

Precursors and Outcomes of Sibling Bullying

Volume Two out of Two

by

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Chapter 2 –The Effects of Parent-Child Relationships and Familial Factors on Sibling Conflicts: A Meta-Analysis

Supplementary Table S1. Prisma 2009 Checklist

Section/Topic	#	Checklist Item	Reported on page
Title			
Title	1	Identify the report as a systematic review, meta-analysis, or both.	47
Abstract			
Structured Summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	N/A
Introduction			
Rationale	3	Describe the rationale for the review in the context of what is already known.	48-52
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	52
Methods			
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.	53
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	56
Information Sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	53-55
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	54-55; Figure 2.1
Study Selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	57, Table 2.1
Data Collection Process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	57
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	62-63; Table 2.2-2.3

Supplementary Table S1. Prisma 2009 Checklist continued

Section/Topic	#	Checklist Item	Reported on page
Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	62
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).	63-64
Synthesis of results	14	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I^2) for each meta-analysis.	64
Risk of bias across studies	15	Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).	15-16
Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.	64-65
Results			
Study Selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.	66, Figure 2.2
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	67-69; Table 2.4 and Table 2.5
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).	80-87
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.	80-87; Tables 2.6-2.9
Synthesis of results	21	Present results of each meta-analysis done, including confidence intervals and measures of consistency.	80-87; Tables 2.6-2.9; Figure 2.3
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see Item 15).	90-92; Tables 2.10-2.11
Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).	88-90
Discussion			
Summary of Evidence	24	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers).	92-99
Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias).	99-102

Supplementary Table S1. Prisma 2009 Checklist continued

Section/Topic	#	Checklist Item	Reported on page
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	102-104
Funding			
Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.	Acknowledgements

Appendix A

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Supplementary Table S2. Positive Proximal Factors

	Study Name	Hedge's g	Lower Limit	Upper Limit	Z-value	p-value	Q value	df (Q)	p-value (Q)	I-squared
Authoritative Parenting	Buist et al. (2011)	-.04	-.28	.21	-.28	.783				
	Derkman et al. (2011)	-.33	-.54	-.12	-3.10	.002				
	Ducharme (2003)	-.03	-.33	.27	-.20	.843				
	Fosco et al. (2012)	-.31	-.60	-.01	-2.01	.045				
	Keeton et al. (2015)	-.25	-.70	.19	-1.12	.262				
	Signer (1998)	-.02	.61	.58	-.05	.961				
	Ttofi & Farrington (2008)	-.43	-.73	-.13	-2.81	.005				
	Tucker & Kazura (2013)	-.09	-.40	.22	-.57	.566				
	Volling et al. (2002)	.11	-.41	.63	.42	.676				
	Wolke & Skew (2012)	-1.04	-1.20	-.89	-13.36	.000				
	Yu & Gamble (2008)	-.50	-.86	-.15	-2.76	.006				
		Overall Authoritative Parenting	-.29	-.55	-.02	-2.15	.035	90.79	10	.000
Warm and Affectionate Parenting	Brody et al. (1999)	-.47	-.91	-.02	-2.06	.040				
	Dawson et al. (2015)	-.60	-.81	-.40	-5.81	.000				
	Feinberg et al. (2003)	-.19	-.48	.10	-1.28	.200				
	Hakvoort et al. (2010)	-.90	-1.37	-.44	-3.83	.000				
	Kretschmer & Pike (2009)	-.52	-.89	-.14	-2.69	.007				
	McCoy et al. (1994)	-.64	-.99	-.29	-3.58	.000				
	McHale et al. (2007)	-.15	-.49	.19	-.87	.383				
	Olivia & Arranz (2005)	-.25	-.43	-.08	-2.83	.005				
	Pike et al. (2005)	-.36	-.71	-.01	-2.01	.044				
	Repinski & Shonk (1999)	-.59	-1.07	-.12	-2.45	.14				
	Senguttuvan et al. (2014)	-.22	-.38	-.07	-2.82	.005				
	Soli (2009)	-.49	-.71	-.28	-4.51	.000				
	Stocker (1994)	-.47	-.91	-.03	-2.08	.037				
	Stocker et al. (1989)	.16	-.13	.45	1.10	.270				
	Volling et al. (2002)	.01	-.51	.53	.03	.976				
	Wolke & Skew (2012)	-.90	-1.00	-.80	-17.72	.000				
	Yu & Gamble (2008)	-.30	-.70	.09	-1.51	.132				
	Yu & Gamble (2009)	-.13	-.32	.06	-1.35	.176				
	Overall Warm and Affectionate Parenting	-.39	-.56	-.22	-4.48	.000	136.20	17	.000	87.52

Supplementary Table S2 Positive Proximal Factors continued

Parental Involvement and Support	Study Name	Hedge's g	Lower Limit	Upper Limit	Z-value	p-value	Q value	df (Q)	p-value (Q)	I-squared
	Howe & Ross (1990)	-.40	-1.13	.33	-1.07	.285				
Howe et al. (2003)	-.15	-.70	.41	-.52	.606					
McHale et al.(2007)	.46	.12	.80	2.63	.008					
Stocker et al. (1989)	.22	-.07	.51	1.49	.137					
Tippett & Wolke (2015)	-.02	-.03	-.01	-4.75	.000					
Wolke & Skew (2012)	-.92	-1.02	-.82	-17.89	.000					
<i>Overall Parental Involvement and Support</i>	-.13	-.62	.36	-.53	.60	317.00	5	.000	98.42	
Parental Supervision	Study Name	Hedge's g	Lower Limit	Upper Limit	Z-value	p-value	Q value	df (Q)	p-value (Q)	I-squared
	Fosco et al. (2012)	-.02	-.31	.27	-.13	.894				
Kim et al. (1999)	-.21	-.43	.01	-1.89	.058					
Kramer & Kowal (2005)	-1.56	-2.24	-.87	-4.44	.000					
Olivia & Arranz (2005)	.02	-.15	.19	.23	.820					
<i>Overall Parental Supervision</i>	-.29	-.65	.07	-1.58	.113	20.42	3	.000	85.31	
<i>Overall Positive Proximal Factors</i>		-.32	-.46	-.17	-4.30	.000	940.57	38	.000	95.96

Supplementary Table S3. Positive Distal Factor

	Study Name	Hedge's g	Lower Limit	Upper Limit	Z-value	p-value	Q- value	df (Q)	p-value (Q)	I-squared
Affluent SES	Senguttavan et al. (2014)	-.22	-.38	-.07	-2.80	.005				
	Soli (2009)	-.06	-.26	.15	-.52	.604				
	Tippett & Wolke (2015)	-.03	-.12	.06	-.64	.519				
	Tucker et al. (2013)	-.77	-1.27	-.28	-3.07	.002				
	Wolke & Skew (2012)	-.85	-1.00	-.71	-11.95	.000				
	Overall Affluent SES	-.37	-.73	-.00	-1.97	.049	102.06	4	.000	96.08
Positive Family Climate	Study Name	Hedge's g	Lower Limit	Upper Limit	Z-value	p-value	Q value	df (Q)	p-value (Q)	I-squared
	Brody et al. (1992)	-.24	-.74	.26	-.96	.339				
	Brody et al. (1994)	-.50	-1.00	-.01	-2.00	.046				
	Brody et al. (1999)	-.69	-1.14	-.23	-2.94	.003				
	Modry-Mandell et al. (2007)	-.62	-1.15	-.10	-2.32	.020				
	Soli (2009)	-.21	-.42	-.00	-1.93	.054				
	Yu & Gamble (2008)	-.40	-.80	-.00	-1.98	.048				
Overall Positive Family Climate	-.36	-.53	-.20	-4.39	.000	5.50	5	.358	9.11	
Good Marital Quality	Study Name	Hedge's g	Lower Limit	Upper Limit	Z-value	p-value	Q value	df (Q)	p-value (Q)	I-squared
	Brody et al. (1987)	-.59	-1.24	.06	-1.78	.075				
	Brody et al. (1992)	-.31	-.81	.19	-1.21	.227				
	Brody et al. (1994)	.04	-.45	.52	.15	.885				
	Buist et al. (2011)	-.02	-.26	.22	-.17	.868				
	Ducharme (2003)	-1.8	-.48	.12	-1.91	.234				
	Dunn et al. (1999)	-.25	-.31	-.18	-7.49	.000				
	Hakvoort et al. (2010)	-.41	-.84	.03	-1.84	.065				
	Liu (2006)	-.20	-.56	.16	-1.08	.280				
	McCoy et al. (1994)	-.36	-.70	-.03	-2.11	.035				
	Modry-Mandell et al. (2007)	-.55	-1.07	-.04	-2.09	.036				
	Volling et al. (2002)	.80	-.43	.59	.31	.760				
	Yu & Gamble (2008)	-.25	-.60	.10	-1.41	.159				
Overall Good Marital Quality	-.24	-.29	.18	-8.22	.000	10.00	11	.530	.00	
Overall Positive Distal Factors		-.31	-.43	-.19	-5.02	.000	119.47	22	.000	81.59

Supplementary Table S4. Negative Proximal Factors

	Study Name	Hedge's g	Lower Limit	Upper Limit	Z-value	p-value	Q-value	df (Q)	p-value (Q)	I-squared
Abusive Parenting	Brody et al. (1994)	.37	-.12	.85	1.49	.136				
	Buist et al. (2011)	.11	-.16	.38	.80	.425				
	Campione-Barr et al. (2014)	.80	.37	1.23	3.67	.000				
	Criss & Shaw (2005)	.60	.32	.90	4.15	.000				
	Dubrow & Howe (1999)	.53	-.25	1.30	1.34	.181				
	Ducharme (2003)	.53	.22	.83	3.37	.001				
	Garcia et al. (2000)	-.06	-.27	.15	-.57	.571				
	Keery et al. (2005)	.13	.02	.24	2.30	.021				
	Keeton et al. (2015)	.02	-.43	.47	.08	.934				
	Kim et al. (1999)	.72	.49	.96	6.08	.000				
	Natsuaki et al. (2009)	.24	.09	.38	3.26	.001				
	Pike et al. (2005)	.53	.17	.89	2.86	.004				
	Repinski & Shonk (1999)	1.04	.53	1.56	3.97	.000				
	Ripoll et al. (2009)	.58	.20	.96	3.01	.003				
	Schaefer et al. (2014)	1.26	.73	1.79	4.64	.000				
	Stocker et al. (1989)	.42	.12	.71	2.77	.006				
	Tippett & Wolke (2015)	.50	.04	.96	11.25	.000				
	Tucker & Kazura (2013)	.70	.38	1.02	4.21	.000				
	Tucker et al. (2014)	.05	-.005	.11	1.79	.074				
	Williams et al. (2007)	.30	.11	.49	3.15	.002				
	Wolke & Skew (2012)	.77	.63	.92	10.18	.000				
	Yabko et al. (2008)	.48	.22	.75	3.63	.000				
	Yu & Gamble (2008)	.87	.44	1.30	3.97	.000				
Yu & Gamble (2009)	.78	.57	.98	7.53	.000					
	Overall Abusive Parenting	.45	.33	.56	7.71	.000	317.37	23	.000	92.75

Supplementary Table S4. Negative Proximal Factors continued

	Study Name	Hedge's g	Lower Limit	Upper Limit	Z-value	p-value	Q value	df (Q)	p-value (Q)	I-squared
Neglectful Parenting	Bank et al. (2004)	1.25	.90	1.59	7.09	.000				
	Dawson et al. (2015)	.80	.34	1.27	3.39	.001				
	Dunn et al. (1999)	.56	.51	.61	23.38	.000				
	Keeton et al. (2015)	-.05	-.49	.39	-.22	.828				
	Kretschmer & Pike (2009)	.01	-.36	.39	.06	.95				
	Snyder et al. (2005)	.87	.63	1.11	7.01	.000				
	Tucker & Kazura (2013)	.68	.35	1.00	4.07	.000				
	Tucker et al. (2014)	.18	-.13	.49	1.15	.249				
	Wolke & Skew (2012)	.77	.57	.98	7.29	.000				
	<i>Overall Neglectful Parenting</i>	.58	.38	.78	5.75	.000	47.92	8	.000	83.31
Parent-Child Conflict	Defoe et al. (2013)	.45	.25	.65	4.37	.000				
	Feinberg et al. (2003)	.28	-.01	.58	1.87	.061				
	Hakvoort et al. (2010)	-.13	-.59	.32	-.58	.562				
	McHale et al. (2007)	.26	-.08	.60	1.50	.134				
	Sapouna & Wolke (2013)	.65	.58	.73	17.35	.000				
	Senguttuvan et al. (2014)	.47	.31	.63	5.84	.000				
	Tippett & Wolke (2015)	.07	.06	.08	13.33	.000				
	Wolke & Skew (2012)	.25	-1.97	2.47	.22	.826				
		<i>Overall Parent-Child Conflict</i>	.31	.03	.59	2.14	.003	279.76	7	.000

Supplementary Table S4. Negative Proximal Factors continued

	Study Name	Hedge's g	Lower Limit	Upper Limit	Z-value	p-value	Q value	df (Q)	p-value (Q)	I-squared
Parental Differential Treatment	Brody et al. (1987)	-.39	-.97	.20	-.13	.194				
	Brody et al. (1994)	.14	-.33	.61	.58	.561				
	Kowal & Kramer (1997)	.23	-.13	.60	1.25	.213				
	McHale et al. (2007)	.63	.28	.97	3.56	.000				
	Richmond et al. (2005)	-.19	-.53	.16	-1.07	.285				
	Ripoll et al. (2005)	.48	.11	.86	2.5	.012				
	Stocker et al. (1989)	.36	.07	.65	2.46	.014				
	Yu & Gamble (2008)	.01	-.38	.40	.04	.968				
	<i>Overall Parental Differential Treatment</i>	.19	-.38	.40	.040	.968	18.92	7	.008	63.00
<i>Overall Negative Distal Factors</i>		.41	.35	.46	13.80	.000	1195.36	48	.000	95.98

Supplementary Table S5. Negative Distal Factors

	Study Name	Hedge's g	Lower Limit	Upper Limit	Z-value	p-value	Q-value	df (Q)	p-value (Q)	I-squared
Low Socio-Economic Status	Bowes et al. (2014)	-.02	-.07	.04	-.59	.558				
	Garcia et al. (2000)	.04	-.17	.25	.38	.706				
	Kretschmer & Pike (2009)	.19	-.18	.56	1.02	.307				
	Tippett & Wolke (2015)	.02	-.01	.13	.35	.730				
	Tucker et al. (2013)	1.00	.33	1.68	2.91	.004				
	Williams et al. (2007)	.16	-.03	.34	1.66	.096				
	Wolke & Skew (2012)	.83	.67	1.00	10.01	.000				
	<i>Overall Low SES</i>	.26	.02	.50	2.10	.036	103.93	6	.000	94.23
Adverse Family Atmosphere	Brody et al. (1992)	.33	-.18	.84	1.28	.200				
	Brody et al. (1999)	.14	-.29	.57	.63	.526				
	Compton et al. (2003)	.60	.26	.94	3.47	.001				
	Tucker et al. (2014)	.42	.12	.73	2.72	.007				
	<i>Overall Adverse Family Atmosphere</i>	.41	.22	.60	4.13	.000	2.86	3	.414	.00
	Parental Conflict	Bowes et al. (2014)	.09	.02	.17	2.33	.020			
Buist et al. (2011)		.14	-.10	.38	1.17	.244				
Dunn et al. (1999)		.31	.24	.37	9.36	.000				
Liu et al. (2006)		-.15	-.41	.12	-1.14	.255				
Modry-Mandell et al. (2007)		.36	-.15	.87	1.39	.163				
Stocker & Youngblade (1999)		.53	.18	.87	2.95	.003				
Tucker et al. (2014)		.10	-.01	.20	1.87	.062				
Volling et al. (2002)		.25	-.27	.76	.93	.351				
Yu & Gamble (2008)		.44	.08	.79	2.42	.016				
<i>Overall Parental Conflict</i>		.19	.07	.31	3.14	.002	34.51	8	.000	76.82

Supplementary Table S5. Negative Distal Factors continued

	Study Name	Hedge's g	Lower Limit	Upper Limit	Z-value	p-value	Q value	df (Q)	p-value (Q)	I-squared
Parental Mental Health Problems	Brody et al. (1987)	.50	-.14	1.14	1.54	.123				
	Brody et al. (1994)	.21	-.26	.69	.87	.383				
	Brody et al. (1999)	-.09	-.54	.35	-.42	.676				
	Compton et al. (2003)	.24	-.09	.57	1.44	.151				
	Defoe et al. (2013)	.16	-.03	.36	1.63	.103				
	Keeton et al. (2015)	-.03	-.47	.42	-.12	.909				
	McHale et al. (2007)	.35	.01	.69	2.04	.042				
	Wolke & Skew (2012)	.94	.74	1.14	9.21	.000				
	Yu & Gamble (2009)	.58	.39	.78	5.84	.000				
	<i>Overall Parental Mental Health Problems</i>	.34	.10	.59	2.70	.007	46.19	8	.000	82.68
<i>Overall Negative Distal Factors</i>		.29	.19	.39	5.59	.000	251.17	29	.000	88.45

Supplementary Table S6. Moderator Analysis: Positive Proximal Factors: Authoritative Parenting

Outcome	Moderator	Qb	k	Hedge's g	Qw	
Authoritative Parenting	Assessment Method of Proximal Factor	2.68			43.00***	
	Child-Report		5	-.24	4.72	
	Parent-Report		4	-.50**	38.28***	
	Observation		1	.11	.00	
	Mixed		1	-.04	.00	
	Assessment Method of Sibling Conflict	.23				84.08***
	Child-Report		8	-.32*	79.42***	
	Parent-Report		3	-.17	4.65	
	Observation		-	-	-	
	Mixed		-	-	-	
	Direction of Conflict	.10				89.01***
	Victimized		-	-	-	
	Perpetration		2	-.19	3.15	
	Reciprocal		9	-.30*	85.86***	
	Type of Conflict	5.98*				30.40***
	Direct		2	-.72***	18.61***	
	Indirect					
	Both		9	-.19	11.79	
	Gender Constellation	.00				90.79***
	Same Sex		-	-	-	
	Any		11	-.29*	90.79***	
	Other		-	-	-	
	Design	.22				86.22***
	Longitudinal		2	-.14	2.42	
	Cross-Sectional		9	-.31*	83.80***	
	Continent	1.49				65.71***
Europe		4	-.47*	59.28***		
North America		6	-.19	6.44		
Other		1	-.02	.00		
SES	.87				.00	
Lower		1	-.02	.00		
Lower-Middle		-	-	-		
Middle		1	-.03	.00		
Upper-Middle		1	.11	.00		
Upper		1	-.25	.00		

* $p \leq .05$; ** $p < .01$; *** $p < .001$

Supplementary Table S7. Moderator Analysis: Positive Proximal Factors: Warm & Affectionate Parenting

Outcome	Moderator	Qb	k	Hedge's g	Qw
Warm and Affectionate Parenting	Assessment Method of Proximal Factor	2.68			51.32***
	Child-Report		10	-.36***	17.08*
	Parent-Report		2	-.60**	17.39***
	Observation		4	-.25	15.43**
	Mixed		2	-.50	1.42
	Assessment Method of Sibling Conflict	2.85			115.84***
	Child-Report		15	-.45***	110.76***
	Parent-Report		1	.01	.000
	Observation		-	-	-
	Mixed		2	-.89	5.08*
	Direction of Conflict	.02			135.52***
	Victimized		-	-	-
	Perpetration		3	-.36	3.07
	Reciprocal		15	-.39***	132.45***
	Type of Conflict	2.26			96.45***
	Direct		7	-.53***	65.70***
	Indirect		1	-.47	.000
	Both		10	-.29**	30.79**
	Gender Constellation	.46			135.49***
	Same Sex		1	-.64	.000
	Any		16	-.37**	135.49***
	Other		-	-	-
	Design	.22			133.20***
	Longitudinal		3	-.29	5.45
	Cross-Sectional		15	-.41***	127.74***
	Continent	4.53*			72.00***
	Europe		6	-.59***	47.42***
	North America		12	-.28**	24.57*
	Other		-	-	-
	SES	9.05**			5.08
Lower		-	-	-	
Lower-Middle		-	-	-	
Middle		5	-.53***	4.01	
Upper-Middle		3	-.18**	1.07	
Upper		-	-	-	

* $p \leq .05$; ** $p < .01$; *** $p < .001$

Supplementary Table S8. Moderator Analysis: Positive Proximal Factors: Parental Involvement and Support

Outcome	Moderator	Qb	k	Hedge's g	Qw	
Parental Involvement and Support	Assessment Method of Proximal Factor	.07			60.89***	
	Child-Report		-	-	-	
	Parent-Report		2	-.25	57.70***	
	Observation		3	-.09	3.19	
	Mixed		1	-.02	.00	
	Assessment Method of Sibling Conflict	.40				313.39***
	Child-Report		3	-.17	313.09***	
	Parent-Report		-	-	-	
	Observation		2	-.26	.30	
	Mixed		1	.22	.00	
	Direction of Conflict	.17				316.00***
	Victimized		-	-	-	
	Perpetration		1	-.40	.00	
	Reciprocal		5	-.09	316.00***	
	Type of Conflict	1.49				309.85***
	Direct		2	-.45	306.39***	
	Indirect		-	-	-	
	Both		3	.19	3.46	
	Gender Constellation	.00				316.00***
	Same Sex		-	-	-	
	Any		5	.09	316.00***	
	Other		-	-	-	
	Design	.00				316.82***
	Longitudinal		1	-.15	.00	
	Cross-Sectional		5	-.13	316.82***	
	Continent	.95				311.70***
	Europe		2	-.47	305.39***	
	North America		4	.07	6.32	
	Other		-	-	-	
SES	.00				.30	
Lower		-	-	-		
Lower-Middle		-	-	-		
Middle		2	-.24	.30		
Upper-Middle		-	-	-		
Upper		-	-	-		

