13.0	1.5
Czech Republic	19.0	±1.8	15.3	±1.7	6.8	±1.0	6.3	±1.0	-66.8*	-12.7*	19.0	±1.8	13.2	±1.5	5.5	±0.8	4.8	±0.9	-75.3*	-14.3*
Denmark	25.7	±1.9	26.6	±1.7	11.4	±1.3	8.3	±1.0	-67.3*	-17.3*	23.4	±1.9	24.6	±1.6	11.1	±1.2	7.8	±1.0	-66.7*	-15.6*
England			9.4	±1.1	14.4	±1.3	10.8	±1.3	16.0	1.5			7.3	±0.9	11.6	±1.1	8.7	±1.1	19.2	1.4
Estonia	31.1	±2.2	25.6	±2.9	21.7	±1.8	23.9	±1.8	-23.2*	-7.2*	23.3	±1.9	21.6	±2.5	15.7	±1.6	19.2	±1.6	-17.2*	-4.0*
Finland	18.8	±1.7	13.1	±1.4	10.4	±1.1	9.1	±1.1	-51.6*	-9.7*	12.5	±1.4	9.6	±1.2	8.0	±1.0	6.9	±0.9	-44.8*	-5.6*
France	34.1	±2.1	17.8	±1.7	13.4	±1.1	13.9	±1.2	-59.2*	-20.2*	35.0	±2.1	16.5	±1.6	12.9	±1.0	13.3	±1.1	-62.0*	-21.7*
Germany	31.3	±2.3	31.6	±1.9	15.2	±1.3	14.9	±1.2	-52.7*	-16.4*	20.3	±2.0	26.2	±1.8	11.1	±1.1	12.9	±1.1	-36.0*	-7.3*
Greece			12.6	±1.4	9.3	±1.3	23.0	±2.0	82.5*	10.4*			8.2	±1.2	6.7	±1.1	22.9	±1.9	179.3*	14.7*
Greenland	41.0	±3.9	35.7	±3.4	22.1	±4.3	23.0	±3.3	-43.9*	-18.0*	39.4	±3.9	34.9	±3.3	26.5	±3.9	24.9	±3.2	-36.5*	-14.4*
Hungary	20.8	±1.5	18.0	±1.8	5.7	±1.1	6.3	±1.2	-70.2*	-14.6*	16.8	±1.3	14.5	±1.6	6.4	±1.0	6.7	±1.1	-60.1*	-10.1*
Ireland			11.1	±1.3	10.2	±1.7	10.0	±1.2	-10.0	-1.1			7.6	±1.1	6.5	±1.2	7.3	±1.0	-3.9	-0.3
Israel	28.8	±2.0	24.3	±1.8	20.0	±1.0	17.8	±0.8	-38.2*	-11.0*	17.3	±1.6	14.9	±1.5	10.7	±0.8	10.7	±0.3	-38.2*	-6.6*
Latvia	27.4	±2.2	30.6	±2.2	23.7	±2.1	23.4	±1.8	-14.6	-4.0	24.2	±1.8	28.1	±1.9	16.2	±1.7	19.3	±1.6	-20.2*	-4.9*
Lithuania	41.7	±2.0	42.0	±2.1	36.4	±1.8	28.0	±1.7	-33.1*	-13.8*	39.5	±1.8	38.4	±2.0	32.3	±1.7	26.5	±1.7	-32.9*	-13.0*
Norway	16.9	±1.5	15.8	±1.5	12.0	±1.2	9.7	±1.2	-42.6*	-7.2*	12.6	±1.4	10.9	±1.3	9.9	±1.2	6.9	±1.1	-45.2*	-5.7*
Poland	17.7	±1.6	15.3	±1.5	12.4	±1.0	11.4	±1.2	-35.6*	-6.3*	11.6	±1.3	12.6	±1.3	8.0	±1.0	7.3	±0.9	-37.1*	-4.3*
Portugal			24.5	±2.1	24.3	±2.3	16.5	±1.7	-32.7*	-8.0*			13.5	±1.5	13.4	±1.7	12.6	±1.5	-6.7	-0.9
Russia	36.8	±2.2	25.6	±1.9	18.5	±1.2	17.2	±1.2	-53.5*	-19.7*	40.1	±2.1	23.8	±1.9	16.8	±1.1	15.7	±1.1	-60.8*	-24.4*
Scotland	11.0	±1.3	9.6	±1.1	8.4	±1.1	9.3	±1.0	-16.4	-1.8	10.2	±1.2	9.7	±1.1	9.1	±1.3	9.5	±1.0	-6.9	-0.7
Sweden	6.8	±1.1	6.4	±1.1	5.4	±1.0	4.6	±0.9	-32.4*	-2.2*	6.0	±1.1	5.2	±1.0	4.1	±0.9	3.5	±0.7	-41.7*	-2.5*
Switzerland			22.4	±1.5	16.2	±1.5	13.7	±1.5	-39.3*	-8.8*			19.8	±1.4	11.7	±1.3	10.5	±1.2	-47.0*	-9.3*
USA			16.3	±1.5	14.8	±1.5	11.9	±1.5	-27.0*	-4.4*			11.2	±1.2	10.4	±1.2	10.9	±1.4	-3.6	-0.4
Wales	12.3	±1.5	12.3	±1.4	9.3	±1.3	11.1	±1.3	-9.8	-1.2	11.4	±1.3	11.5	±1.3	9.7	±1.3	11.6	±1.3	1.8	0.2