* $p \leq .05$; ** $p < .01$; *** $p < .001$

Supplementary Table S9. Moderator Analysis: Positive Proximal Factors: Parental Supervision

Outcome	Moderator	Qb	k	Hedge's g	Qw
Parental Supervision	Assessment Method of Proximal Factor	20.42***			.00
	Child-Report		1	.20	.00
	Parent-Report		1	-.20	.00
	Observation		1	-1.55***	.00
	Mixed		1	-.21* ^m	.00
	Assessment Method of Sibling Conflict	20.37***			.05
	Child-Report		2	.10	.05
	Parent-Report		-	-	-
	Observation		1	-1.55***	.00
	Mixed		1	-.21* ^m	.00
	Direction of Conflict	.00			20.42***
	Victimized		-	-	-
	Perpetration		-	-	-
	Reciprocal		4	-.29	20.42***
	Type of Conflict	.68			20.01***
	Direct		1	-.02	.00
	Indirect		-	-	-
	Both		3	-.43	20.01***
	Gender Constellation	.12			19.15***
	Same Sex		1	-.21	.00
	Any		3	-.40	19.15***
	Other		-	-	-
	Design	16.68***			2.74
	Longitudinal		1	-1.55***	.00
	Cross-Sectional		3	-.07	2.74
	Continent	.85			16.31***
	Europe		1	.02	.00
	North America		3	-.48	16.31***
	Other		-	-	-
	SES	13.35***			.00
	Lower		-	-	-
	Lower-Middle		1	-.21* ^m	.00
	Middle		1	-1.55***	.00
	Upper-Middle		-	-	-
	Upper		-	-	-

* $p \leq .05$; ** $p < .01$; *** $p < .001$; *^m $.05 < p < .06$

Supplementary Table S10. Moderator Analysis: Positive Distal Factors: Affluent SES

Outcome	Moderator	Qb	k	Hedge's g	Qw	
Affluent SES	Assessment Method of Distal Factor	.00			102.06***	
	Child-Report		-	-	-	
	Parent-Report		5	-.37*	102.06***	
	Observation		-	-	-	
	Mixed		-	-	-	
	Assessment Method of Sibling Conflict	.89				97.54***
	Child-Report		4	-.29	97.56***	
	Parent-Report		-	-	-	
	Observation		-	-	-	
	Mixed		1	-.77	.00	
	Direction of Conflict	.89				97.54***
	Victimized		1	-.77	.00	
	Perpetration		-	-	-	
	Reciprocal		4	-.29	97.54***	
	Type of Conflict	.00				101.30***
	Direct		3	-.37	94.39***	
	Indirect		-	-	-	
	Both		2	-.37	6.92**	
	Gender Constellation	.00				102.06***
	Same Sex		-	-	-	
	Any		4	-.37*	102.06***	
	Other		-	-	-	
	Design	.00				102.06***
	Longitudinal		-	-	-	
	Cross-Sectional		4	-.37*	102.06***	
	Continent	.06				101.31***
	Europe		2	-.44	94.18***	
North America		3	-.32	7.13*		
Other		-	-	-		

* $p \leq .05$; ** $p < .01$; *** $p < .001$

Supplementary Table S11. Moderator Analysis: Positive Distal Factors: Positive Family Climate

Outcome	Moderator	Qb	k	Hedge's g	Qw
Positive Family Climate	Assessment Method of Proximal Factor	3.67			1.83
	Child-Report		2	-.25*	.73
	Parent-Report		3	-.45**	1.10
	Observation		-	-	-
	Mixed		1	-.69**	.00
	Assessment Method of Sibling Conflict	.90			4.25
	Child-Report		4	-.38**	4.25
	Parent-Report		1	-.62*	.00
	Observation		-	-	-
	Mixed		1	-.24	.00
	Direction of Conflict	.00			5.50
	Victimized		-	-	-
	Perpetration		-	-	-
	Reciprocal		6	-.36***	5.50
	Type of Conflict	3.84*^m			1.66
	Direct		2	-.66***	.032
	Indirect		-	-	-
	Both		4	-.28**	1.63
	Gender Constellation	.18			2.97
	Same Sex		2	-.37*	.51
	Any		3	-.29**	2.46
	Other		-	-	-
	Design	.01			5.47
	Longitudinal		2	-.37	.51
	Cross-Sectional		4	-.39***	4.96
	Continent	1.00			4.36
	Europe		1	-.62*	.00
	North America		5	-.34***	4.36
	Other		-	-	-
	SES	.10			.83
Lower		1	-.62*	.00	
Lower-Middle		-	-	-	
Middle		2	-.53**	.83	
Upper-Middle		-	-	-	
Upper		-	-	-	

* $p \leq .05$; ** $p < .01$; *** $p < .001$; *^m $.05 < p < .06$

Supplementary Table S12. Moderator Analysis: Positive Distal Factors: Good Marital Quality

Outcome	Moderator	Qb	k	Hedge's g	Qw	
Good Marital Quality	Assessment Method of Proximal Factor	3.73			6.27	
	Child-Report		2	-.189	.01	
	Parent-Report		9	-.25***	6.27	
		Observation		-	-	-
		Mixed		1	-.02	.00
		Assessment Method of Sibling Conflict	2.12			7.88
		Child-Report		7	-.17**	4.98
		Parent-Report		4	-.25***	2.90
		Observation		1	-.59	.00
		Mixed		-	-	-
		Direction of Conflict	.08			9.92
		Victimized		-	-	-
		Perpetration		2	-.18	2.51
		Reciprocal		10	-.24***	7.41
		Type of Conflict	1.90			8.10
		Direct		2	-.47**	.19
		Indirect		-	-	-
		Both		10	-.23***	7.91
		Gender Constellation	.26			9.74
		Same Sex		4	-.29*	2.73
		Any		8	-.23***	7.01
		Other		-	-	-
		Design	.26			9.74
		Longitudinal		5	-.24***	3.36
		Cross-Sectional		7	-.21**	6.39
		Continent	.07			9.93
		Europe		4	-.24***	5.38
		North America		8	-.22**	4.55
		Other		-	-	-
		SES	2.95			.71
		Lower		1	-.55*	.00
	Lower-Middle		-	-	-	
	Middle		2	-.25*	.71	
	Upper-Middle		1	.08	.00	
	Upper		1	-.20	.00	

* $p \leq .05$; ** $p < .01$; *** $p < .001$

Supplementary Table S13. Moderator Analysis: Negative Proximal Factors: Abusive Parenting

Outcome	Moderator	Qb	k	Hedge's g	Qw
Abusive Parenting	Assessment Method of Proximal Factor	1.39			250.35***
	Child-Report		11	.56***	140.08***
	Parent-Report		2	.39	5.73*
	Observation		4	.38 ^m	.68***
	Mixed		7	.38**	103.87***
	Assessment Method of Sibling Conflict	3.52			265.55***
	Child-Report		17	.46***	250.44***
	Parent-Report		1	.70*	.00
	Observation		2	.08	2.07
	Mixed		4	.46**	13.05***
	Direction of Conflict	.97			305.93***
	Victimized		3	.64**	24.35***
	Perpetration		4	.35	23.49***
	Reciprocal		17	.47***	258.10***
	Type of Conflict	3.37			194.07***
	Direct		9	.39***	150.40***
	Indirect		1	.13	.00
	Both		14	.51***	43.66***
	Gender Constellation	.19			275.85***
	Same Sex		4	.45**	12.47**
	Any		18	.45***	263.38***
	Other		1	.58 ^m	.00
	Design	3.11			315.33***
	Longitudinal		3	.18	7.17*
	Cross-Sectional		21	.49***	308.17***
	Continent	.52			254.64***
	Europe		4	.36*	97.40***
	North America		19	.48***	157.25***
	Other		1	.58	.00
SES	2.37			68.18***	
Lower		3	.27	14.66**	
Lower-Middle		2	.37	30.01***	
Middle		6	.61***	17.46**	
Upper-Middle		1	.78*	.00	
Upper		2	.42	6.06*	

* $p \leq .05$; ** $p < .01$; *** $p < .001$; ^m.05 < $p < .06$

Supplementary Table S14. Moderator Analysis: Negative Proximal Factors: Neglectful Parenting

Outcome	Moderator	Qb	k	Hedge's g	Qw
Neglectful Parenting	Assessment Method of Proximal Factor	6.60			26.17***
	Child-Report		2	.58**	10.37**
	Parent-Report		4	.34*	15.80**
	Observation		1	.87**	.00
	Mixed		2	1.25***	.00
	Assessment Method of Sibling Conflict	7.11			24.96***
	Child-Report		4	.27	22.26***
	Parent-Report		2	.61*	.47*
	Observation		1	.87**	.00
	Mixed		2	1.05***	2.23
	Direction of Conflict	1.98			41.64***
	Victimized		-	-	-
	Perpetration		1	.18 ^m	.00
	Reciprocal		8	.63***	41.64***
	Type of Conflict	2.00			46.68***
	Direct		3	.35	17.19***
	Indirect		-	-	-
	Both		6	.70***	29.48***
	Gender Constellation	1.09			42.04***
	Same Sex		-	-	-
	Any		8	.54***	42.02***
	Other		1	.87**	.00
	Design	.001			46.00***
	Longitudinal		1	.56	.00
	Cross-Sectional		8	.58***	46.00***
	Continent	.07			46.34***
	Europe		4	.54**	13.28**
North America		5	.61***	33.07***	
Other		-	-	-	
SES	12.29**			3.03	
Lower		2	1.04***	3.03	
Lower-Middle		1	.18	.00	
Middle		-	-	-	
Upper-Middle		-	-	-	
Upper		1	-.05	.00	

* $p \leq .05$; ** $p < .01$; *** $p < .001$; ^m.05 < $p < .06$

Supplementary Table S15. Moderator Analysis: Negative Proximal Factors: Parent-Child Conflict

Outcome	Moderator	Qb	k	Hedge's g	Qw	
Parent-Child Conflict	Assessment Method of Proximal Factor	3.76			23.58***	
	Child-Report		4	.49***	9.00*	
	Parent-Report		1	.26	.00	
	Observation		-	-	-	
	Mixed		3	.17	14.60**	
	Assessment Method of Sibling Conflict	.00				279.76***
	Child-Report		7	.31*	279.76***	
	Parent-Report		-	-	-	
	Observation		-	-	-	
	Mixed		-	-	-	
	Direction of Conflict	2.39				42.89***
	Victimized		1	.65**	.00	
	Perpetration		-	-	-	
	Reciprocal		7	.25*	42.89***	
	Type of Conflict	1.15				46.61***
	Direct		6	.25*	41.68**	
	Indirect		-	-	-	
	Both		2	.49**	4.93*	
	Gender Constellation	.00				279.76***
	Same Sex		-	-	-	
	Any		8	.31*	279.76***	
	Other		-	-	-	
	Design	1.23				46.65***
	Longitudinal		2	.49**	5.76*	
	Cross-Sectional		6	.25*	40.89***	
	Continent	.04				255.12***
	Europe		5	.28	235.11***	
North America		3	.34	2.10		
Other		-	-	-		
SES	.18				.00	
Lower		-	-	-		
Lower-Middle		-	-	-		
Middle		1	-.13	.00		
Upper-Middle		1	.47	.00		
Upper		-	-	-		

* $p \leq .05$; ** $p < .01$; *** $p < .001$

Supplementary Table S16. Moderator Analysis: Negative Proximal Factors: Parental Differential Treatment

Outcome	Moderator	Qb	k	Hedge's g	Qw	
Parental Differential Treatment	Assessment Method of Proximal Factor	2.17			12.04*	
	Child-Report		3	.17	6.86*	
	Parent-Report		1	.63	.00	
	Observation		3	.10	5.18	
	Mixed		1	.01	.00	
	Assessment Method of Sibling Conflict	2.56				13.80*
	Child-Report		6	.22	13.80*	
	Parent-Report		-	-	-	
	Observation		1	-.39	.00	
	Mixed		1	.36	.00	
	Direction of Conflict	2.68				14.51*
	Victimized		-	-	-	
	Perpetration		1	-.39	.00	
	Reciprocal		7	.25*	14.51*	
	Type of Conflict	1.43				15.34*
	Direct		3	.01	9.00*	
	Indirect		-	-	-	
	Both		5	.29*	6.33	
	Gender Constellation	2.02				14.66*
	Same Sex		2	-.10	1.89	
	Any		5	.22	12.77*	
	Other		1	.48	.00	
	Design	1.77				13.34
	Longitudinal		2	-.05	1.21	
	Cross-Sectional		6	.27*	12.13*	
	Continent	.95				16.82*
	Europe				-	-
	North America		7	.15	16.82*	
	Other		1	.48	.00	
SES	.00				7.28	
Lower		-	-	-		
Lower-Middle		-	-	-		
Middle		4	.13	7.28		
Upper-Middle		-	-	-		
Upper		-	-	-		

* $p \leq .05$; ** $p < .01$; *** $p < .001$

Supplementary Table S17. Moderator Analysis: Negative Distal Factors: Low SES

Outcome	Moderator	Qb	k	Hedge's g	Qw	
Low SES	Assessment Method of Distal Factor	.04			103.54***	
	Child-Report		-	-	-	
	Parent-Report		6	.27*	103.54***	
	Observation		-	-	-	
	Mixed		1	.19	.00	
	Assessment Method of Sibling Conflict	3.02				96.57***
	Child-Report		5	.23	96.57***	
	Parent-Report		-	-	-	
	Observation		1	.04	.00	
	Mixed		1	1.00*	.00	
	Direction of Conflict	.015				79.88***
	Victimized		2	.38	8.70**	
	Perpetration		1	.16	.00	
	Reciprocal		4	.27	71.18***	
	Type of Conflict	.08				80.38***
	Direct		5	.25	71.69***	
	Indirect		-	-	-	
	Both		2	.35	8.70**	
	Gender Constellation	.00				103.13***
	Same Sex		-	-	-	
	Any		6	.29* ^m	103.13***	
	Other		-	-	-	
	Design	2.05				71.80***
	Longitudinal		3	.06	3.25	
	Cross-Sectional		4	.45*	71.80***	
	Continent	.02				102.92***
	Europe		4	.25	95.72***	
North America		3	.29	7.20*		
Other		-	-	-		

* $p \leq .05$; ** $p < .01$; *** $p < .001$; *^m $.05 < p < .06$

Supplementary Table S18. Moderator Analysis: Negative Distal Factors: Adverse Family Climate

Outcome	Moderator	Qb	k	Hedge's g	Qw	
Adverse Family Atmosphere	Assessment Method of Proximal Factor	2.54			.32	
	Child-Report		1	.42**	-	
	Parent-Report		2	.22	.32	
	Observation		1	.60**	-	
	Mixed		-	-	-	
	Assessment Method of Sibling Conflict	1.73				1.12
	Child-Report		3	.33**	1.12	
	Parent-Report		-	-	-	
	Observation		1	.60**	.00	
	Mixed		-	-	-	
	Direction of Conflict	.20				2.87
	Victimized		-	-	-	
	Perpetration		1	.42*	.00	
	Reciprocal		3	.39**	2.87	
	Type of Conflict	1.74				1.12
	Direct		3	.33**	1.12	
	Indirect		-	-	-	
	Both		1	.60**	.00	
	Gender Constellation	1.57				1.12
	Same Sex		1	.33	-	
	Any		2	.32*	1.12	
	Other		1	.60**	-	
	Design	.97				1.88
	Longitudinal		2	.52***	.76	
	Cross-Sectional		2	.33*	1.12	
	Continent	.00				2.86
	Europe		-	-	-	
	North America		4	.41***	2.86	
Other		-	-	-		
SES	2.75				.00	
Lower		1	.60**	.00		
Lower-Middle		1	.42**	.00		
Middle		1	.14	.00		
Upper-Middle		-	-	-		
Upper		-	-	-		

* $p \leq .05$; ** $p < .01$; *** $p < .001$

Supplementary Table S19. Moderator Analysis: Negative Distal Factors: Parental Conflict

Outcome	Moderator	Qb	k	Hedge's g	Qw	
Parental Conflict	Assessment Method of Proximal Factor	.21			38.72***	
	Child-Report		2	.25*	8.74**	
	Parent-Report		7	.23*	29.98***	
	Observation		-	-	-	
	Mixed		1	.14	.00	
		Assessment Method of Sibling Conflict	2.28			20.32**
	Child-Report		6	.16**	19.73**	
	Parent-Report		4	.33***	.59	
	Observation		-	-	-	
	Mixed		-	-	-	
		Direction of Conflict	1.79			18.04*
	Victimized		1	.39	.00	
	Perpetration		2	.09	.30	
	Reciprocal		7	.28***	17.74**	
		Type of Conflict	1.94			32.81***
	Direct		2	.16	.98	
	Indirect		1	.53*	.00	
	Both		7	.21**	31.83***	
		Gender Constellation	.00			39.92***
	Same Sex		-	-	-	
	Any		10	.22***	39.92***	
	Other		-	-	-	
		Design	.03			38.80***
	Longitudinal		4	.21 ^m	17.36***	
	Cross-Sectional		6	.23**	21.44**	
		Continent	.30			35.37***
	Europe		5	.25**	22.51***	
North America		5	.18 ^m	12.86*		
Other		-	-	-		
	SES	7.25			.00	
Lower		1	.36	.00		
Lower-Middle		1	.10	.00		
Middle		1	.53*	.00		
Upper-Middle		1	.25	.00		
Upper		1	-.15	.00		

* $p \leq .05$; ** $p < .01$; *** $p < .001$; ^m.05 < $p < .06$

Supplementary Table S20. Moderator Analysis: Negative Distal Factors: Parental Mental Health Problems

Outcome	Moderator	Qb	k	Hedge's g	Qw	
Parental Mental Health Problems	Assessment Method of Proximal Factor	8.00*			13.12*	
	Child-Report		1	.94***	.00	
	Parent-Report		7	.28**	13.12*	
	Observation		-	-	-	
	Mixed		1	.16	.00	
	Assessment Method of Sibling Conflict	.00				45.08***
	Child-Report		7	.34*	44.57***	
	Parent-Report		-	-	-	
	Observation		2	.34	.51	
	Mixed		-	-	-	
	Direction of Conflict	.13				46.16***
	Victimized		-	-	-	
	Perpetration		1	.50	.00	
	Reciprocal		8	.33*	46.16***	
	Type of Conflict	.03				45.45***
	Direct		3	.37	36.79***	
	Indirect		-	-	-	
	Both		6	.32	8.66	
	Gender Constellation	.07				44.00***
	Same Sex		2	.34	.51	
	Any		6	.35*	43.48***	
	Other		1	.24	.00	
	Design	.20				43.49***
	Longitudinal		2	.23	.01	
	Cross-Sectional		7	.37*	43.48***	
	Continent	.89				42.62***
	Europe		2	.55*	29.50***	
	North America		7	.26	13.12*	
Other		-	-	-		
SES	12.54**				.00	
Lower		1	.24	.00		
Lower-Middle		-	-	-		
Middle		1	-.09	.00		
Upper-Middle		1	.58***	.00		
Upper		1	-.03	.00		

* $p \leq .05$; ** $p < .01$; *** $p < .001$

Chapter 3 –Proximal Precursors and Short-Term Outcomes of Sibling Bullying and the Cross-Over effects from Sibling Bullying to Peer Bullying

Appendix B

SCHOOL PRESENTATION

Summary of presentation given by members of the research team to Head Teachers of all Edinburgh schools prior to commencement of fieldwork for the Edinburgh Study of Youth Transitions and Crime, in August 1998.

AIMS OF THE STUDY

1. To investigate the factors which impact on young people's offending behaviour and the processes which are involved.
2. To examine these processes and factors within three main contexts: individual development through the life course; impact of interactions with formal agencies of social control and law enforcement; and, the effect of the physical and social structure of the individual's neighbourhood.
3. Within each of these contexts, to examine the striking differences between the extent and patterns of criminal offending between males and females.
4. To contribute towards the development and empirical evaluation of theories which explain people's resistance to, desistance from and persistence in criminal offending behaviour.

OVERVIEW OF METHODS

- A study of all children starting secondary school in autumn 1998 in the City of Edinburgh.
- Size of cohort: 3,500 to 4,000.
- A longitudinal study, with annual sweeps, which will follow these children into adulthood.
- Collection of data from agencies having formal contact with members of the cohort.
- Semi-structured interviews with a subsample of 50 young people drawn from the cohort.
- A study of the social geography of Edinburgh using GIS.
- Detailed case studies of two neighbourhoods and their communities.

WHO IS INCLUDED?

- Children in state schools in Edinburgh.
- Children in independent schools in Edinburgh.
- Children resident in Edinburgh attending special schools/not attending school.
- Most of those with birthdays between 1 March 1986 and 28 February 1987

SOURCES OF INFORMATION ABOUT INDIVIDUAL COHORT MEMBERS

Non-School Sources

- Social work records.
- Police and Scottish Criminal Records Office.
- Children's Hearing Reporter's records.
- Survey of parents.

School Sources

- Questionnaires normally completed by the young people in a classroom situation.
- School records.
- Teacher questionnaires (guidance teachers).
- Small number of interviews with teaching staff.

SELF-COMPLETION QUESTIONNAIRES

Information to be collected

- victimization
- self-reported offending
- use of cigarettes, alcohol and drugs
- friendship patterns
- leisure-time activities and pocket money
- relationships with parents
- attitudes to school
- expectations and aspirations

Timetable

- First sweep: Sep-Dec 1998
- Second sweep: Sep-Dec 1999
- One double period required for each class
- Separate arrangements for children with reading/writing difficulties

SCHOOL RECORDS

Information to be collected

- Attendance
- Behaviour

Timetable

- First sweep: Jan-Jun 1999
- Second sweep: Jan-Jun 2000
- About two days in each school

GUIDANCE TEACHER QUESTIONNAIRE

Information to be collected

- Behaviour of child in the classroom
- Attention span and academic performance
- Any particular problems
- Sep-Dec 1999

INTERVIEWS WITH TEACHING STAFF

- Brief interviews with guidance teachers to provide more detailed information about the 50 children who are interviewed.
- One interview with Head Teachers in the two case study to provide background information about the area and the school.
- Between Jan and Mar 2000.

INFORMED CONSENT AND CONFIDENTIALITY

- Detailed letter to parents with opportunity to opt out (May/June 98).
- Information sheet given to children at first sweep and opportunity to opt out.
- Rigorous procedures to ensure confidentiality of information provided about individuals (data protection).

CONSULTATION AND DISSEMINATION

- Advisory Group.
- Full consultation about all instruments (e.g. questionnaires) and practical arrangements.
- Low-key publication and dissemination.
- Feedback to individual schools as desired.

Appendix C

PARENTAL CONSENT LETTER

Letter issued to the parents of all young people enrolled at participating Edinburgh schools prior to the start of fieldwork in August 1998. A similar letter was issued to the parents of all new pupils joining Edinburgh schools within the cohort year group at sweeps one and two.

August 1998

Dear Parent or Guardian

EDINBURGH STUDY OF YOUNG PEOPLE

I am writing to tell you about a study of young people that we have been carrying out in Edinburgh since August of this year. I am directing the study and a team of researchers is working with me. We hope to involve every young person who started secondary school in Edinburgh this autumn, including those attending schools for children with special educational needs, giving a total of about 4,500. As one of those children is yours, I am writing to tell you what we are doing and why we would like your child to take part.

What is the study about?

The aim of the study is to find out why some young people get involved in breaking the law and why many others do not, so that we can find better ways of preventing young people getting into trouble and of helping those who do. To help us understand why some people never offend, why some stop offending and why others go on for longer, we want to ask young people about their experiences and opinions every year throughout their school life.

Is the study confidential?

The information collected on every child will be treated with the **strictest confidence**. The 1984 Data Protection Act says that information which is collected for research purposes may not be disclosed to any other person or agency (including the police). This means that only the research team will have access to the information and, when the results of the study are published, it will **not** be possible to identify your child or any other person.

What will the study involve?

Each year, every young person will fill in a simple questionnaire at school. The questionnaire will cover topics such as leisure time and sports activities; pocket money and part-time jobs; neighbourhoods and what they are like; activities with friends and family; experience of being bullied or victimised; experience of smoking, drinking and drugs; misbehaviour and breaking the law.

The study will involve collecting some very basic information from school records (like birthday, sex and attendance). We will also be collecting information from the records of the social work department and the children's hearing system to help us understand why some children get into trouble. This only applies to children who have had contact with these agencies.

In the third year of the study, we will also be asking 25 boys and 25 girls whether they would be willing to take part in a short interview. If your child is one of them, we will contact you again to ask your permission to interview them.

What do I have to do?

If you are happy for your child to take part in this study, you need not do anything. Before filling in the questionnaires, your child will be given another opportunity to opt out of taking part in this study.

If you **do not wish** your child to take part in the study, you must fill in the tear-off slip at the bottom of this page and return it to the head teacher. If you return the slip, your child will take no part in the study and no information will be collected about them. If you would like to find out more about this research project, please contact me on 0131 650 2027 or the Co-Director of the project, Mrs Lesley McAra, on 0131 650 2036. Alternatively, you can write to me at the above address.

Yours faithfully

Professor David J. Smith

I **do not wish** my child to take part in the research project on young people and crime which will be conducted by the University of Edinburgh.

Name of Pupil
Name of parent
Signature of parent
Date signed

Supplementary Table S21. Sibling Bullying (Time 2): Sibling Bullying Perpetrator (ESYTC, 1999)

Question	Variable/Label	Coded	Variable Name in SPSS
How often do you do these things to your brother or sister?	YB How often do you: threaten to hurt siblings	1= hardly ever/never; 2= less than once/week; 3= at least once/week; 4= most days; 96=more than 1 tick; 98=missing	ybsibv01_R
	YB How often do you: hurt siblings by hitting	1= hardly ever/never; 2= less than once/week; 3= at least once/week; 4= most days; 96=more than 1 tick; 98=missing	ybsibv02_R
	YB How often do you: hurt siblings with weapon	1= hardly ever/never; 2= less than once/week; 3= at least once/week; 4= most days; 96=more than 1 tick; 98=missing	ybsibv03_R
		($\alpha=.74$)	

Supplementary Table S22. Sibling Bullying (Time 2): Sibling Bullying Victim (ESYTC, 1999)

Question	Variable/Label	Coded	Variable Name in SPSS
How often does your brother or sister do this to you?	YB How often do siblings: threaten to hurt you	1= hardly ever/never; 2= less than once/week; 3= at least once/week; 4= most days; 96=more than 1 tick; 98=missing	ybsibp01_R
	YB How often do siblings: hurt you by hitting	1= hardly ever/never; 2= less than once/week; 3= at least once/week; 4= most days; 96=more than 1 tick; 98=missing	ybsibp02_R
	YB How often do siblings: hurt you with weapon	1= hardly ever/never; 2= less than once/week; 3= at least once/week; 4= most days; 96=more than 1 tick; 98=missing	ybsibp03_R
		($\alpha=.72$)	

Supplementary Table S23. Parenting Variables (Time 1): Parental Involvement (ESYTC, 1998)

Question	Variable/Label	Coded	Variable Name in SPSS
When you go out, how often do your parents know where you are going?	YA. How often do parents know where you are going	1=never, 2=sometimes, 3=usually, 4=always, 91=don't know, 96=more than one tick, 98=missing	Yapsup01_R
When you go out, how often do your parents know who you are going with?	YA. How often do parents know who you are out with	1=never, 2=sometimes, 3=usually, 4=always, 91=don't know, 96=more than one tick, 98=missing	Yapsup02_R
When you go out, how often do your parents know what time you will be home?	YA. How often do parents know what time you will be home	1=never, 2=sometimes, 3=usually, 4=always, 91=don't know, 96=more than one tick, 98=missing	Yapsup03_R
How often do your parents know if you did not come home on time?	YA. How often do parents know if you are not home on time	1=never, 2=sometimes, 3=usually, 4=always, 91=don't know, 96=more than one tick, 98=missing	Yapsup04_R
		($\alpha = .69$)	

Supplementary Table S24. Parenting Variables (Time 1): Parent-Child Leisure Time (ESYTC, 1998)

Question	Variable/Label	Coded	Variable Name in SPSS
How often do you do these things with your parents	YA. How often do with parents: watch TV or videos	1= never; 2= less than once\week; 3= at least once\week; 4= most days; 96=more than 1 tick; 98=missing	Yaactp01_R
	YA. How often do with parents: go shopping	1= never; 2= less than once\week; 3= at least once\week; 4= most days; 96=more than 1 tick; 98=missing	Yaactp02_R
	YA. How often do with parents: play or watch sports	1= never; 2= less than once\week; 3= at least once\week; 4= most days; 96=more than 1 tick; 98=missing	Yaactp03_R
	YA. How often do with parents: cinema, theatre, concerts	1= never; 2= less than once\week; 3= at least once\week; 4= most days; 96=more than 1 tick; 98=missing	Yaactp04_R

Supplementary Table S24. Parenting Variables (Time 1): Parent-Child Leisure Time (ESYTC, 1998 continued

Question	Variable/Label	Coded	Variable Name in SPSS
	YA. How often do with parents: visit friends, relatives	1= never; 2= less than once\week; 3= at least once\week; 4= most days; 96=more than 1 tick; 98=missing	Yaactp05_R
	YA. How often do with parents: go out to eat	1= never; 2= less than once\week; 3= at least once\week; 4= most days; 96=more than 1 tick; 98=missing	Yaactp06_R
	YA. How often do with parents: trips or outings	1= never; 2= less than once\week; 3= at least once\week; 4= most days; 96=more than 1 tick; 98=missing	Yaactp07_R
	YA. How often do with parents: walks or bike rides	1= never; 2= less than once\week; 3= at least once\week; 4= most days; 96=more than 1 tick; 98=missing	Yaactp08_R
	YA. How often do with parents: other things	1= never; 2= less than once\week; 3= at least once\week; 4= most days; 96=more than 1 tick; 98=missing	Yaactp09_R
		($\alpha = .74$)	

Supplementary Table S25. Parenting Variables (Time 1): Parent-Child Conflict (ESYTC, 1998)

Question	Variable/Label	Coded	Variable Name in SPSS
How often do you disagree or argue with your parents about each of these things?	YA. Argues with parents about homework	1= never; 2= less than once\week; 3= at least once\week; 4= most days; 96=more than 1 tick; 98=missing	Yaparg01_R
	YA. Argues with parents about friends	1= never; 2= less than once\week; 3= at least once\week; 4= most days; 96=more than 1 tick; 98=missing	Yaparg02_R
	YA. Argues with parents about tidying room	1= never; 2= less than once\week; 3= at least once\week; 4= most days; 96=more than 1 tick; 98=missing	Yaparg03_R
	YA. Argues with parents about what time you get in	1= never; 2= less than once\week; 3= at least once\week; 4= most days; 96=more than 1 tick; 98=missing	Yaparg04_R
	YA. Argues with parents about what you do when out	1= never; 2= less than once\week; 3= at least once\week; 4= most days; 96=more than 1 tick; 98=missing	Yaparg05_R
	YA. Argues with parents about other things	1= never; 2= less than once\week; 3= at least once\week; 4= most days; 96=more than 1 tick; 98=missing	Yaparg06_R
		($\alpha = .75$)	

Supplementary Table S26. Personality Factors (Time 1): Self-Esteem (adapted version of the Rosenberg, 1965)

Question	Variable/Label	Coded	Variable Name in SPSS
How much do you agree or disagree with these statements	YA. I like myself	1=disagree a lot, 2=disagree a bit, 3=not sure, 4=agree a bit, 5=agree a lot, 96=more than 1 tick, 98=missing	Yaself01_R
	YA. I often wish I was someone else	1=agree a lot, 2=agree a bit, 3=not sure, 4=disagree a bit, 5=disagree a lot, 96=more than 1 tick, 98=missing	Yaself02
	YA. I am able to do things well	1=disagree a lot, 2=disagree a bit, 3=not sure, 4=agree a bit, 5=agree a lot, 96=more than 1 tick, 98=missing	Yaself03_R
	YA. I have a low opinion of myself	1=agree a lot, 2=agree a bit, 3=not sure, 4=disagree a bit, 5=disagree a lot, 96=more than 1 tick, 98=missing	Yaself04
	YA. I have a number of good qualities	1=disagree a lot, 2=disagree a bit, 3=not sure, 4=agree a bit, 5=agree a lot, 96=more than 1 tick, 98=missing	Yaself05_R
	YA. There are lots of things I would change	1=agree a lot, 2=agree a bit, 3=not sure, 4=disagree a bit, 5=disagree a lot, 96=more than 1 tick, 98=missing	Yaself06
		($\alpha = .72$)	

Supplementary Table S27. Personality Factors (Time 1): Impulsivity (adapted from Junior Impulsivity Venturesome and Empathy Scale (Eysenck & Eysenck, 1980))

Question	Variable/Label	Coded	Variable Name in SPSS
How much do you agree or disagree with these statements?	YA Planning takes the fun out of things	1=disagree a lot, 2=disagree a bit, 3=not sure, 4=agree a bit, 5=agree a lot, 96=more than 1 tick, 98=missing	yaimp01_R
	YA I get into trouble because I do things without thinking	1=disagree a lot, 2=disagree a bit, 3=not sure, 4=agree a bit, 5=agree a lot, 96=more than 1 tick, 98=missing	yaimp02_R
	YA I put down first answer...and often forget to check it	1=disagree a lot, 2=disagree a bit, 3=not sure, 4=agree a bit, 5=agree a lot, 96=more than 1 tick, 98=missing	yaimp03_R
	YA I get involved in things I wish I later wish I could get out of	1=disagree a lot, 2=disagree a bit, 3=not sure, 4=agree a bit, 5=agree a lot, 96=more than 1 tick, 98=missing	yaimp04_R
	YA I sometimes break rules ... do things without thinking	1=disagree a lot, 2=disagree a bit, 3=not sure, 4=agree a bit, 5=agree a lot, 96=more than 1 tick, 98=missing	yaimp05_R
	YA I get so excited ... I don't think of problems	1=disagree a lot, 2=disagree a bit, 3=not sure, 4=agree a bit, 5=agree a lot, 96=more than 1 tick, 98=missing	yaimp06_R
		($\alpha = .79$)	

Supplementary Table S28. Friends (Time 1): Number of Friends (ESYTC, 1998)

Question	Variable/Label	Coded	Variable Name in SPSS
How many friends do you have altogether?	YA. Number of friends	1=none; 2=one or two; 3=3to 5; 4=6-10; 5= more than 10; 96=more than one tick; 98=missing	Yafnum01

Supplementary Table S29. Antisocial Behaviour Factors (Time 1): Social Alienation (adapted version of Alienation Scale of the Multidimensional Personality Questionnaire (MPQ) (Tellegen, 1982))

Question	Variable/Label	Coded	Variable Name in SPSS
How much do you agree or disagree with these statements	YA Lots of people try to push me around	1=disagree a lot; 2=disagree a bit; 3=not sure; 4=agree a bit; 5=agree a lot; 96=more than 1 tick; 98=missing	yaaln01_R
	YA Some people against me for no good reason	1=disagree a lot; 2=disagree a bit; 3=not sure; 4=agree a bit; 5=agree a lot; 96=more than 1 tick; 98=missing	yaaln02_R
	YA My friends often say or do things behind my back	1=disagree a lot; 2=disagree a bit; 3=not sure; 4=agree a bit; 5=agree a lot; 96=more than 1 tick; 98=missing	yaaln03_R
	YA I would be more successful if people didn't make things hard for me	1=disagree a lot; 2=disagree a bit; 3=not sure; 4=agree a bit; 5=agree a lot; 96=more than 1 tick; 98=missing	yaaln04_R
	YA I know that people have spread lies about me on purpose	1=disagree a lot; 2=disagree a bit; 3=not sure; 4=agree a bit; 5=agree a lot; 96=more than 1 tick; 98=missing	yaaln05_R
	YA Some people would like to take what success I have	1=disagree a lot; 2=disagree a bit; 3=not sure; 4=agree a bit; 5=agree a lot; 96=more than 1 tick; 98=missing	yaaln06_R
		($\alpha = .85$)	

Supplementary Table S30. Antisocial Behaviour Factors (Time 1): Delinquency (ESYTC, 1998)

Question	Variable/Label	Coded	Variable Name in SPSS
Have you ever not paid the correct fare on a bus or train?	YA Ever dodged paying correct fare: How many times	0=0 times; 1=1 time; 2= 2 times; 3=3 times; 4= 4times; 5= 5 times; 6= 6-10 times; 7=more than 10 times; 98=missing	del_notpay_fair
Have you ever taken something from a shop or a store without paying for it?	YA Ever stolen from a shop: How many times	0=0 times; 1=1 time; 2= 2 times; 3=3 times; 4= 4times; 5= 5 times; 6= 6-10 times; 7=more than 10 times; 98=missing	del_shoplift
Have you ever been rowdy or rude in a public place so that people complained or you got into trouble?	YA. Ever rowdy or rude in public: How many times	0=0 times; 1=1 time; 2= 2 times; 3=3 times; 4= 4times; 5= 5 times; 6= 6-10 times; 7=more than 10 times; 98=missing	del_pub
Have you ever stolen or ridden in a stolen car or van or a stolen motorbike?	YA Ever stolen/ridden in a stolen vehicle: How many times	0=0 times; 1=1 time; 2= 2 times; 3=3 times; 4= 4times; 5= 5 times; 6= 6-10 times; 7=more than 10 times; 98=missing	del_stolenca r
Have you ever taken money or something else that did not belong to you from school?	YA. Ever stolen something from school: How many times	0=0 times; 1=1 time; 2= 2 times; 3=3 times; 4= 4times; 5= 5 times; 6= 6-10 times; 7=more than 10 times; 98=missing	del_stolen_s chool
Have you carried a knife or weapon with you for protection or in case it was need in a fight?	YA. Every carried a knife or weapon: How many times	0=0 times; 1=1 time; 2= 2 times; 3=3 times; 4= 4times; 5= 5 times; 6= 6-10 times; 7=more than 10 times; 98=missing	del_carry_w eapon
Have you ever deliberately damaged or destroyed property that did not belong to you (for example, windows, cars or street light)?	YA. Ever vandalised property: How many times	0=0 times; 1=1 time; 2= 2 times; 3=3 times; 4= 4times; 5= 5 times; 6= 6-10 times; 7=more than 10 times; 98=missing	del_valdaliz e

Supplementary Table S30. Antisocial Behaviour Factors (Time 1): Delinquency (ESYTC, 1998)
continued

Question	Variable/Label	Coded	Variable Name in SPSS
Have you ever gone into or broken into a house or building with the intention of stealing something?	YA Ever broken into a house or building to steal: How many times	0=0 times; 1=1 time; 2= 2 times; 3=3 times; 4= 4times; 5= 5 times; 6= 6-10 times; 7=more than 10 times; 98=missing	del_brokeni nto_house
Have you ever written things or sprayed paint on property that did not belong to you? (for example, a phone box, car, building or bus shelter)?	YA Ever written or sprayed graffiti: How many times	0=0 times; 1=1 time; 2= 2 times; 3=3 times; 4= 4times; 5= 5 times; 6= 6-10 times; 7=more than 10 times; 98=missing	del_graffitti
Have you ever used force, threats or a weapon to get money or something else from somebody?	YA. Ever used force/threats/weapon to rob someone: How many times	0=0 times; 1=1 time; 2= 2 times; 3=3 times; 4= 4times; 5= 5 times; 6= 6-10 times; 7=more than 10 times; 98=missing	del_rob_so meone
Have you ever taken money or something else that did not belong to you from home without permission?	YA Ever stolen something from home: How many times	0=0 times; 1=1 time; 2= 2 times; 3=3 times; 4= 4times; 5= 5 times; 6= 6-10 times; 7=more than 10 times; 98=missing	del_stealho me
Have you ever deliberately set fire or tried to set fire to somebody's property or a building (for example, a school)?	YA Ever set fire to something: How many times	0=0 times; 1=1 time; 2= 2 times; 3=3 times; 4= 4times; 5= 5 times; 6= 6-10 times; 7=more than 10 times; 98=missing	del_arson
Have you ever broken into a car or a van with the intention of stealing out of it?	YA Ever broken into a vehicle to steal: How many times	0=0 times; 1=1 time; 2= 2 times; 3=3 times; 4= 4times; 5= 5 times; 6= 6-10 times; 7=more than 10 times; 98=missing	del_brokeni nto_car

Supplementary Table S30. Antisocial Behaviour Factors (Time 1): Delinquency (ESYTC, 1998) continued

Question	Variable/Label	Coded	Variable Name in SPSS
Have you ever skipped or skived school?	YA. Ever skived school: How many times	0=0 times; 1=1 time; 2= 2 times; 3=3 times; 4= 4times; 5= 5 times; 6= 6-10 times; 7=more than 10 times; 98=missing	del_skipschool
		($\alpha = .78$)	

Supplementary Table S31. Antisocial Behaviour Factors (Time 1): Violence Perpetration (ESYTC, 1998)

Question	Variable/Label	Coded	Variable Name in SPSS
Have you ever hit, kicked or punched someone on purpose with the intention of hurting or injuring them	YA. How many times ever hit, kicked or punched someone on purpose	0=0 times 1=1 time; 2= 2 times; 3=3 times; 4= 4times; 5= 5 times; 6= 6-10 times; 7=more than 10 times; 98=missing	Yayhit02

Supplementary Table S32. Antisocial Behaviour Factors (Time 1): Victim of Violence (ESYTC, 1998)