* p < 0.05, based on inflated Confidence Intervals by 1.4 to account for design effect

Table 5. Summary table of prevalence difference in bullying by measure.

	Occasional bullying					Occasional victimization					Chronic bullying					Chronic victimization				
	1994–1998		1998–2002		Overall change	1994–1998		1998–2002		Overall change	1994–1998		1998–2002		Overall change	1994–1998		1998–2002		Overall change
All																				
Increase	4	5	4	3	3	3	4	3	3	3	2	1	3	2	2	2	1	2	1	1
Decrease	11	16	11	16	19	8	14	10	19	19	8	18	9	19	8	8	19	7	21	21
No change	6	6	12	8	5	10	9	14	5	5	11	8	14	5	11	11	7	18	5	5
Boys																				
Increase	3	4	4	3	2	2	1	2	2	2	1	2	4	2	2	0	1	1	1	1
Decrease	10	16	10	18	19	7	15	10	19	19	7	18	8	18	8	8	18	6	19	19
No change	8	7	13	6	6	12	11	15	6	6	13	7	15	7	13	13	8	20	7	7
Girls																				
Increase	3	5	5	5	6	3	6	2	6	6	0	0	3	1	2	2	1	2	1	1
Decrease	9	13	9	13	12	6	12	10	12	12	6	15	6	16	5	5	15	4	18	18
No change	9	9	13	9	8	12	9	15	8	8	15	12	18	10	14	14	11	21	8	8

lessons for current interventional efforts to be learned from countries such as Denmark, the Czech Republic and Belgium that reported significant decreases in bullying and victimization. Similarly, there is much to be learned from countries such as Sweden where the prevalence of bullying was low at the baseline and remained so over the full study period.

Some important geographic patterns were identified in this analysis. All of the Western European countries reported consistent decreases for each of the four measures of bullying. Such consistent findings were not evident in any other region. In the Eastern European countries, a pattern indicating a decrease was also reported for most measures. Southern/Mediterranean European countries showed no consistent pattern, although the lack of clear geographical pattern in this region could be attributed to the low number of countries represented.