Question	Variable/Label	Coded	Variable Name in SPSS
Has anyone ever threatened to hurt you by hitting, kicking or punching you?	YA Number of times	0=0times; 1=1 time; 2= 2 times; 3=3 times; 4= 4times; 5= 5 times; 6= 6-10 times; 7=more than 10 times; 98=missing	yavthr02_R
Has anyone ever really hurt you by deliberately hitting, punching or kicking you?	YA Number of times	0=0times; 1=1 time; 2= 2 times; 3=3 times; 4= 4times; 5= 5 times; 6= 6-10 times; 7=more than 10 times; 98=missing	Yavhit02_R
Has anyone ever really hurt you by deliberately hitting you with a weapon?	YA Number of times	0=0times; 1=1 time; 2= 2 times; 3=3 times; 4= 4times; 5= 5 times; 6= 6-10 times; 7=more than 10 times; 98=missing	Yavwep02_R
Have you ever been a victim of theft?	YA Number of times	0=0times; 1=1 time; 2= 2 times; 3=3 times; 4= 4times; 5= 5 times; 6= 6-10 times; 7=more than 10 times; 98=missing	Yavnik02_R
Have you ever been a victim of robbery	YA Number of times	0=0times; 1=1 time; 2= 2 times; 3=3 times; 4= 4times; 5= 5 times; 6= 6-10 times; 7=more than 10 times; 98=missing	Yavrob02_R
		($\alpha = .65$)	

Supplementary Table S33. Parenting Variables (Time 3): Parental Involvement (ESYTC, 2000)

Question	Variable/Label	Coded	Variable Name in SPSS
When you went out during the last year, how often did you parents know...?	YC How often did parents know where you were going in last year	1=never; 2=sometimes; 3=usually; 4=always; 96=more than 1 tick; 98=missing	ycpsup01_R
	YC How often did parents know who you were with within last year	1=never; 2=sometimes; 3=usually; 4=always; 96=more than 1 tick; 98=missing	ycpsup02_R
	YC How often did parents know what time you would be home in last year	1=never; 2=sometimes; 3=usually; 4=always; 96=more than 1 tick; 98=missing	ycpsup03_R
		($\alpha = .72$)	

Supplementary Table S34. Parenting Variables (Time 3): Parent-Child Conflict (ESYTC, 2000)

Question	Variable/Label	Coded	Variable Name in SPSS
How often do you argue with your parents?	YC: How often do you argue with parents	1= hardly ever/never; 2= less than once/week; 3= at least once/week; 4= most days; 96=more than 1 tick; 98=missing; 99=filtered away	PC_Conflict_T3

Supplementary Table S35. Parenting Variables (Time 3): Parent-Child Communication (ESYTC, 2000)

Question	Variable/Label	Coded	Variable Name in SPSS
How often do you...?	YC: How often talk to parents about private/personal things	1=never ; 2=sometimes; 3=often; 96=more than 1 tick; 98=missing	ycptlk01_R
	YC: How often ask parents for advice	1=never ; 2=sometimes; 3=often; 96=more than 1 tick; 98=missing	ycptlk02_R
	YC: How often talk to parents about friend problems	1=never ; 2=sometimes; 3=often; 96=more than 1 tick; 98=missing	ycptlk03_R
	YC: How often talk to parents about school problems	1=never ; 2=sometimes; 3=often; 96=more than 1 tick; 98=missing	ycptlk04_R
	YC: How often trust parents with things you tell them	1=never ; 2=sometimes; 3=often; 96=more than 1 tick; 98=missing	ycptlk05_R
		($\alpha = .82$)	

Supplementary Table S36. Personality Factors (Time 3): Impulsivity (adapted from Junior Impulsivity Venturesome and Empathy Scale (Eysenck & Eysenck, 1980))

Question	Variable/Label	Coded	Variable Name in SPSS
How much do you agree or disagree with these statements	YC: Having to plan things makes them less fun to do	1=disagree a lot; 2= disagree a bit; 3=not sure; 4=agree a bit; 5= agree a lot; 96=more than 1 tick; 98=missing	ycimp07_R
	YC: I get into trouble because I do things without thinking	1=disagree a lot; 2= disagree a bit; 3=not sure; 4=agree a bit; 5= agree a lot; 96=more than 1 tick; 98=missing	ycimp02_R
	YC: I put down first answer ... and often forget to check it	1=disagree a lot; 2= disagree a bit; 3=not sure; 4=agree a bit; 5= agree a lot; 96=more than 1 tick; 98=missing	ycimp03_R
	YC: I get involved in things I later wish I could get out of	1=disagree a lot; 2= disagree a bit; 3=not sure; 4=agree a bit; 5= agree a lot; 96=more than 1 tick; 98=missing	ycimp04_R
	YC: I sometimes break rules ... do things without thinking	1=disagree a lot; 2= disagree a bit; 3=not sure; 4=agree a bit; 5= agree a lot; 96=more than 1 tick; 98=missing	ycimp05_R
	YC: I get so excited ... I don't think of problems	1=disagree a lot; 2= disagree a bit; 3=not sure; 4=agree a bit; 5= agree a lot; 96=more than 1 tick; 98=missing	ycimp06_R
		($\alpha=.74$)	

Supplementary Table S37. Personality Factors (Time 3): Risk-Taking Behaviour (ESYTC, 2000)

Question	Variable/Label	Coded	Variable Name in SPSS
How much do you agree or disagree with these statements?	YC: I like to test myself by doing something a bit risky	1=disagree a lot; 2= disagree a bit; 3=not sure; 4=agree a bit; 5= agree a lot; 96=more than 1 tick; 98=missing	ycrisk01_R
	YC: Sometimes I take a risk just for the fun of it	1=disagree a lot; 2= disagree a bit; 3=not sure; 4=agree a bit; 5= agree a lot; 96=more than 1 tick; 98=missing	ycrisk02_R
	YC: I find it exciting to do things that get me into trouble	1=disagree a lot; 2= disagree a bit; 3=not sure; 4=agree a bit; 5= agree a lot; 96=more than 1 tick; 98=missing	ycrisk03_R
	YC: Excitement/adventure are more important than feeling safe	1=disagree a lot; 2= disagree a bit; 3=not sure; 4=agree a bit; 5= agree a lot; 96=more than 1 tick; 98=missing	ycrisk04_R
		($\alpha=.87$)	

Supplementary Table S38. Personality Factors (Time 3): Depression (adapted from West of Scotland 11-16 Study of Teenage Health (Sweeting et al., 2006) originally validated by Kenadll & Davies, 1992)

Question	Variable/Label	Coded	Variable Name in SPSS
How often have you felt like this during the last month?	YC: How often felt too tired to do things in last month	1= hardly ever/never; 2= less than once/week; 3= at least once/week; 4= most days; 96=more than 1 tick; 98=missing; 99=filtered away	ycdep01_R
	YC: How often had trouble sleeping in last month	1= hardly ever/never; 2= less than once/week; 3= at least once/week; 4= most days; 96=more than 1 tick; 98=missing; 99=filtered away	ycdep02_R
	YC: How often felt unhappy, sad, depressed in last month	1= hardly ever/never; 2= less than once/week; 3= at least once/week; 4= most days; 96=more than 1 tick; 98=missing; 99=filtered away	ycdep03_R
	YC: How often felt hopeless about future in last month	1= hardly ever/never; 2= less than once/week; 3= at least once/week; 4= most days; 96=more than 1 tick; 98=missing; 99=filtered away	ycdep04_R
	YC: How often felt nervous or tense in last month	1= hardly ever/never; 2= less than once/week; 3= at least once/week; 4= most days; 96=more than 1 tick; 98=missing; 99=filtered away	ycdep05_R
	YC: How often worried too much about things in last month	1= hardly ever/never; 2= less than once/week; 3= at least once/week; 4= most days; 96=more than 1 tick; 98=missing; 99=filtered away	ycdep06_R
		($\alpha=.82$)	

Supplementary Table S39. Friends Factors (Time 3): Closeness to Friends (ESYTC, 2000)

Question	Variable/Label	Coded	Variable Name in SPSS
Thinking about the friends you spend most time with, how often do you...?	YC: How often do you talk to friends about personal things	1= hardly, never; 2=sometimes; 3= often; 96=more than one tick; 98=missing; 99=filtered away	ycftlk01_R
	YC: How often do you ask friends for advice	1= hardly, never; 2=sometimes; 3= often; 96=more than one tick; 98=missing; 99=filtered away	ycftlk02_R
	YC: How often do you borrow money/other things from friends	1= hardly, never; 2=sometimes; 3= often; 96=more than one tick; 98=missing; 99=filtered away	ycftlk06_R
	YC: How often do you talk to friends about problems at home	1= hardly, never; 2=sometimes; 3= often; 96=more than one tick; 98=missing; 99=filtered away	ycftlk07_R
	YC: How often do you talk to friends about problems with other friends	1= hardly, never; 2=sometimes; 3= often; 96=more than one tick; 98=missing; 99=filtered away	ycftlk08_R
	YC: How often do you trust friends with things you tell them	1= hardly, never; 2=sometimes; 3= often; 96=more than one tick; 98=missing; 99=filtered away	ycftlk05_R
		($\alpha=.81$)	

Supplementary Table S40. Friends Factors (Time 3): Peer Pressure (ESYTC, 2000)

Question	Variable/Label	Coded	Variable Name in SPSS
How pressured do you feel by your friends to do the following things?	YC: How pressured by friends to try drugs	1= not at all; 2= a bit; 3= a lot; 96=more than one tick; 98=missing; 99=filtered away	ycfprs01_R
	YC: How pressured by friends to act tough/hard	1= not at all; 2= a bit; 3= a lot; 96=more than one tick; 98=missing; 99=filtered away	ycfprs02_R
	YC: How pressured by friends to have sex	1= not at all; 2= a bit; 3= a lot; 96=more than one tick; 98=missing; 99=filtered away	ycfprs03_R
	YC: How pressured by friends to dress older than you are	1= not at all; 2= a bit; 3= a lot; 96=more than one tick; 98=missing; 99=filtered away	ycfprs04_R
	YC: How pressured by friends to cause trouble/fight	1= not at all; 2= a bit; 3= a lot; 96=more than one tick; 98=missing; 99=filtered away	ycfprs05_R
	YC: How pressured by friends to go to pubs/nightclubs	1= not at all; 2= a bit; 3= a lot; 96=more than one tick; 98=missing; 99=filtered away	ycfprs06_R
		($\alpha=.86$)	

Supplementary Table S41. Friends Factors (Time 3): Number of Friends (ESYTC, 2000)

Question	Variable/Label	Coded	Variable Name in SPSS
How many friends do you have altogether (including girlfriends and boyfriends)?	YC: Number of friends	1=none; 2=one or two; 3=3 to 5; 4=6 to 10; 96=more than 1 tick; 98=missing	ycfnum01

Supplementary Table S42. Antisocial Behaviour (Time 3): Social Alienation (adapted version of Alienation Scale of the Multidimensional Personality Questionnaire (MPQ) (Tellegen, 1982))

Question	Variable/Label	Coded	Variable Name in SPSS
How much do you agree or disagree with these statements about you?	YC: Lots of people try to push me around	1=disagree a lot; 2= disagree a bit; 3=not sure; 4=agree a bit; 5= agree a lot; 96=more than 1 tick; 98=missing	ycaln01_R
	YC: Some people are against me for no good reason	1=disagree a lot; 2= disagree a bit; 3=not sure; 4=agree a bit; 5= agree a lot; 96=more than 1 tick; 98=missing	ycaln02_R
	YC: My friends often say or do things behind my back	1=disagree a lot; 2= disagree a bit; 3=not sure; 4=agree a bit; 5= agree a lot; 96=more than 1 tick; 98=missing	ycaln03_R
	YC: I would be more successful if people didn't make things hard for me	1=disagree a lot; 2= disagree a bit; 3=not sure; 4=agree a bit; 5= agree a lot; 96=more than 1 tick; 98=missing	ycaln04_R
	YC: I know that people have spread lies about me on purpose	1=disagree a lot; 2= disagree a bit; 3=not sure; 4=agree a bit; 5= agree a lot; 96=more than 1 tick; 98=missing	ycaln05_R
	YC: Some people would like to take away what success I have	1=disagree a lot; 2= disagree a bit; 3=not sure; 4=agree a bit; 5= agree a lot; 96=more than 1 tick; 98=missing	ycaln06_R
		($\alpha=.86$)	

Supplementary Table S43. Antisocial Behaviour (Time 3): Delinquency (ESYTC, 2000)

Question	Variable/Label	Coded	Variable Name in SPSS
During the last year did you not pay the correct fare on a bus or train?	YC Dodge paying correct fare: How many times	0=0 times; 1=1 time; 2= 2 times; 3=3 times; 4= 4times; 5= 5 times; 6= 6-10 times; 7=more than 10 times; 96=more than one tick; 98=missing	del_bus_fair e
During the last year did you take something from a shop or a store without paying for it?	YC Steal from a shop: How many times	0=0 times; 1=1 time; 2= 2 times; 3=3 times; 4= 4times; 5= 5 times; 6= 6-10 times; 7=more than 10 times; 96=more than one tick; 98=missing	del_shoplif t
During the last year were you rowdy or rude in a public place so that people complained or you got into trouble?	YC Been rowdy or rude in public: How many times	0=0 times; 1=1 time; 2= 2 times; 3=3 times; 4= 4times; 5= 5 times; 6= 6-10 times; 7=more than 10 times; 96=more than one tick; 98=missing	del_pub
During the last year did you steal or ride in a stolen car or van or a stolen motorbike?	YC Steal/Ride in a stolen vehicle: How many times	0=0 times; 1=1 time; 2= 2 times; 3=3 times; 4= 4times; 5= 5 times; 6= 6-10 times; 7=more than 10 times; 96=more than one tick; 98=missing	del_steal_ca r
During the last year did you take money or something else that did not belong to you from school?	YC Steal something from school: How many times	0=0 times; 1=1 time; 2= 2 times; 3=3 times; 4= 4times; 5= 5 times; 6= 6-10 times; 7=more than 10 times; 96=more than one tick; 98=missing	del_rob_sch ool
During the last year did you carry a knife or weapon with you for protection or in case it was need in a fight?	YC Carry a knife or weapon: How many times	0=0 times; 1=1 time; 2= 2 times; 3=3 times; 4= 4times; 5= 5 times; 6= 6-10 times; 7=more than 10 times; 96=more than one tick; 98=missing	del_hurt_we apon

Supplementary Table S43. Antisocial Behaviour (Time 3): Delinquency (ESYTC, 2000) continued

Question	Variable/Label	Coded	Variable Name in SPSS
During the last year did you deliberately damage or destroy property that did not belong to you (for example, windows, cars or street light)?	YC Vandalise property: How many times	0=0 times; 1=1 time; 2= 2 times; 3=3 times; 4= 4times; 5= 5 times; 6= 6-10 times; 7=more than 10 times; 96=more than one tick; 98=missing	del_vandalize
During the last year did you go into or break into a house or building with the intention of stealing something?	YC Break into a house or building to steal: How many times	0=0 times; 1=1 time; 2= 2 times; 3=3 times; 4= 4times; 5= 5 times; 6= 6-10 times; 7=more than 10 times; 96=more than one tick; 98=missing	del_breakinto_house
During the last year did you write things or spray paint on property that did not belong to you? (for example, a phone box, car, building or bus shelter)?	YC Write or spray graffiti: How many times	0=0 times; 1=1 time; 2= 2 times; 3=3 times; 4= 4times; 5= 5 times; 6= 6-10 times; 7=more than 10 times; 96=more than one tick; 98=missing	del_graffiti
During the last year did you use force, threats or a weapon to get money or something else from somebody?	YC Use force/threats/weapon to rob someone: How many times	0=0 times; 1=1 time; 2= 2 times; 3=3 times; 4= 4times; 5= 5 times; 6= 6-10 times; 7=more than 10 times; 96=more than one tick; 98=missing	del_rob_someone
During the last year did you take money or something else that did not belong to you from home without permission?	YC Steal something from home: How many times	0=0 times; 1=1 time; 2= 2 times; 3=3 times; 4= 4times; 5= 5 times; 6= 6-10 times; 7=more than 10 times; 96=more than one tick; 98=missing	del_steal_home

Supplementary Table S43. Antisocial Behaviour (Time 3): Delinquency (ESYTC, 2000) continued

Question	Variable/Label	Coded	Variable Name in SPSS
During the last year did you deliberately set fire or try to set fire to somebody's property or a building (for example, a school)?	YC Set fire to something: How many times	0=0 times; 1=1 time; 2= 2 times; 3=3 times; 4= 4times; 5= 5 times; 6= 6-10 times; 7=more than 10 times; 96=more than one tick; 98=missing	del_arsob
During the last year did you break into a car or a van with the intention of stealing out if it?	YC Break into a vehicle to steal: How many times	0=0 times; 1=1 time; 2= 2 times; 3=3 times; 4= 4times; 5= 5 times; 6= 6-10 times; 7=more than 10 times; 96=more than one tick; 98=missing	del_breakint o_car
During the last year did you hurt or injure any animals or birds on purpose?	YC Cruel to animals/birds: How many times	0=0 times; 1=1 time; 2= 2 times; 3=3 times; 4= 4times; 5= 5 times; 6= 6-10 times; 7=more than 10 times; 96=more than one tick; 98=missing	del_animal_ cruel
		($\alpha=.82$)	

Supplementary Table S44. Antisocial Behaviour (Time 3): Public Antisocial Behaviour (ESYTC, 2000)

Question	Variable/Label	Coded	Variable Name in SPSS
And how often do you do these things when you are hanging around?	YC: When hang around, how often do you shout/swear	1= never; 2= sometimes; 3= usually; 4= always; 96=more than one tick; 98=missing; 99=filtered away	ychang23_R
	YC: When hang around, how often do you drink alcohol	1= never; 2= sometimes; 3= usually; 4= always; 96=more than one tick; 98=missing; 99=filtered away	ychang24_R
	YC: When hang around, how often do you take drugs	1= never; 2= sometimes; 3= usually; 4= always; 96=more than one tick; 98=missing; 99=filtered away	ychang25_R
	YC: When hang around, how often do you cause trouble	1= never; 2= sometimes; 3= usually; 4= always; 96=more than one tick; 98=missing; 99=filtered away	ychang26_R
		($\alpha=.76$)	

Supplementary Table S45. Antisocial Behaviour (Time 3): Peer Bullying Perpetrator (adapted from Olweus, 1993)

Question	Variable/Label	Coded	Variable Name in SPSS
During the last year, did you do any of these things to someone you know? (don't include a brother or sister)	YC Bullied someone by hitting, spitting etc in last year	1= hardly ever/never; 2= less than once/week; 3= at least once/week; 4= most days; 96=more than 1 tick; 98=missing; 99=filtered away	ycbul01_R
	YC Bullied someone by slagging/calling names in last year	1= hardly ever/never; 2= less than once/week; 3= at least once/week; 4= most days; 96=more than 1 tick; 98=missing; 99=filtered away	ycbul02_R
	YC Bullied someone by threatening to hurt them in last year	1= hardly ever/never; 2= less than once/week; 3= at least once/week; 4= most days; 96=more than 1 tick; 98=missing; 99=filtered away	ycbul03_R
	YC Bullied someone ignoring/leaving out of things in last year	1= hardly ever/never; 2= less than once/week; 3= at least once/week; 4= most days; 96=more than 1 tick; 98=missing; 99=filtered away	ycbul04_R
	YC Encouraged others to bully someone in last year	1= hardly ever/never; 2= less than once/week; 3= at least once/week; 4= most days; 96=more than 1 tick; 98=missing; 99=filtered away	ycbul05_R
		($\alpha=.76$)	

Supplementary Table S46. Antisocial Behaviour (Time 3): Peer Bullying Victim (adapted from Olweus, 1993)

Question	Variable/Label	Coded	Variable Name in SPSS
During the last year, how often did somebody or a group of people bully you in the following ways?	YC Been bullied by being attacked in last year	1= never; 2= less than once/week; 3= at least once/week; 4= most days; 96=more than 1 tick; 98=missing	ycvbul01_R
	YC Been bullied by being slagged/called names in last year	1= never; 2= less than once/week; 3= at least once/week; 4= most days; 96=more than 1 tick; 98=missing	ycvbul02_R
	YC Been bullied by being threatened in last year	1= never; 2= less than once/week; 3= at least once/week; 4= most days; 96=more than 1 tick; 98=missing	ycvbul03_R
	YC Been bullied by being ignored/left out in last year	1= never; 2= less than once/week; 3= at least once/week; 4= most days; 96=more than 1 tick; 98=missing	ycvbul04_R
		($\alpha=.79$)	

Supplementary Table S47. Parenting Factors (Time 4): Parental Involvement (ESYTC, 2001)

Question	Variable/Label	Coded	Variable Name in SPSS
When you went out during the last year, how often did you parents know...?	YD How often did parents know where you were going	1= never; 2= sometimes; 3= usually; 4= always; 96=more than 1 tick; 98=missing	ydpsup01_R
	YD How often did parents know who you were with	1= never; 2= sometimes; 3= usually; 4= always; 96=more than 1 tick; 98=missing	ydpsup02_R
	YD How often did parents know what time you would be home	1= never; 2= sometimes; 3= usually; 4= always; 96=more than 1 tick; 98=missing	ydpsup03_R
	YD: How often did parents know what you were doing	1= never; 2= sometimes; 3= usually; 4= always; 96=more than 1 tick; 98=missing	Ydpsup08_R
		($\alpha=.79$)	

Supplementary Table S48. Parenting Factors (Time 4): Parent-Child Leisure Time (ESYTC, 2001)

Question	Variable/Label	Coded	Variable Name in SPSS
How much time do you usually spend each day doing things with your parents (e.g. talking, playing sports or going out)...?	YD: How much spent with parents on weekdays	1=none; 2=up to 1hr; 3=up to 2hrs; 4=up to 4 hrs; 5=more than 4hrs; 96=more than 1 tick; 98=missing	ydactp10
	YD: How much spent with parents at weekends	1=none; 2=up to 1hr; 3=up to 2hrs; 4=up to 4 hrs; 5=more than 4hrs; 96=more than 1 tick; 98=missing	ydactp11
		($\alpha=.75$)	

Supplementary Table S49. Parenting Factors (Time 4): Parent-Child Communication (ESYTC, 2001)

Question	Variable/Label	Coded	Variable Name in SPSS
How often do you tell your parents about...?	YD: How often tell parents about things that happen at school	1= hardly/never; 2= sometimes; 3= often; 96=more than 1 tick; 98=missing	ydpsup11_R
	YD: How often tell parents what doing when out	1= hardly/never; 2= sometimes; 3= often; 96=more than 1 tick; 98=missing	ydpsup12_R
And how often do you keep secrets from your parents about...?	YD: How often keep secrets who spend time with	1= often; 2= sometimes; 3= hardly/never; 96=more than 1 tick; 98=missing	ydpsup13
	YD: How often keep secrets where go when out	1= often; 2= sometimes; 3= hardly/never; 96=more than 1 tick; 98=missing	ydpsup14
		($\alpha=.70$)	

Supplementary Table S50. Parenting Factors (Time 4): Parent-Child Conflict (ESYTC, 2001)

Question	Variable/Label	Coded	Variable Name in SPSS
How often do you argue with your parents about each of these things?	YD: How often argue about how tidy room is	1= hardly ever/never; 2= less than once/week; 3= at least once/week; 4= most days; 96=more than 1 tick; 98=missing; 99=filtered away	ydparg03_R
	YD: How often argue about what you do when out	1= hardly ever/never; 2= less than once/week; 3= at least once/week; 4= most days; 96=more than 1 tick; 98=missing; 99=filtered away	ydparg05_R
	YD: How often argue about what time to come home	1= hardly ever/never; 2= less than once/week; 3= at least once/week; 4= most days; 96=more than 1 tick; 98=missing; 99=filtered away	ydparg04_R

Supplementary Table S50. Parenting Factors (Time 4): Parent-Child Conflict (ESYTC, 2001)
continued

Question	Variable/Label	Coded	Variable Name in SPSS
	YD: How often argue about who you hang about with	1= hardly ever/never; 2= less than once/week; 3= at least once/week; 4= most days; 96=more than 1 tick; 98=missing; 99=filtered away	ydparg09_R
	YD: How often argue about clothes\appearance	1= hardly ever/never; 2= less than once/week; 3= at least once/week; 4= most days; 96=more than 1 tick; 98=missing; 99=filtered away	Ydparg15_R
	YD: How often argue about other things	1= hardly ever/never; 2= less than once/week; 3= at least once/week; 4= most days; 96=more than 1 tick; 98=missing; 99=filtered away	ydparg06_R
		($\alpha=.76$)	

Supplementary Table S51. Parenting Factors (Time 4): Parent-Child Conflict Resolution (ESYTC, 2001)

Question	Variable/Label	Coded	Variable Name in SPSS
	YD: When disagree discuss calmly with parents	1= never; 2= sometimes; 3= usually; 4= always; 96=more than 1 tick; 98=missing	ydparg16_R
	YD: When disagree you listen to parents point of view	1= never; 2= sometimes; 3= usually; 4= always; 96=more than 1 tick; 98=missing	ydparg17_R
	YD: When disagree parents listen to your point of view	1= never; 2= sometimes; 3= usually; 4= always; 96=more than 1 tick; 98=missing	ydparg18_R
		($\alpha=.79$)	

Supplementary Table S52. Personality Factors (Time 4): Self-Esteem (adapted version of the Rosenberg, 1965)

Question	Variable/Label	Coded	Variable Name in SPSS
How much do you agree or disagree with these statements?	YD: I like myself	1=disagree a lot; 2= disagree a bit; 3=not sure; 4= agree a bit; 5= agree a lot; 96=more than 1 tick; 98=missing	ydself01_R
	YD: I often wish I was someone else	1=agree a lot; 2= agree a bit; 3=not sure; 4=disagree a bit; 5= disagree a lot; 96=more than 1 tick; 98=missing	ydself02
	YD: I am able to do things well	1=disagree a lot; 2= disagree a bit; 3=not sure; 4= agree a bit; 5= agree a lot; 96=more than 1 tick; 98=missing	ydself03_R
	YD: I dont think much of myself	1=agree a lot; 2= agree a bit; 3=not sure; 4=disagree a bit; 5= disagree a lot; 96=more than 1 tick; 98=missing	ydself07
	YD: There are some good things about me	1=disagree a lot; 2= disagree a bit; 3=not sure; 4= agree a bit; 5= agree a lot; 96=more than 1 tick; 98=missing	ydself08_R
	YD: Lots of things about myself I'd like	1=agree a lot; 2= agree a bit; 3=not sure; 4=disagree a bit; 5= disagree a lot; 96=more than 1 tick; 98=missing	ydself06
		($\alpha=.79$)	

Supplementary Table S53. School Variables (Time 4): Attitude towards Education (ESYTC, 2001)

Question	Variable/Label	Coded	Variable Name in SPSS
How much do you agree or disagree with these sentences about school	YD School is a waste of time	1= disagree a lot; 2= disagree a bit; 3=not sure; 4=agree a bit; 5=agree a lot; 96=more than 1 tick; 98=missing	ydsatt01_R
	YD school teachers things that will help in later life	1= agree a lot; 2= agree a bit; 3=not sure; 4=disagree a bit; 5=disagree a lot; 96=more than 1 tick; 98=missing	ydsatt05
	YD: Working hard at school is important	1= agree a lot; 2= agree a bit; 3=not sure; 4=disagree a bit; 5=disagree a lot; 96=more than 1 tick; 98=missing	ydsatt02
	YD School will help me get a good job	1= agree a lot; 2= agree a bit; 3=not sure; 4=disagree a bit; 5=disagree a lot; 96=more than 1 tick; 98=missing	ydsatt04
		($\alpha=.76$)	

Supplementary Table S54. School Variables (Time 4): Violation of School Rules (ESYTC, 2001)

Question	Variable/Label	Coded	Variable Name in SPSS
During the last school year how often did you do these things at school...?	YD: How often arrived late for class in last year	1=hardly ever/never; 2=less than once a week; 3=at least once a week; 4=most days; 96=more than 1 tick; 98=missing	ydsbad04_R
	YD: How often fight in/outside class in last year	1=hardly ever/never; 2=less than once a week; 3=at least once a week; 4=most days; 96=more than 1 tick; 98=missing	ydsbad05_R
	YD: How often refuse to do school work in last year	1=hardly ever/never; 2=less than once a week; 3=at least once a week; 4=most days; 96=more than 1 tick; 98=missing	ydsbad06_R
	YD: How often cheeky to teachers in last year	1=hardly ever/never; 2=less than once a week; 3=at least once a week; 4=most days; 96=more than 1 tick; 98=missing	ydsbad01_R
	YD: How often use bad language in school last year	1=hardly ever/never; 2=less than once a week; 3=at least once a week; 4=most days; 96=more than 1 tick; 98=missing	ydsbad07_R
	YD: How often wander round school last year	1=hardly ever/never; 2=less than once a week; 3=at least once a week; 4=most days; 96=more than 1 tick; 98=missing	ydsbad08_R
	YD: How often threatened teacher last year	1=hardly ever/never; 2=less than once a week; 3=at least once a week; 4=most days; 96=more than 1 tick; 98=missing	ydsbad09_R
	YD: How often hit or kicked teacher last year	1=hardly ever/never; 2=less than once a week; 3=at least once a week; 4=most days; 96=more than 1 tick; 98=missing	Ydsbad10_R
		($\alpha = .79$)	

Supplementary Table S55. Antisocial Behaviour Variables: Delinquency (ESYTC, 2001)

Question	Variable/Label	Coded	Variable Name in SPSS
During the last year did you not pay the correct fare on a bus or train?	YD Dodge paying correct fare, times done it	0=0 times; 1=1 time; 2= 2 times; 3=3 times; 4= 4times; 5= 5 times; 6= 6-10 times; 7=more than 10 times; 98=missing	del_bus_fair e
During the last year did you take something from a shop or a store without paying for it?	YD Steal from a shop, times done it	0=0 times; 1=1 time; 2= 2 times; 3=3 times; 4= 4times; 5= 5 times; 6= 6-10 times; 7=more than 10 times; 98=missing	del_shoplift
During the last year were you rowdy or rude in a public place so that people complained or you got into trouble?	YD Been rowdy or rude in public, times done it	0=0 times; 1=1 time; 2= 2 times; 3=3 times; 4= 4times; 5= 5 times; 6= 6-10 times; 7=more than 10 times; 98=missing	del_rob_car
During the last year did you steal or ride in a stolen car or van or a stolen motorbike?	YD Steal/Ride in a stolen vehicle, times done it	0=0 times; 1=1 time; 2= 2 times; 3=3 times; 4= 4times; 5= 5 times; 6= 6-10 times; 7=more than 10 times; 98=missing	del_ridestol en_car
During the last year did you take money or something else that did not belong to you from school?	YD Steal something from school, times done it	0=0 times; 1=1 time; 2= 2 times; 3=3 times; 4= 4times; 5= 5 times; 6= 6-10 times; 7=more than 10 times; 98=missing	del_steal_sc hool
During the last year did you carry a knife or weapon with you for protection or in case it was need in a fight?	YD Carry a knife or weapon, times done it	0=0 times; 1=1 time; 2= 2 times; 3=3 times; 4= 4times; 5= 5 times; 6= 6-10 times; 7=more than 10 times; 98=missing	del_hurt_we apon

Supplementary Table S55. Antisocial Behaviour Variables: Delinquency (ESYTC, 2001) continued

Question	Variable/Label	Coded	Variable Name in SPSS
During the last year did you deliberately damage or destroy property that did not belong to you (for example, windows, cars or street light)?	YD Vandalise property, times done it	0=0 times; 1=1 time; 2= 2 times; 3=3 times; 4= 4times; 5= 5 times; 6= 6-10 times; 7=more than 10 times; 98=missing	del_vandalize
During the last year did you go into or break into a house or building with the intention of stealing something?	YD Break into a house or building to steal, times done it	0=0 times; 1=1 time; 2= 2 times; 3=3 times; 4= 4times; 5= 5 times; 6= 6-10 times; 7=more than 10 times; 98=missing	del_stealhome
During the last year did you write things or spray paint on property that did not belong to you? (for example, a phone box, car, building or bus shelter)?	YD Write or spray graffiti, times done it	0=0 times; 1=1 time; 2= 2 times; 3=3 times; 4= 4times; 5= 5 times; 6= 6-10 times; 7=more than 10 times; 98=missing	del_graffitti
During the last year did you use force, threats or a weapon to get money or something else from somebody?	YD Use force/threats/weapon to rob someone, times done it	0=0 times; 1=1 time; 2= 2 times; 3=3 times; 4= 4times; 5= 5 times; 6= 6-10 times; 7=more than 10 times; 98=missing	del_rob_someone
During the last year did you take money or something else that did not belong to you from home without permission?	YD Steal something from home, times done it	0=0 times; 1=1 time; 2= 2 times; 3=3 times; 4= 4times; 5= 5 times; 6= 6-10 times; 7=more than 10 times; 98=missing	ydyhom02

Supplementary Table S55. Antisocial Behaviour Variables: Delinquency (ESYTC, 2001) continued

Question	Variable/Label	Coded	Variable Name in SPSS
During the last year did you deliberately set fire or try to set fire to somebody's property or a building (for example, a school)?	YD Set fire to something, times done it	0=0 times; 1=1 time; 2= 2 times; 3=3 times; 4= 4times; 5= 5 times; 6= 6-10 times; 7=more than 10 times; 98=missing	del_arson
During the last year did you break into a car or a van with the intention of stealing out if it?	YD Break into a vehicle to steal, times done it	0=0 times; 1=1 time; 2= 2 times; 3=3 times; 4= 4times; 5= 5 times; 6= 6-10 times; 7=more than 10 times; 98=missing	del_breakinto_car
During the last year did you hurt or injure any animals or birds on purpose?	YD Cruel to animals/birds, times done it	0=0 times; 1=1 time; 2= 2 times; 3=3 times; 4= 4times; 5= 5 times; 6= 6-10 times; 7=more than 10 times; 98=missing	del_animal_cruel
During the last year did you sell an illegal drug?	YD Sold an illegal drug, times done it	0=0 times; 1=1 time; 2= 2 times; 3=3 times; 4= 4times; 5= 5 times; 6= 6-10 times; 7=more than 10 times; 98=missing	del_sell_drugs
		($\alpha = .82$)	

Supplementary Table S56. Antisocial Behaviour Variables: Sibling Violence Perpetration (ESYTC, 2001)

Question	Variable/Label	Coded	Variable Name in SPSS
During the last year, hit, kick, or punch a brother or sister on purpose?	YD: Fought with sibling, number of times done it	0=0 times; 1=1 time; 2=2 times; 3=3 times; 4= 4 times; 5= 5 times; 6= 6to 10 times; 7= more than 10 times; 96=more than1 tick; 98=missing; 99=filtered away	Sibling_violence

Supplementary Table S57. Antisocial Behaviour Variables: Peer Bullying Perpetrator (adapted from Olweus, 1993)

Question	Variable/Label	Coded	Variable Name in SPSS
During the last year, how often did you do each of these things to someone you know?	YD: Bullied someone by ignoring\leaving out of things in last year	1= never; 2= less than once/week; 3= at least once/week; 4= most days; 96=more than 1 tick; 98=missing	ydbul04_R
	YD: Bullied someone by slagging\calling names in last year	1= never; 2= less than once/week; 3= at least once/week; 4= most days; 96=more than 1 tick; 98=missing	ydbul02_R
	YD: Bullied someone by threatening to hurt them in last year	1= never; 2= less than once/week; 3= at least once/week; 4= most days; 96=more than 1 tick; 98=missing	ydbul03_R
	YD: Bullied someone by hitting\spitting etc in last year	1= never; 2= less than once/week; 3= at least once/week; 4= most days; 96=more than 1 tick; 98=missing	ydbul01_R
	YD: Encouraged others to bully someone in last year	1= never; 2= less than once/week; 3= at least once/week; 4= most days; 96=more than 1 tick; 98=missing	ydbul05_R
		($\alpha = .75$)	

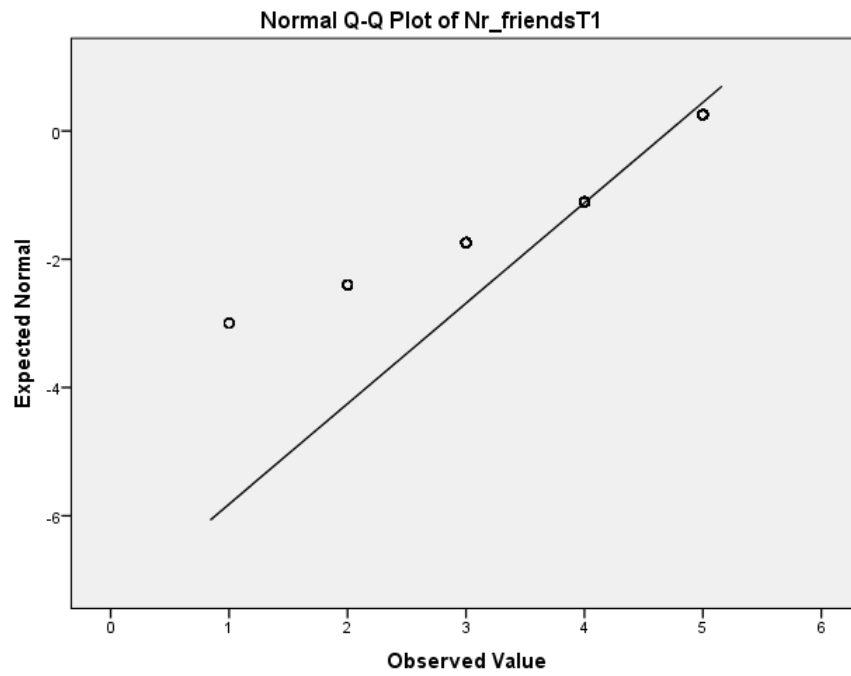
Supplementary Table S58. Antisocial Behaviour Variables: Victim of Peer Bullying (adapted from Olweus, 1993)

Question	Variable/Label	Coded	Variable Name in SPSS
During the last year, how often did somebody or a group of people bully you in the following ways?	YD Been bullied by being attacked in last year	1= never; 2= less than once/week; 3= at least once/week; 4= most days; 96=more than 1 tick; 98=missing	ydvbul01_R
	YD Been bullied by being slagged/called names in last year	1= never; 2= less than once/week; 3= at least once/week; 4= most days; 96=more than 1 tick; 98=missing	ydvbul02_R
	YD Been bullied by being threatened in last year	1= never; 2= less than once/week; 3= at least once/week; 4= most days; 96=more than 1 tick; 98=missing	ydvbul03_R
	YD Been bullied by being ignored\leaving out in last year	1= never; 2= less than once/week; 3= at least once/week; 4= most days; 96=more than 1 tick; 98=missing	ydvbul04_R
		($\alpha = .80$)	