The most intriguing geographic finding related to participating Northern European countries. In all four of the Scandinavian countries, the prevalence of bullying behaviour decreased across each of the four measures. Interestingly, in these countries there are ongoing focussed national efforts to address bullying³⁴. Similarly, a decrease was evident in the Baltic region countries with the exception of Latvia, bringing the prevalence in those countries closer to that of Northern Europe. No such pattern, however, is evident in the English speaking countries (except for the US which instituted a national anti-bullying campaign due to HBSC survey results). With an increase on most bullying measures in England and Canada and no change or only a slight decrease in Ireland, Scotland and Wales, these countries stand out from the rest of the countries in Europe in relation to patterns of bullying behaviours. However, the prevalence of bullying in most countries in Great Britain and Ireland was relatively low at baseline, leaving little room for decline.

Findings yielded from the HBSC study over a period of 12 years (8 years for 6 of the countries) suggest that both bullying and victimization, mild and severe, are decreasing in as many as 20 countries of the 27 studied. These findings send a positive message regarding current prevention and health promotion efforts. The reported decreases could be a consequence of ongoing efforts to address school bullying, the result of the increased awareness, or both. Increased awareness about the public health and social significance of bullying may have changed attitudes and tolerance towards bullying among populations that previously disregarded the significance of the problem^{24,25}. Finally, decreases could reflect actual changes in bullying behaviours.

The lack of observed decreases in bullying in most English speaking countries that is reflected in English speaking media, however, may play a role in the global perception of in-

crease in bullying prevalence. As is clearly evident in Stassen Berger¹ review, research in the area of bullying also has increased dramatically over the last twenty years, demonstrating its adverse effects. This research may have provided support for both youth and adults working with youth to address this significant social problem. The combination of empirical evidence highlighting the significance of the problem, and the increased prevention and intervention efforts to address the problem of bullying, may explain the significant decline the prevalence of the problem in many countries, in a manner that was thus far restricted due to the limited scientific evaluation of existing interventional efforts¹.

Strengths and limitations

The HBSC study offers a unique opportunity for cross-national and temporal investigations of adolescent health problems. Standardization of study methods allows, for the first time, an extensive study of temporal patterns of bullying behaviour reported across countries. At the same time, the cross-cultural nature of the research and the translation of the questionnaires into a large number of languages, even if followed by thorough back translation, may have led to some information bias. Definitions and perceptions of bullying may vary by cultural setting and contribute to observed cross-national variations^{5,35}. However, because of similarities in the measures used, these variations are not expected to change over time. As the main purpose of this study was to examine changes within countries, such bias is of lesser importance in the present analysis. Similarly, there is a potential for a self-report bias. The HBSC instruments are subjected to ongoing validation efforts, yet the possibility of biased reporting motivated by a desire to provide socially desirable responses must be recognized. The slight change in the wording of the bullying items, starting in the 2001/02 study, undoubtedly had some effects on the study results. The recall period for the two questions changed from 'last term' to the 'last couple of months'. For many of the countries, the timing of data collection created an overlap between 'last term' and the 'last couple of months'. For these countries, this change in wording would make little difference. However, in other countries this change would make comparisons across years more challenging, especially in relation to the chronic bullying outcome. Changes in the wording of the question could have lead to a spurious decrease in the prevalence of bullying, however, in most countries the decrease in

bullying is evident prior to the change in the wording of the questions and continues after it.

Finally, although HBSC enables both cross-national and temporal comparisons, the study does not provide background information on the cultural context of each country or on different national strategies, policies or intervention / prevention programmes that address the problem of bullying. In the absence of this information, it is difficult to provide further explanation surrounding the contexts that lead to any observed changes. As much as this limits the knowledge that can be gained from our findings, it does not diminish the importance of the findings.

In conclusion, findings presented in this paper demonstrate a clear and significant decrease in involvement in bullying behaviour in most European and North American countries. Whereas bullying was identified as an international problem, the findings suggest that reported decreases in this behaviour are cross-national as well. These findings should send an encouraging message to policy makers and practitioners in the field of bullying prevention. Although bullying is not eradicated as of yet, chronic bullying is becoming a much less common phenomena when compared with the past. The study also identified selected countries where an observed decrease in bullying behaviour was more substantial. Such information calls for further investigation into interventions used in those countries, with the hope of transfer of this knowledge to other countries that have not experienced substantial declines in bullying.

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