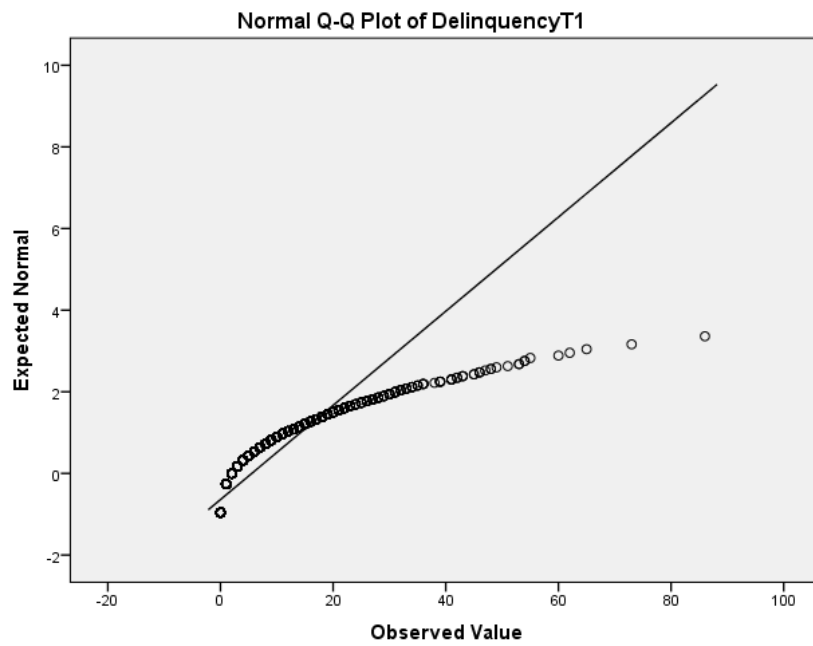
Appendix D

Normal Q-Q Plots

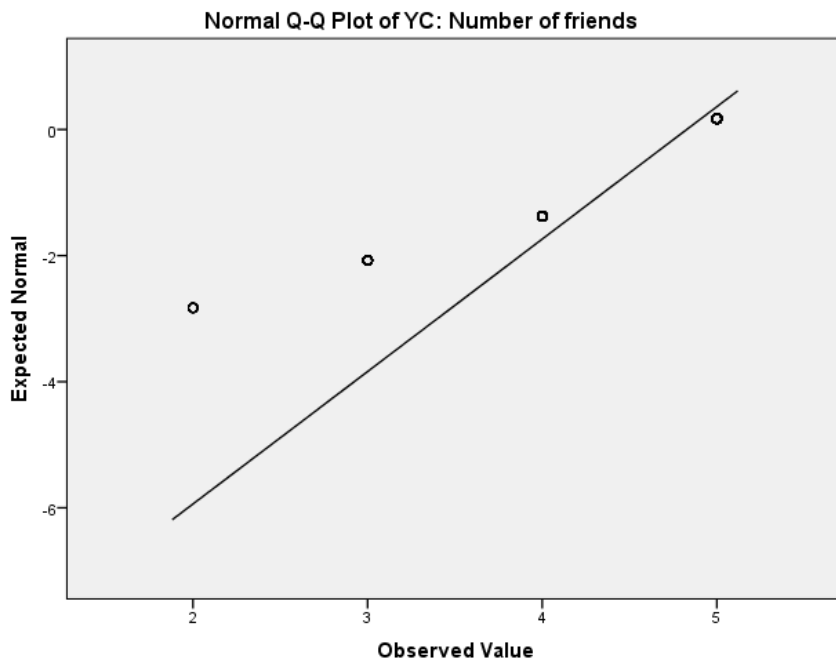
Number of Friends at Time 1



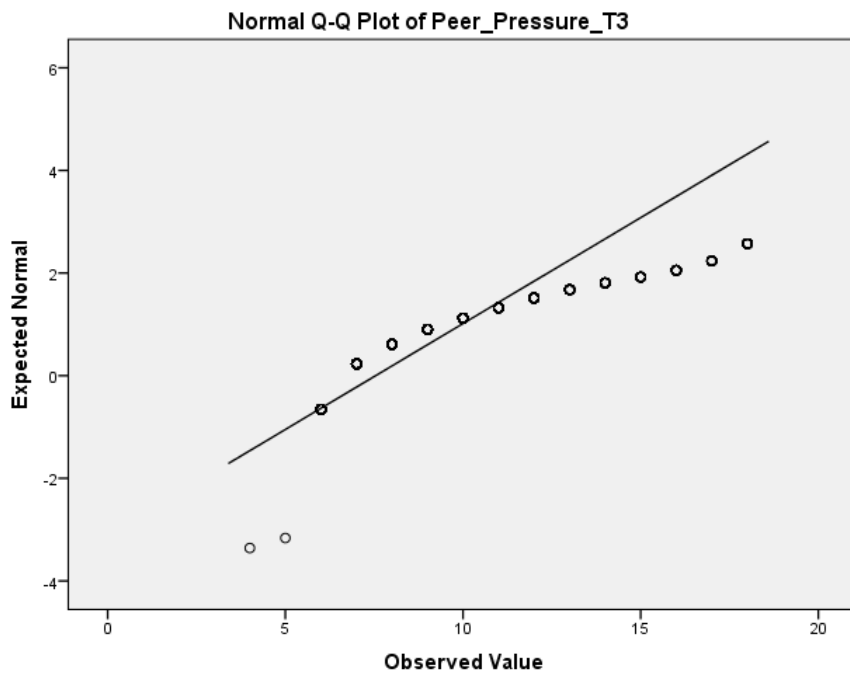
Delinquency at Time 1



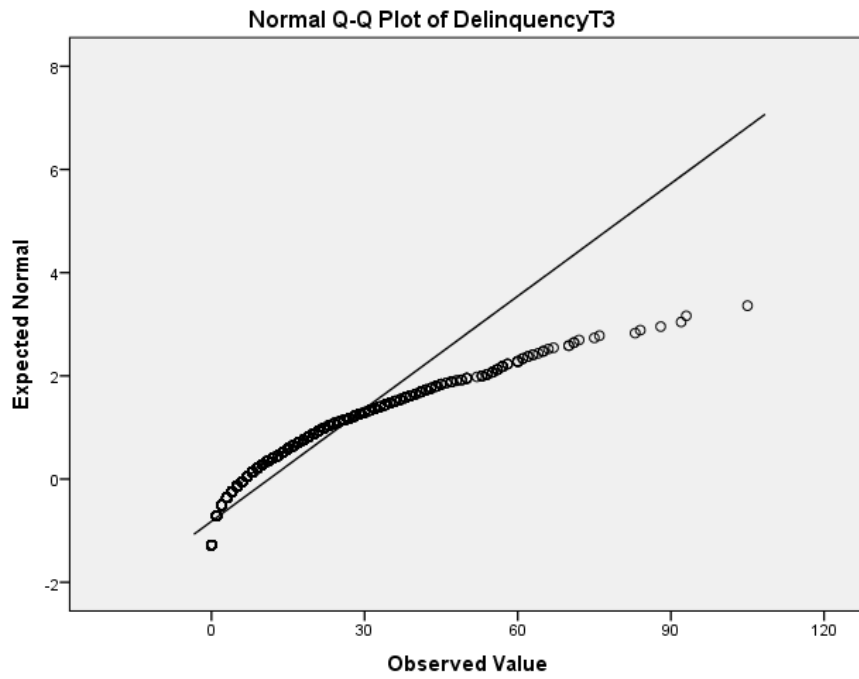
Number of Friends at Time 3



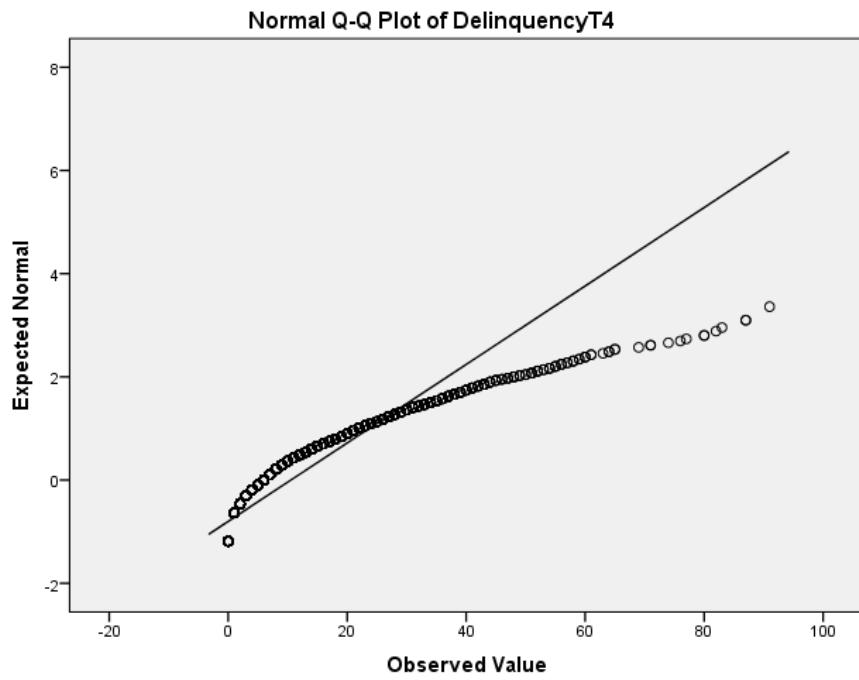
Peer Pressure at Time 3



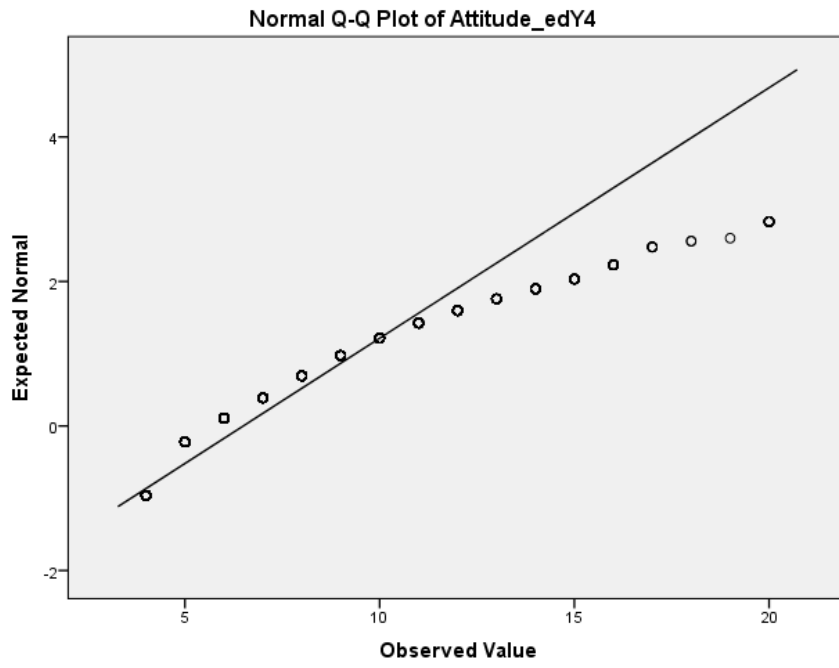
Delinquency at Time 3



Delinquency at Time 4



Attitude towards Education



Chapter 4 –Distal Precursors and Long-Term Outcomes of Sibling Bullying

Supplementary Table S59. Sibling Bullying Perpetration (Wolke & Samara, 2004) (12 years and 6 months)

Code	Item	Values
CCL 210	I hit, kicked, pushed or shoved a brother or sister around, or threatened to do this	1=never, 2=only ever once/twice, 3=two/three times a month, 4=about once a week, 5=several times a week, 0 - negative values=missing
CCL 211	I took money or other things from a brother or sister or damaged their belongings	1=never, 2=only ever once/twice, 3=two/three times a month, 4=about once a week, 5=several times a week, 0 - negative values=missing
CCL 212	I called a brother or sister nasty and hateful names	1=never, 2=only ever once/twice, 3=two/three times a month, 4=about once a week, 5=several times a week, 0 - negative values=missing
CCL 213	I made fun of a brother in other ways	1=never, 2=only ever once/twice, 3=two/three times a month, 4=about once a week, 5=several times a week, 0 - negative values=missing
CCL 214	I kept a brother or sister out of things on purpose, leaving them out of my group or completely ignoring them	1=never, 2=only ever once/twice, 3=two/three times a month, 4=about once a week, 5=several times a week, 0 - negative values=missing
CCL 215	I spread rumours about a brother or sister, or tried to make other dislike them	1=never, 2=only ever once/twice, 3=two/three times a month, 4=about once a week, 5=several times a week, 0 - negative values=missing
CCL 216	I bullied in other ways	1=never, 2=only ever once/twice, 3=two/three times a month, 4=about once a week, 5=several times a week, 0 - negative values=missing
	B_Sib12 $\alpha=.71$	

Supplementary Table S60. Sibling Bullying Victimization (Wolke & Samara, 2004) (12 years and 6 months)

Code	Item	Values
CCL 210	I was hit, kicked, pushed or shoved , or they threatened to do this	1=never, 2=only ever once/twice, 3=two/three times a month, 4=about once a week, 5=several times a week, 1,0, negative values=missing
CCL 211	I had things damaged or taken from me, including money	1=never, 2=only ever once/twice, 3=two/three times a month, 4=about once a week, 5=several times a week, 1,0, negative values=missing
CCL 212	I was called nasty and hateful names	1=never, 2=only ever once/twice, 3=two/three times a month, 4=about once a week, 5=several times a week, 1,0, negative values=missing
CCL 213	I was made fun of	1=never, 2=only ever once/twice, 3=two/three times a month, 4=about once a week, 5=several times a week, 1,0, negative values=missing
CCL 214	They kept me out of things on purpose, leaving me out of my their group of friends or completely ignoring me	1=never, 2=only ever once/twice, 3=two/three times a month, 4=about once a week, 5=several times a week, 1,0, negative values=missing
CCL 215	They told lies or spread rumours about me, or tried to make other dislike me	1=never, 2=only ever once/twice, 3=two/three times a month, 4=about once a week, 5=several times a week, 1,0, negative values=missing
CCL 216	I was bullied in another ways	1=never, 2=only ever once/twice, 3=two/three times a month, 4=about once a week, 5=several times a week, 1,0, negative values=missing
	V Sib12 $\alpha=.78$	

Supplementary Table S61. Precursor Variables: Sibling Relationship Quality (57 months)

Code	Item	Values
KL 791	Teased by brother/sister	1=often, 2=sometimes, 3=never, 9= missing
KL792	Child teases B/S	1=often, 2=sometimes, 3=never, 9= missing
KL793	Deliberately provoked by B/S	1=often, 2=sometimes, 3=never, 9= missing
KL 794	Child deliberately provokes B/S	1=often, 2=sometimes, 3=never, 9= missing
KL 795	Child is willing to share with B/S	1=often, 2=sometimes, 3=never, 9= missing
KL 796	Child is interrupted by B/S while playing	1=often, 2=sometimes, 3=never, 9= missing
	KLSRQ $\alpha=.71$	

Supplementary Table S62. Precursor Variables: Peer Relationship Quality (57 months)

Code	Item	Values
KL 801	Teased by other children	1=often, 2=sometimes, 3=never, 9= missing
KL 802	Child teases other children	1=often, 2=sometimes, 3=never, 9= missing
KL 803	Deliberately provoked by other children	1=often, 2=sometimes, 3=never, 9= missing
KL 804	Child deliberately provokes other children	1=often, 2=sometimes, 3=never, 9= missing
KL 805	Child is willing to share with other children	1=often, 2=sometimes, 3=never, 9= missing
KL 806	Child is interrupted by other children while playing	1=often, 2=sometimes, 3=never, 9= missing
	KLPRQ $\alpha=.75$	

Supplementary Table S63. Maternal Mental Health: Crown Crisp Experiential Index (Crown & Crisp, 1979) (61 months; 5 years and 1 month)

Code	Item	Values
	Anxiety	
k3000	C1: Frequency mother feels upset for no obvious reason	4=very often; 3=often; 2=not very often; 1=never; 9, 0, negative values= missing
k3002	C3: Frequency mother felt as though she might faint	4=very often; 3=often; 2=not very often; 1=never; 9, 0, negative values= missing
k3005	C6: Frequency mother feels uneasy and restless	4=very often; 3=often; 2=not very often; 1=never; 9, 0, negative values= missing
k3008	C9: Frequency mother feels panicky	4=very often; 3=often; 2=not very often; 1=never; 9, 0, negative values= missing
k3011	C12: Frequency mother worries a lot	4=very often; 3=often; 2=not very often; 1=never; 9, 0, negative values= missing
k3014	C15: Frequency mother feels strung up inside	4=very often; 3=often; 2=not very often; 1=never; 9, 0, negative values= missing
k3016	C17: Frequency mother feels she is going to pieces	4=very often; 3=often; 2=not very often; 1=never; 9, 0, negative values= missing
k3019	C20: Frequency mother has bad dreams which upset her when she wakes	4=very often; 3=often; 2=not very often; 1=never; 9, 0, negative values= missing
	KanxietyCCEI $\alpha=.84$	

Supplementary Table S63. Maternal Mental Health: Crown Crisp Experiential Index (Crown & Crisp, 1979) (61 months; 5 years and 1 month) continued

Code	Item	Values
	Depression	
k3004	C5: Frequency mother feels life is too much effort	4=very often; 3=often; 2=not very often; 1=never; 9, 0, negative values= missing
k3007	C8: Frequency mother regrets much of past behaviour	4=very often; 3=often; 2=not very often; 1=never; 9, 0, negative values= missing
k3010	C11: Frequency mother wakes unusually early even when not woken by children	4=very often; 3=often; 2=not very often; 1=never; 9, 0, negative values= missing
k3013	C14: Frequency mother experiences long periods of sadness	4=very often; 3=often; 2=not very often; 1=never; 9, 0, negative values= missing
k3018	C19: Frequency mother finds herself needing to cry	4=very often; 3=often; 2=not very often; 1=never; 9, 0, negative values= missing
k3020	C21: Frequency mother loses ability to feel sympathy for others	4=very often; 3=often; 2=not very often; 1=never; 9, 0, negative values= missing
k3021	C22: Frequency mother can think as quickly as she used to	1=very often; 2=often; 3=not very often; 4=never; 9, 0, negative values= missing
k3022	C23: Frequency mother makes special effort to face crisis/difficulties	4=very often; 3=often; 2=not very often; 1=never; 9, 0, negative values= missing
	Kdepression CCEI $\alpha=.77$	
	Somaticism	
k3001	C2: Frequency mother is troubled by dizziness or shortness of breath	4=very often; 3=often; 2=not very often; 1=never; 9, 0, negative values= missing
k3003	C4: Frequency mother feels sick or has indigestion	4=very often; 3=often; 2=not very often; 1=never; 9, 0, negative values= missing
k3006	C7: Frequency mother feels tingling or prickling in body/arms/legs	4=very often; 3=often; 2=not very often; 1=never; 9, 0, negative values= missing
k3009	C10: Frequency mother has little/no appetite	4=very often; 3=often; 2=not very often; 1=never; 9, 0, negative values= missing
k3012	C13: Frequency mother feels tired or exhausted	4=very often; 3=often; 2=not very often; 1=never; 9, 0, negative values= missing
k3015	C16: Frequency mother can go to sleep all right	4=very often; 3=often; 2=not very often; 1=never; 9, 0, negative values= missing
k3017	C18: Frequency mother has excessive sweating/heart fluttering	4=very often; 3=often; 2=not very often; 1=never; 9, 0, negative values= missing
k3001	C2: Frequency mother is troubled by dizziness or shortness of breath	4=very often; 3=often; 2=not very often; 1=never; 9, 0, negative values= missing
	KSomaCCEI $\alpha=.66$	

Supplementary Table S64. Maternal Mental Health: Bachman Self-Esteem Scale (Bachman & O'Malley, 1977) (5 years and 1 month)

Code	Items	Values
k2000	B1: Mother feels she is a person of worth, at least equal to others	1=always true; 2=often true; 3=sometimes true; 4=seldom true; 5=never true; 9, 0, negative values =missing
k2001	B2: Mother feels she has a number of good qualities	1=always true; 2=often true; 3=sometimes true; 4=seldom true; 5=never true; 9, 0, negative values =missing
k2002	B3: Mother feels she can do things as well as other people	1=always true; 2=often true; 3=sometimes true; 4=seldom true; 5=never true; 9, 0, negative values =missing
k2003R	B4: Mother feels she does not have much to be proud of	5=always true; 4=often true; 3=sometimes true; 2=seldom true; 1=never true; 9, 0, negative values =missing
k2004	B5: Mother takes a positive attitude to herself	1=always true; 2=often true; 3=sometimes true; 4=seldom true; 5=never true; 9, 0, negative values =missing
k2005R	B6: Mother sometimes thinks she is no good at all	5=always true; 4=often true; 3=sometimes true; 2=seldom true; 1=never true; 9, 0, negative values =missing
k2006	B7: Mother feels she is a useful person to have around	1=always true; 2=often true; 3=sometimes true; 4=seldom true; 5=never true; 9, 0, negative values =missing
k2007R	B8: Mother feels she cannot do anything right	5=always true; 4=often true; 3=sometimes true; 2=seldom true; 1=never true; 9, 0, negative values =missing
2008	B9: Mother feels that when she does a job she does it well	1=always true; 2=often true; 3=sometimes true; 4=seldom true; 5=never true; 9, 0, negative values =missing
k2009R	B10: Mother feels that her life is not very useful	5=always true; 4=often true; 3=sometimes true; 2=seldom true; 1=never true; 9, 0, negative values =missing
k2010R	B11: Mother feels unlucky	5=always true; 4=often true; 3=sometimes true; 2=seldom true; 1=never true; 9, 0, negative values =missing
	KBachSelfEst $\alpha=.89$	

Supplementary Table S65. Mother-Partner Relationship Quality: Mother-Partner Bond (6 years and 1 month)

Code	Item	Values
l6180	F15a: Frequency respondent discusses with partner how work/day has gone in a week	1=never; 2=less than once a week; 3=1-3 times a week; 4=most days; 9, 0, negative values=missing
l6181	F15b: Frequency respondent & partner laugh together in a week	1=never; 2=less than once a week; 3=1-3 times a week; 4=most days; 9, 0, negative values=missing
l6182	F15c: Frequency respondent & partner calmly talk over something (e.g. news, hobby/interest) in a week	1=never; 2=less than once a week; 3=1-3 times a week; 4=most days; 9, 0, negative values=missing
l6183	F15d: Frequency respondent & partner kiss & hug in a week	1=never; 2=less than once a week; 3=1-3 times a week; 4=most days; 9, 0, negative values=missing
l6184	F15e: Frequency respondent & partner make plans in a week	1=never; 2=less than once a week; 3=1-3 times a week; 4=most days; 9, 0, negative values=missing
l6185	F15f: Frequency respondent & partner talk over feelings/worries in a week	1=never; 2=less than once a week; 3=1-3 times a week; 4=most days; 9, 0, negative values=missing
	LMPBond $\alpha=.85$	

Supplementary Table S66. Mother-Partner Relationship Quality: Mother-to-Partner: Verbal Violence (8 years and 1 month)

Code	Item	Values
n3030	D19: Mother has sworn at partner	1=no; 2=sometimes; 3= often; 9, negative values=missing
n3032	D21: Mother has ordered partner around	1=no; 2=sometimes; 3= often; 9, negative values=missing
n3034	D23: Mother has insulted or shamed partner in front of others	1=no; 2=sometimes; 3= often; 9, negative values=missing
	BNPVerbalVio $\alpha=.53$	

Supplementary Table S67. Mother-Partner Relationship Quality: Partner-to-Mother: Verbal Violence (8 years and 1 month)

Code	Items	Values
n3031	D20: Partner has sworn at mother	1=no; 2=sometimes; 3= often; 9, negative values=missing
n3033	D22: Partner has ordered mother around	1=no; 2=sometimes; 3= often; 9, negative values=missing
n3035	D24: Partner has insulted or shamed mother in front of others	1=no; 2=sometimes; 3= often; 9, negative values=missing
	NPMVerbalVio $\alpha=.60$	

Supplementary Table S68. Mother-Partner Relationship Quality: Mother-to-Partner: Physical Violence (8 years and 1 month)

Code	Variable	Values
n3036	D25: Mother has pushed, grabbed or shoved partner	1=no; 2=sometimes; 3= often; 9, negative values=missing
n3038	D27: Mother has ever slapped partner	1=no; 2=sometimes; 3= often; 9, negative values=missing
n3040	D29: Mother has ever shaken partner	1=no; 2=sometimes; 3= often; 9, negative values=missing
n3042	D31: Mother has ever thrown an object at partner	1=no; 2=sometimes; 3= often; 9, negative values=missing
n3044	D33: Mother has ever kicked, bitten or hit partner with a fist	1=no; 2=sometimes; 3= often; 9, negative values=missing
n3046	D35: Mother has ever tried to hit partner with something	1=no; 2=sometimes; 3= often; 9, negative values=missing
	NMPPhysicalVio $\alpha=.75$	

Supplementary Table S69. Mother-Partner Relationship Quality: Partner-to-Mother: Physical Violence (8 years and 1 month)

Code	Item	Values
n3037	D26: Partner has pushed, grabbed or shoved mother	1=no; 2=sometimes; 3= often; 9, negative values=missing
n3039	D28: Partner has ever slapped mother	1=no; 2=sometimes; 3= often; 9, negative values=missing
n3041	D30: Partner has ever shaken mother	1=no; 2=sometimes; 3= often; 9, negative values=missing
n3043	D32: Partner has ever thrown an object at mother	1=no; 2=sometimes; 3= often; 9, negative values=missing
n3045	D34: Partner has ever kicked, bitten or hit mother with a fist	1=no; 2=sometimes; 3= often; 9, negative values=missing
n3051	D40: Partner has ever tried to throw mother bodily	1=no; 2=sometimes; 3= often; 9, negative values=missing
	NPMPPhysicalVio $\alpha=.76$	

Supplementary Table S70. Mother-Partner Relationship Quality: Mother-to-Partner: Extreme Violence (8 years and 1 month)

Code	Item	Values
n3052	D41: Mother has ever beaten partner up	1=no; 2=sometimes; 3= often; 9, negative values=missing
n3054	D43: Mother has ever tried to choke or strangle partner	1=no; 2=sometimes; 3= often; 9, negative values=missing
n3056	D45: Mother has ever threatened partner with a knife or other weapon	1=no; 2=sometimes; 3= often; 9, negative values=missing
n3058	D47: Mother has ever used a knife or other weapon on partner	1=no; 2=sometimes; 3= often; 9, negative values=missing
	NMPExtremeVio $\alpha=.59$	

Supplementary Table S71. Mother-Partner Relationship Quality: Partner-to-Mother: Extreme Violence (8 years and 1 month)

Code	Item	Values
n3053	D42: Partner has ever beaten mother up	1=no; 2=sometimes; 3= often; 9, negative values=missing
n3055	D44: Partner has ever tried to choke or strangle mother	1=no; 2=sometimes; 3= often; 9, negative values=missing
n3057	D46: Partner has ever threatened mother with a knife or other weapon	1=no; 2=sometimes; 3= often; 9, negative values=missing
n3059	D48: Partner has ever used a knife or other weapon on mother	1=no; 2=sometimes; 3= often; 9, negative values=missing
	NPMExtremeVio $\alpha=.61$	

Supplementary Table S72. Outcome Variables: Depression from Short Moods and Feelings Questionnaire (Angold, Messe, Pickles, Winder & Silver, 1995) (13 years and 6 months)

Code	Variable	Values
Fg7210_R	Teenager felt miserable or unhappy in the last weeks	1=not at all; 2=sometimes; 3=true; negative values=missing
Fg7211	Teenager has been having fun in the last two weeks	1=true; 2=sometimes 3=not at all; negative values= missing
Fg7212_R	Teenager didn't enjoy anything at all in the last two weeks	1=not at all; 2=sometimes; 3=true; negative values=missing
Fg7213_R	Teenager felt so tired he/she just sat around and did nothing	1=not at all; 2=sometimes; 3=true; negative values=missing
Fg7214_R	Teenager was very restless in the last two weeks	1=not at all; 2=sometimes; 3=true; negative values=missing
Fg7215_R	Teenager felt he/she was no good any more in the last two weeks	1=not at all; 2=sometimes; 3=true; negative values=missing
Fg7216_R	Teenager cried a lot in the last two weeks	1=not at all; 2=sometimes; 3=true; negative values=missing
Fg7217	Teenager felt happy in the last two weeks	1=true; 2=sometimes 3=not at all; negative values= missing
Fg7218_R	Teenager found it hard to think properly or concentrate in the last two weeks	1=not at all; 2=sometimes; 3=true; negative values=missing
Fg7219_R	Teenager hated him/herself in the last two weeks	1=not at all; 2=sometimes; 3=true; negative values=missing
Fg7220	Teenager enjoyed doing lots of things in the last two weeks	1=true; 2=sometimes 3=not at all; negative values= missing
Fg7221_R	Teenager was a bad person in the last two weeks	1=not at all; 2=sometimes; 3=true; negative values=missing
Fg7222_R	Teenager felt lonely in the last two weeks	1=not at all; 2=sometimes; 3=true; negative values=missing
Fg7223_R	Teenager thought nobody really loved her/him in the last two weeks	1=not at all; 2=sometimes; 3=true; negative values=missing
Fg7224_R	Teenager thought he/she could never be as good as other kids in the last two weeks	1=not at all; 2=sometimes; 3=true; negative values=missing
Fg7225_R	Teenager did everything wrong in the last two weeks	1=not at all; 2=sometimes; 3=true; negative values=missing
	Depression13 $\alpha = .86$	

Supplementary Table S73. Outcome Variables: Depression from Short Moods and Feelings Questionnaire (Angold, Messe, Pickles, Winder & Silver, 1995) (16 years and 6 months)

Code	Variable	Values
Ccs4500_R	Teenager felt miserable or unhappy in the last weeks	1=not at all; 2=sometimes; 3=true; negative values=missing
Ccs4501	Teenager has been having fun in the last two weeks	1=true; 2=sometimes 3=not at all; negative values= missing
Ccs4502_R	Teenager didn't enjoy anything at all in the last two weeks	1=not at all; 2=sometimes; 3=true; negative values=missing
Ccs4503_R	Teenager felt so tired he/she just sat around and did nothing	1=not at all; 2=sometimes; 3=true; negative values=missing
Ccs4504_R	Teenager was very restless in the last two weeks	1=not at all; 2=sometimes; 3=true; negative values=missing
Ccs4505_R	Teenager felt he/she was no good any more in the last two weeks	1=not at all; 2=sometimes; 3=true; negative values=missing
Ccs4506_R	Teenager cried a lot in the last two weeks	1=not at all; 2=sometimes; 3=true; negative values=missing
Ccs4507	Teenager felt happy in the last two weeks	1=true; 2=sometimes 3=not at all; negative values= missing
Ccs4508_R	Teenager found it hard to think properly or concentrate in the last two weeks	1=not at all; 2=sometimes; 3=true; negative values=missing
Ccs4509_R	Teenager hated him/herself in the last two weeks	1=not at all; 2=sometimes; 3=true; negative values=missing
Ccs4510	Teenager enjoyed doing lots of things in the last two weeks	1=true; 2=sometimes 3=not at all; negative values= missing
Ccs4511_R	Teenager was a bad person in the last two weeks	1=not at all; 2=sometimes; 3=true; negative values=missing
Ccs4512_R	Teenager felt lonely in the last two weeks	1=not at all; 2=sometimes; 3=true; negative values=missing
Ccs4513_R	Teenager thought nobody really loved her/him in the last two weeks	1=not at all; 2=sometimes; 3=true; negative values=missing
Ccs4514_R	Teenager thought he/she could never be as good as other kids in the last two weeks	1=not at all; 2=sometimes; 3=true; negative values=missing
Ccs4515_R	Teenager did everything wrong in the last two weeks	1=not at all; 2=sometimes; 3=true; negative values=missing
Ccs4516	Has felt they had a good time in the past two weeks	1=true; 2=sometimes 3=not at all; negative values= missing
	Depression16 $\alpha=.90$	

Supplementary Table S74. Outcome Variables: Bachman Self-Esteem Scale (RSE-B) (Angold et al., 1995) (17 years and 6 months)

Code	Variable	Values
CCXD850_R	Q17a: YP feels that they are a person of worth, at least on an equal plane with others	5=almost always true; 4=often true; 3=sometimes true; 2=not often true; 1=never true; 6, negative values = missing
CCXD851_R	Q17b: YP feels that they have a number of good qualities	5=almost always true; 4=often true; 3=sometimes true; 2=not often true; 1=never true; 6, negative values = missing
CCXD852_R	Q17c: YP feels they are able to do things as well as most other people	5=almost always true; 4=often true; 3=sometimes true; 2=not often true; 1=never true; 6, negative values = missing
CCXD853	Q17d: YP feels that they do not have much to be proud of	1=almost always true; 2=often true; 3=sometimes true; 4=not often true; 5=never true; 6, negative values = missing
CCXD854_R	Q17e: YP takes a positive attitude towards themselves	5=almost always true; 4=often true; 3=sometimes true; 2=not often true; 1=never true; 6, negative values = missing
CCXD855	Q17f: YP thinks they are no good at all	1=almost always true; 2=often true; 3=sometimes true; 4=not often true; 5=never true; 6, negative values = missing
CCXD856_R	Q17g: YP feels they are a useful person to have around	5=almost always true; 4=often true; 3=sometimes true; 2=not often true; 1=never true; 6, negative values = missing
CCXD857	Q17h: YP feels they cannot do anything right	1=almost always true; 2=often true; 3=sometimes true; 4=not often true; 5=never true; 6, negative values = missing
CCXD858_R	Q17i: YP feels that when they do a job, they do it well	5=almost always true; 4=often true; 3=sometimes true; 2=not often true; 1=never true; 6, negative values = missing
CCXD859	Q17j: YP feels that their life is not very useful	1=almost always true; 2=often true; 3=sometimes true; 4=not often true; 5=never true; 6, negative values = missing
	SE17.5 $\alpha=.89$	

Supplementary Table S75. Outcome Variables: SDQ (Goodman, 1997) (16 years and six months)

Code	Variable	Values
Tcpemotion	Emotional Scale	
	I get a lot of headaches	0=not true; 1=somewhat true; 2=certainly true
	I worry a lot	0=not true; 1=somewhat true; 2=certainly true
	I am often unhappy	0=not true; 1=somewhat true; 2=certainly true
	I am nervous in new situations	0=not true; 1=somewhat true; 2=certainly true
	I have many fears	0=not true; 1=somewhat true; 2=certainly true
Tcpconduct	Conduct Problems Scale	
	I get very angry	0=not true; 1=somewhat true; 2=certainly true
	I usually do as I am told	2=not true; 1=somewhat true; 0=certainly true
	I fight a lot	0=not true; 1=somewhat true; 2=certainly true
	I am often accused of lying or cheating	0=not true; 1=somewhat true; 2=certainly true
	I take things that are not mine	0=not true; 1=somewhat true; 2=certainly true
Tcphyper	Hyperactivity Scale	
	I am restless	0=not true; 1=somewhat true; 2=certainly true
	I am constantly fidgeting	0=not true; 1=somewhat true; 2=certainly true
	I am easily distracted	0=not true; 1=somewhat true; 2=certainly true
	I think before I do things	2=not true; 1=somewhat true; 0=certainly true
	I finish the work I am doing	0=not true; 1=somewhat true; 2=certainly true
Tcpeer	Peer Problems Scale	
	I am usually on my own	0=not true; 1=somewhat true; 2=certainly true
	I have one goof friend or more	2=not true; 1=somewhat true; 0=certainly true
	Other people my age generally like me	2=not true; 1=somewhat true; 0=certainly true
	Other children or younger people pick on me	0=not true; 1=somewhat true; 2=certainly true
	I get on better with adults than with people my age	0=not true; 1=somewhat true; 2=certainly true

Supplementary Table S76. Outcome Variables: Peer Bullying Victim at age (Adapted version of Olweus Bullying Questionnaire (Olweus, 2007) (17 years and 6 months)

Code	Variable	Values
FJPC4000	Frequency was directly bullied	1=never; 2=not much; 3=quite a lot; 4= a lot; negative values= missing
FJPC4100	Frequency was relationally bullied	1=never; 2=not much; 3=quite a lot; 4= a lot; negative values= missing
FJPC4200	Frequency was cyber bullied	1=never; 2=not much; 3=quite a lot; 4= a lot; negative values= missing
	TF4_PeerV $\alpha = .56$	

Supplementary Table S77. Outcome Variables: Peer Bully at age (17 years and six months)

Code	Variable	Values
FJPC4250	Frequency cyber bullied someone	1=never; 2=not much; 3=quite a lot; 4= a lot; negative values= missing
FJPC4050	Frequency bullied directly someone	1=never; 2=not much; 3=quite a lot; 4= a lot; negative values= missing
FJPC4150	Frequency relationally bullied someone	1=never; 2=not much; 3=quite a lot; 4= a lot; negative values= missing
	TF4_PeerB $\alpha = .51$	

Appendix E

Tables of the missing data analysis: Exactly the same analyses were carried out as with the original data.

Table 1. Preliminary Correlation Analysis Sibling Bullying Perpetrator and Victim with all Precursor Variables

Variable	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.
1. Sibling Bullying Perpetrator at 12.5^a															
2. Sibling Bullying Victim at 12.5^a	.42* N= 11417														
3. SRQ^b at 4.75^a	-.02 N= 11489	-.08* N= 11444													
4. PRQ^d at 4.75^a	-.04 N= 11484	-.02 N= 11439	.21*** N= 11514												
5. Anxiety (M) at 5.08^a	.07 N= 11489	.09* N= 11444	-.17*** N= 11519	-.09*** N= 11513											
6. Depression (M) at 5.08^a	.07 N= 11489	.09* N= 11444	-.18*** N= 11519	-.11*** N= 11513	.78*** N= 11518										
7. Somaticism (M) at 5.08^a	.10* N= 11489	.07 N= 11444	-.15*** N= 11519	-.08*** N= 11514	.67*** N= 11519	.60*** N= 11519									
8. Self-Esteem (M) at 5.08^a	-.07* N= 11489	-.09 N= 11444	.13*** N= 11519	.09*** N= 11514	-.59*** N= 11519	-.62*** N= 11519	-.40*** N= 11519								
9. Mother-Partner Bond at 6.08^a	-.04 N= 11489	-.04 N= 11444	.06** N= 11519	.05** N= 11514	-.16*** N= 11519	-.20*** N= 11519	-.14*** N= 11519	.21*** N= 11519							
10. MP Verbal Violence at 8.08^a	.07 N= 11489	.05 N= 11444	-.09*** N= 11519	-.04** N= 11514	.19*** N= 11519	.19*** N= 11519	.16*** N= 11519	-.13*** N= 11519	-.10*** N= 11519						
11. MP Physical Violence at 8.08^a	.07* N= 11489	.01 N= 11444	-.04 N= 11519	-.02 N= 11514	.16*** N= 11519	.17*** N= 11519	.14*** N= 11519	-.10*** N= 11519	-.09*** N= 11519	.40*** N= 11519					
12. MP Extreme Violence at 8.08^a	.05 N= 11489	.05 N= 11444	-.02 N= 11519	-.02 N= 11514	.07** N= 11519	.08*** N= 11519	.09*** N= 11519	-.05** N= 11519	-.05** N= 11519	.15*** N= 11519	.36*** N= 11519				
13. PM Verbal Violence at 8.08^a	0.6* N= 11489	.06 N= 11444	-.10*** N= 11519	-.03* N= 11513	.15*** N= 11518	.15*** N= 11519	.14*** N= 11519	-.13*** N= 11519	-.14*** N= 11519	.73*** N= 11519	.36*** N= 11519	.13*** N= 11519			
14. PM Physical Violence at 8.08^a	.04 N= 11489	.03 N= 11444	-.06* N= 11519	-.03 N= 11514	.14*** N= 11519	.14*** N= 11519	.11*** N= 11519	-.08*** N= 11519	-.13*** N= 11519	.29*** N= 11519	.61*** N= 11519	.28*** N= 11519	.41*** N= 11519		
15. PM Extreme Violence at 8.08^a	.02 N= 11489	.03 N= 11444	-.03 N= 11519	-.02 N= 11514	.06*** N= 11519	.07*** N= 11519	.07*** N= 11519	-.04** N= 11519	-.06*** N= 11519	.10*** N= 11519	.24*** N= 11519	.52*** N= 11519	.17*** N= 11519	.50*** N= 11519	
Means (SD) N	11.26 11489.2	12.23 11444	12.29 11519	11.96 11513.6	13.91 11518.6	14.02 11518.8	11.13 11519	43.62 11519	20.81 11519	4.64 11519	6.56 11519	4.02 11519	4.53 11518.8	6.37 11519	4.03 11519

* $p < .05$; ** $p < .01$; *** $p < .001$; *m = $p = .05-.06$; ^a= years of age; ^b=Sibling Relationship Quality; ^c=months; ^d=Peer Relationship Quality; (M)=Maternal; MP=mother towards partner; PM=partner towards mother

Table 2. Preliminary Correlation Analysis Sibling Bullying Perpetrator and Victim with all Outcome Variables

Variable	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1. Sibling Bullying Perpetrator at 12.5 ^a											
2. Sibling Bullying Victim at 12.5 ^a	.42* N= 11417										
3. Peer Bullying Victim at 17.5 ^a	.02 N= 11489	.05* N=11444									
4. Peer Bullying Perpetrator at 17.5 ^a	.06 N= 11489	.05 N= 11444	.52* N= 11519								
5. Depression at 13 ^a	.07 N= 11489	.14* N= 11444	.11** N= 11519	.06 N= 11519							
6. Depression at 16 ^a	.06 N= 11489	.12 N= 11444	.16** N= 11519	.07* N= 11519	.41*** N= 11519						
7. Self-Esteem at 17.5 ^a	-.03 N= 11489	-.12* N= 11444	-.12* N= 11519	-.03 N= 11519	-.30*** N= 11519	-.46*** N= 11519					
8. SDQ Emotion at 16.5 ^a	.03 N= 10999	.06 N= 10957	.11 N= 11027	.02 N= 11027	.24*** N= 11027	.34*** N= 11027	-.28*** N= 11027				
9. SDQ Conduct at 16.5 ^a	.09*** N= 11105	.10 N= 11064	.07 N= 11134	.04 N= 11134	.12*** N= 11134	.21*** N= 11134	-.16*** N= 11134	.32*** N= 10728			
10. SDQ Hyperactivity at 16.5 ^a	.11** N= 11250	.08 N= 11205	.07 N= 11278	.06 N= 11278	.12*** N= 11278	.18*** N= 11278	-.15*** N= 11278	.32*** N= 10846	.46*** N= 10970		
11. SDQ Peer at 16.5 ^a	.06 N= 11029	.07 N= 10985	.12*** N= 11056	.05* N= 11056	.14*** N= 11056	.17*** N= 11056	-.18*** N= 11056	.37*** N= 10677	.19*** N= 10722	.21*** N= 10860	
Mean (SD) N	11.26 11489.2	12.23 11444	3.71 11519	3.40 11519	21.78 11519	24.61 11519	37.86 11519	1.70 11026.8	1.17 11133.6	2.73 11277.8	1.26 11056.2

* $p < .05$; ** $p < .01$; *** $p < .001$; *m = $p = .05-.06$; ^a = years of age

Aim 1. Explore distal factors as predictors and the long-term outcomes of sibling bullying perpetration

Maternal mental health, mother-father relationship quality as precursors of being a perpetrator of sibling bullying

Table 3. Linear Regression Analysis on Maternal Mental Health and its effects on Perpetrators of Sibling Bullying at 12.5 years of age

Variables	Perpetrator of Sibling Bullying at 12.5 years of age		
	B	SE B	B
Maternal Anxiety at 5.08 ^a	-.02	.08*	
Maternal Depression at 5.08 ^a	.01	.09	
Maternal Somaticism at 5.08 ^a	.14	.08	
Maternal Self-Esteem at 5.08 ^a	-.03	.03	
R²	.01		
F₁	F(4, 11471)=51.74, p<.001		
F₂	F(4, 11492)=50.67, p<.001		
F₃	F(4, 11487)=46.29, p<.001		
F₄	F(4, 11494)=26.59, p<.001		
F₅	F(4, 11474)=39.60, p<.001		

* p < .05; ** p < .01; *** p < .001; *m= p=.05-.06; a=age in years

Table 4. Linear Regression Analysis on Mother-Partner Relationship Quality and its effects on Perpetrators of Sibling Bullying at 12.5 years of age

Variables	Perpetrator of Sibling Bullying at 12.5 years of age		
	B	SE B	B
Mother-Partner Bond at 6.08 ^a	-.04	.04	
MP Verbal Violence at 8.08 ^a	.14	.20	
MP Physical Violence at 8.08 ^a	.18	.11	
MP Extreme Violence at 8.08 ^a	.41	.41	
PM Verbal Violence at 8.08 ^a	.03	.10	
PM Physical Violence at 8.08 ^a	-.05	.16	
R²	.01		
F₁	F(6, 11468)=38.70, p<.001		
F₂	F(6, 11490)=13.45, p<.001		
F₃	F(6, 11486)=35.51, p<.001		
F₄	F(6, 11493)=9.10, p<.001		
F₅	F(6, 11473)=12.87, p<.001		

* p < .05, ** p < .01, *** p < .001; *m= p=.05-.06; ^a=age in years MP= mother toward partner; PM= partner towards mother

Table 5. Hierarchical Regression Analysis on Mother-Partner Relationship Quality and its effects on Perpetrators of Sibling Bullying

Variables	Perpetrator of Sibling Bullying at 12.5 years of age								
	B	SE B	β	B	SE B	B	B	SE B	B
Mother-Partner Bond at 6.08 ^a	-.05	.04		-.04	.04		-.04	.04	
MP Verbal Violence at 8.08 ^a				.16	.15		.14	.20	
MP Physical Violence at 8.08 ^a				.16**	.05		.18	.11	
MP Extreme Violence at 8.08 ^a				.40	.40		.41	.41	
PM Verbal Violence at 8.08 ^a							.03	.10	
PM Physical Violence at 8.08 ^a							-.05	.16	
R²	.002			.01			.01		
F₁	F(1, 11473)=47.87, p<.001			F(4, 11470)=56.85, p<.001			F(6, 11468)=38.70, p<.001		
F₂	F(1, 11495)=39.56, p<.001			F(4, 11492)=18.66, p<.001			F(6, 11490)=13.45, p<.001		
F₃	F(1, 11491)=51.51, p<.001			F(4, 11488)=47.31, p<.001			F(6, 11486)=35.70, p<.001		
F₄	F(1, 11473)=47.87, p<.001			F(4, 11470)=56.85, p<.001			F(6, 11468)=38.70, p<.001		
F₄	F(1, 11498)=.54, p=.462			F(4, 11495)=13.36, p<.001			F(6, 11499)=9.10, p<.001		
F₅	F(1, 11478)=6.52, p<.001			F(4, 11475)=16.43, p<.001			F(6, 11473)=12.87, p<.001		
R² change₅	.01***						.000		

* $p < .05$; ** $p < .01$; *** $p < .001$; *m= $p=.05-.06$; ^a=age in years; MP= mother toward partner; PM= partner towards mother

Table 6. Hierarchical Regression Analysis on Mother-Partner Relationship Quality and its effects on Perpetrators of Sibling Bullying

Variables	Perpetrator of Sibling Bullying at 12.5 years of age								
	B	SE B	β	B	SE B	B	B	SE B	β
Mother-Partner Bond at 6.08 ^a	-.05	.04		-.04	.04		-.04	.04	
PM Verbal Violence at 8.08 ^a				.15	.08		.03	.10	
PM Physical Violence at 8.08 ^a				.09	.09		-.05	.16	
MP Verbal Violence at 8.08 ^a							.14	.20	
MP Physical Violence at 8.08 ^a							.18	.11	
MP Extreme Violence at 8.08 ^a							.41	.41	
R²	.002			.01			.01		
F₁	F(1, 11473)=47.87, p<.001			F(4, 11470)=56.85, p<.001			F(6, 11468)=38.70, p<.001		
F₂	F(1, 11495)=39.56, p<.001			F(1, 11493)=16.00, p<.001			F(1, 11490)=13.45, p<.001		
F₃	F(1, 11491)=51.51, p<.001			F(1, 11489)=29.81, p<.001			F(1, 11486)=35.51, p<.001		
F₄	F(1, 11498)=.54, p=.462			F(1, 11496)=10.73, p<.001			F(1, 11493)=9.10, p<.001		
F₅	F(1, 11473)=12.87, p<.001			F(1, 11476)=21.27, p<.001			F(1, 11473)=12.87, p<.001		
R² change	.004						.003		

* $p < .05$; ** $p < .01$; *** $p < .001$; *m= $p=.05-.06$; ^a=age in years; MP= mother toward partner; PM= partner towards mother

Table 7. Linear Regression on significant Maternal Mental Health and Mother-Partner Relationship Quality Factors and their effects on Perpetrators of Sibling Bullying

	Perpetrator of Sibling Bullying at 12.5 years of age		
Variables	B	SE B	B
Maternal Depression 5.08 ^a	.01	.07	
Maternal Somaticism at 5.08 ^a	.13	.09	
Mother-Partner Bond 6.08 ^a	-.03	.04	
MP Verbal Violence at 8.08 ^a	.17	.19	
PM Verbal Violence at 8.08 ^a	.03	.10	
R²	.02		
F₁	F(5, 11469)=63.84, p<.001		
F₂	F(5, 11491)=4406, p<.001		
F₃	F(5, 11486)=48.44, p<.001		
F₄	F(5, 11494)=12.29, p<.001		
F₅	F(5, 11474)=28.53, p<.001		

* p < .05; ** p < .01; *** p < .001; *m= p=.05-.06; ^a=age in years; MP= mother toward partner; PM= partner towards mother

Psychological wellbeing factors as outcomes of sibling bullying

Table 8. Linear Regression Analysis of Sibling Bullying Perpetration and the Psychological Wellbeing of children

	Perpetration of Sibling Bullying at 12.5 years of age				
Outcome Variables	B	SE B	β	R ²	F-Ratio
Depression at 13.5 ^a	.08	.06		.01	F ₁ (1, 11474)=129.25, p<.001 F ₂ (1, 11495)=.07, p=.791 F ₃ (1, 11491)=116.19, p<.001 F ₄ (1, 11498)=33.89, p<.001 F ₅ (1, 11478)=49.96, p<.001
Depression at 16.5 ^a	.10	.08		.01	F ₁ (1, 11474)=96.68, p<.001 F ₂ (1, 11495)=2.89, p=.089 F ₃ (1, 11491)=129.66, p<.001 F ₄ (1, 11498)=63.01, p<.001 F ₅ (1, 11478)=43.53, p<.001
Conduct Problems at 16.5 ^a	.03***	.01		.01	F ₁ (1, 11105)=80.41, p<.001 F ₂ (1, 11086)=117.57, p<.001 F ₃ (1, 11139)=76.97, p<.001 F ₄ (1, 11119)=64.01, p<.001 F ₅ (1, 11064)=67.18, p<.001

* p < .05; ** p < .01; *** p < .001; ^a=age in years

Table 8. Linear Regression Analysis of Sibling Bullying Perpetration and the Psychological Wellbeing of children continued

	Perpetration of Sibling Bullying at 12.5 years of age				
Outcome Variables	<i>B</i>	<i>SE B</i>	β	R^2	<i>F</i> -Ratio
Hyperactivity Problems at 16.5 ^a	.06**	.01		.01	$F_1(1, 11222)=117.72, p<.001$ $F_2(1, 11273)=120.31, p<.001$ $F_3(1, 11246)=117.37, p<.001$ $F_4(1, 11280)=215.84, p<.001$ $F_5(1, 11220)=151.62, p<.001$
Peer Problems at 16.5 ^a	.02	.01		.004	$F_1(1, 11037)=129.28, p<.001$ $F_2(1, 11032)=27.96, p<.001$ $F_3(1, 11044)=10.66, p<.001$ $F_4(1, 10993)=30.01, p<.001$ $F_5(1, 11029)=54.86, p<.001$
Peer Bullying Perpetration at 17.5 ^a	.01	.004		.003	$F_1(1, 11474)=29.29, p<.001$ $F_2(1, 11495)=23.56, p<.001$ $F_3(1, 11491)=94.59, p<.001$ $F_4(1, 11498)=39.38, p<.001$ $F_5(1, 11478)=10.29, p=.001$

* $p < .05$; ** $p < .01$; *** $p < .001$; ^a=age in years

Table 9. Hierarchical Regression Analysis of the Predictor of Peer Bullying at 17.5 while controlling for Internalising Behaviour Problems

	Perpetrator of Peer Bullying at 17.5 years of age					
Variables	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
Depression at 13.5 ^a	.01	.004		.01	.01	
Depression at 16.5 ^a	.01	.003		.01	.003	
Sibling Bullying Perpetration at 12.5 ^a				.01	.004	
R^2		.01			.01	
F_1	$F(2, 11473)=38.64, p<.001$			$F(3, 11472)=32.67, p<.001$		
F_2	$F(2, 11494)=53.21, p<.001$			$F(3, 11493)=43.73, p<.001$		
F_3	$F(2, 11490)=46.93, p<.001$			$F(3, 11489)=56.60, p<.001$		
F_4	$F(2, 11497)=9.20, p<.001$			$F(3, 11496)=18.04, p<.001$		
F_5	$F(1, 11477)=65.00, p<.001$			$F(1, 11476)=45.27, p<.001$		
R^2 change						.003

$p < .05$; ** $p < .01$; *** $p < .001$; ^a=age in years

Table 10. Hierarchical Regression Analysis of the Predictor of Peer Bullying at 17.5 while controlling for Externalising Behaviour Problems

Variables	Perpetrator of Peer Bullying at 17.5 years of age					
	B	SE B	β	B	SE B	β
Conduct Problems at 16.5 ^a	.001	.01		.000	.01	
Hyperactivity Problems at 16.5 ^a	.02	.02		.02	.02	
Peer Problems at 16.5 ^a	.02**	.01		.02**	.01	
Sibling Bullying Perpetration at 12.5 ^a				.01	.01	
R²	.01			.01		
F₁	F(3, 10572)=17.55, p<.001			F(4, 10571)=17.28, p<.001		
F₂	F(3, 10559)=27.08, p<.001			F(4, 10558)=24.05, p<.001		
F₃	F(3, 10596)=19.09, p<.001			F(4, 10595)=31.81, p<.001		
F₄	F(3, 10550)=2.39, p<.001			F(4, 10549)=10.56, p<.001		
F₅	F(3, 10513)=55.72, p<.001			F(4, 10512)=45.33, p<.001		
R² change	.002					

p < .05; ** p < .01; *** p < .001; ^a=age in years

Aim 2: Explore distal factors as predictors and the long-term outcomes of sibling bullying perpetration

Maternal mental health, mother-father relationship quality as precursors of being a victim of sibling bullying

Table 11. Multiple Regression Analysis on Maternal Mental Health and its effects on Victims of Sibling Bullying

Variables	Victim of Sibling Bullying at 12.5 years of age		
	B	SE B	β
Maternal Anxiety at 5.08 ^a	.04	.09	
Maternal Depression at 5.08 ^a	.06	.08	
Maternal Somaticism at 5.08 ^a	.04	.08	
Maternal Self-Esteem at 5.08 ^a	-.03	.05	
R²	.01		
F₁	F(4, 11489)=60.46, p<.001		
F₂	F(4, 11322)=39.40, p<.001		
F₃	F(4, 11468)=24.48, p<.001		
F₄	F(4, 11432)=52.23, p<.001		
F₅	F(4, 11482)=18.47, p<.001		

* p < .05; ** p < .01; *** p < .001; ^a=age in years

Table 12. Linear Regression Analysis on Mother-Partner Relationship Quality and its effects on Victims of Sibling Bullying

Variables	Victim of Sibling Bullying at 12.5 years of age		
	<i>B</i>	<i>SE B</i>	β
Mother-Partner Bond at 6.08 ^a	-.04	.08	
MP Verbal Violence at 8.08 ^a	.08	.33	
MP Physical Violence 8.08 ^a	-.18	.29	
MP Extreme Violence 8.08 ^a	1.11	.93	
PM Verbal Violence 8.08 ^a	.22	.26	
PM Physical Violence 8.08 ^a	.10	.24	
<i>R</i>²	.01		
<i>F</i>₁	<i>F</i> (4, 11486)=54.29, <i>p</i> <.001		
<i>F</i>₂	<i>F</i> (4, 11320)=13.98, <i>p</i> <.001		
<i>F</i>₃	<i>F</i> (4, 11467)=10.23, <i>p</i> <.001		
<i>F</i>₄	<i>F</i> (4, 11430)=23.83, <i>p</i> <.001		
<i>F</i>₅	<i>F</i> (4, 11481)=24.40, <i>p</i> <.001		

* *p* < .05; ** *p* < .01; *** *p* < .001; *m= *p*-.05-.06; ^a=age in years; MP= mother toward partner; PM= partner towards mother

Table 13. Hierarchical Regression Analysis on Mother-Partner Relationship Quality and its effects on Victims of Sibling Bullying

Variables	Victim of Sibling Bullying at 12.5 years of age								
	B	SE B	β	B	SE B	β	B	SE B	β
Mother-Partner Bond at 6.08 ^a	-.06	.08		-.04	.07		-.04	.08	
MP Verbal Violence at 8.08 ^a				.22	.19		.08	.33	
MP Physical Violence at 8.08 ^a				.10	.26		-.18	.29	
MP Extreme Violence at 8.08 ^a				1.32	.95		1.11	.93	
PM Verbal Violence at 8.08 ^a							.22	.26	
PM Physical Violence at 8.08 ^a							.10	.24	
R²	.003			.01			.01		
F₁	F(1, 11491)=139.94, <i>p</i> <.001			F(4, 11488)=80.00, <i>p</i> <.001			F(6, 11486)=54.29, <i>p</i> <.001		
F₂	F(1, 11325)=11.48, <i>p</i> =.001			F(4, 11322)=15.89, <i>p</i> <.001			F(6, 11320)=13.89, <i>p</i> <.001		
F₃	F(1, 11472)=.89, <i>p</i> =.346			F(4, 11469)=3.85, <i>p</i> =.004			F(6, 11467)=10.23, <i>p</i> <.001		
F₄	F(1, 11435)=.18, <i>p</i> =.671			F(4, 11432)=25.00, <i>p</i> <.001			F(6, 11430)=23.83, <i>p</i> <.001		
F₅	F(1, 11486)=36.54, <i>p</i> <.001			F(4, 11483)=19.46, <i>p</i> <.001			F(6, 11481)=24.40, <i>p</i> <.001		
R² change	.01			.003					

* *p* < .05; ** *p* < .01; *** *p* < .001; *m= *p*=.05-.06; ^a=age in years; MP= mother toward partner; PM= partner towards mother

Table 14. Hierarchical Regression Analysis on Mother-Partner Relationship Quality and its effects on Victim of Sibling Bullying

Variables	Victim of Sibling Bullying at 12.5 years of age								
	B	SE B	β	B	SE B	B	B	SE B	β
Mother-Partner Bond at 6.08 ^a	-.06	.08		-.04	.08		-.04	.08	
PM Verbal Violence at 8.08 ^a				.25	.15		.22	.26	
PM Physical Violence at 8.08 ^a				.04	.21		.10	.24	
MP Verbal Violence at 8.08 ^a							.08	.33	
MP Physical Violence at 8.08 ^a							-.18	.29	
MP Extreme Violence at 8.08 ^a							1.11	.93	
R²	.003			.01			.01		
F₁	F(1, 11491)=139.94, p<.001			F(3, 11489)=54.29, p<.001			F(6, 11486)=54.29, p<.001		
F₂	F(1, 11325)=11.48, p=.001			F(3, 11323)=2.39, p<.001			F(6, 11320)=13.98, p<.001		
F₃	F(1, 11472)=.89, p=.346			F(3, 11470)=15.53, p=.004			F(6, 11467)=10.23, p<.001		
F₄	F(1, 11435)=.18, p=.671			F(3, 11433)=13.85, p<.001			F(6, 11430)=23.83, p<.001		
F₅	F(1, 11486)=36.54, p<.001			F(3, 11484)=41.36, p<.001			F(6, 11481)=24.40, p<.001		
R² change	.005						.01		

* $p < .05$; ** $p < .01$; *** $p < .001$; *m= $p=.05-.06$; ^a=age in years; MP= mother toward partner; PM= partner towards mother

Psychological wellbeing as outcomes of sibling bullying victimisation

Table 15. Linear Regression Analysis of Sibling Bullying Victimization and the Psychological Wellbeing of children

	Sibling Bullying Victimization at 12.5 years of age				
Outcome Variables	B	SE B	B	R²	F-Ratio
Depression at 13.5 ^a	.13	.03**		.02	$F_1(1, 11492)=234.92, p<.001$ $F_2(1, 11325)=316.10, p<.001$ $F_3(1, 11472)=87.03, p<.001$ $F_4(1, 11435)=289.05, p<.001$ $F_5(1, 11486)=242.60, p<.001$
Depression at 16.5 ^a	.15	.05*		.01	$F_1(1, 11492)=262.72, p<.001$ $F_2(1, 11325)=334.49, p<.001$ $F_3(1, 11472)=83.83, p<.001$ $F_4(1, 11435)=73.90, p<.001$ $F_5(1, 11486)=134.61, p<.001$
Self-Esteem at 17.5 ^a	-.16	.04**		.02	$F_1(1, 11492)=234.89, p<.001$ $F_2(1, 11325)=307.19, p<.001$ $F_3(1, 11472)=159.29, p<.001$ $F_4(1, 11435)=124.66, p<.001$ $F_5(1, 11486)=106.52, p<.001$
Emotional Problems at 16.5 ^a	.02	.02		.004	$F_1(1, 1101)=72.42, p<.001$ $F_2(1, 10852)=70.24, p<.001$ $F_3(1, 10960)=.36, p=.548$ $F_4(1, 10961)=4.99, p=.026$ $F_5(1, 10999)=91.12, p<.001$
Conduct Problems at 16.5 ^a	.02	.01		.01	$F_1(1, 11122)=21.74, p<.001$ $F_2(1, 10931)=200.49, p<.001$ $F_3(1, 11124)=151.10, p<.001$ $F_4(1, 11061)=151.58, p<.001$ $F_5(1, 11072)=42.19, p<.001$
Hyperactivity Problems at 16.5 ^a	.03	.02		.01	$F_1(1, 11235)=16.90, p<.001$ $F_2(1, 11109)=191.53, p<.001$ $F_3(1, 11227)=86.87, p<.001$ $F_4(1, 11220)=25.84, p<.001$ $F_5(1, 11226)=92.10, p<.001$
Peer Problems at 16.5 ^a	.02	.01		.01	$F_1(1, 11053)=163.52, p<.001$ $F_2(1, 10866)=25.67, p<.001$ $F_3(1, 11027)=18.41, p<.001$ $F_4(1, 10935)=12.31, p<.001$ $F_5(1, 11035)=73.23, p<.001$

* $p < .05$; ** $p < .01$; *** $p < .001$; ^a=age in years

Table 15. Linear Regression Analysis of Sibling Bullying Victimization and the Psychological Wellbeing of children continued

Outcome Variables	Sibling Bullying Victimization at 12.5 years of age				
	B	SE B	B	R ²	F-Ratio
Peer Bullying Perpetration at 17.5 ^a	.01	.003		.003	$F_1(1, 11492)=36.26, p<.001$ $F_2(1, 11325)=55.02, p<.001$ $F_3(1, 11472)=2.45, p=.118$ $F_4(1, 11435)=27.38, p<.001$ $F_5(1, 11486)=37.23, p<.001$
Peer Bullying Victimization at 17.5 ^a	.01**	.003		.003	$F_1(1, 11492)=29.72, p<.001$ $F_2(1, 11325)=63.47, p<.001$ $F_3(1, 11472)=18.76, p<.001$ $F_4(1, 11435)=19.00, p<.001$ $F_5(1, 11486)=28.79, p<.001$

* $p < .05$; ** $p < .01$; *** $p < .001$; ^a=age in years

Table 16. Hierarchical Regression Analysis Sibling Bullying Victimization as a predictor of Peer Bullying Perpetration at 17.5 while controlling for Internalising Behaviour Problems

Variables	Perpetrator of Peer Bullying at 17.5 years of age					
	B	SE B	β	B	SE B	β
Depression at 13.5 ^a	.01	.004		.01	.004	
Depression at 16.5 ^a	.01*	.002		.01	.002*	
Emotional Problems at 16.5 ^a	-.01	.02		-.01	.02	
Sibling Bullying Victimization at 12.5 ^a				.01	.003	
R²	.02			.01		
F₁	$F(3, 10999)=22.31, p<.001$			$F(4, 10998)=21.82, p<.001$		
F₂	$F(3, 10850)=33.49, p<.001$			$F(4, 10849)=32.38, p<.001$		
F₃	$F(3, 10958)=31.13, p<.001$			$F(4, 10957)=23.54, p<.001$		
F₄	$F(3, 10959)=25.34, p<.001$			$F(4, 10958)=24.78, p<.001$		
F₅	$F(3, 10997)=46.06, p<.001$			$F(4, 10996)=38.63, p<.001$		
R² change	.002					

* $p < .05$; ** $p < .01$; *** $p < .001$; ^a=age in years

Table 17. Hierarchical Regression Analysis Sibling Bullying Victimization as a predictor of Peer Bullying Perpetration at 17.5 while controlling for Externalising Behaviour Problems

Variables	Perpetrator of Peer Bullying at 17.5 years of age					
	B	SE B	β	B	SE B	β
Conduct Problems at 16.5 ^a	.001	.01		.000	.01	
Hyperactivity Problems at 16.5 ^a	.02	.02		.02	.02	
Peer Problems at 16.5 ^a	.02*	.01		.02**	.01	
Sibling Bullying Perpetration at 12.5 ^a				.01	.003	
R²	.01			.01		
F₁	F(3, 10586)=17.65, p<.001			F(4, 10585)=19.32, p<.001		
F₂	F(3, 10411)=26.50, p<.001			F(4, 10410)=30.27, p<.001		
F₃	F(3, 10581)=19.11, p<.001			F(4, 10580)=14.44, p<.001		
F₄	F(3, 10498)=2.17, p=.089			F(4, 10487)=7.12, p<.001		
F₅	F(3, 10518)=55.68, p<.001			F(4, 10517)=47.15, p<.001		
R² change	.002					

p < .05; ** p < .01; *** p < .001; ^a=age in years

Table 18. Hierarchical Regression Analysis Sibling Bullying Victimization as a predictor of Peer Bullying Victimization at 17.5 while controlling for Internalising Behaviour Problems

Variables	Victim of Peer Bullying at 17.5 years of age					
	B	SE B	β	B	SE B	β
Depression at 13.5 ^a	.01	.01		.01	.01	
Depression at 16.5 ^a	.02***	.002		.02	.002	
Emotional Problems at 16.5 ^a	.03	.02		.03	.02	
Sibling Bullying Victimization at 12.5 ^a				.01*	.002	
R²	.03			.03		
F₁	F(3, 1099)=124.18, p<.001			F(4, 10998)=94.57, p<.001		
F₂	F(3, 10850)=151.56, p<.001			F(4, 10849)=118.04, p<.001		
F₃	F(3, 10958)=130.17, p<.001			F(4, 10957)=100.05, p<.001		
F₄	F(3, 10959)=66.60, p<.001			F(4, 10958)=52.04, p<.001		
F₅	F(3, 10997)=140.35, p<.001			F(4, 10996)=106.89, p<.001		
R² change	.0008					

p < .05; ** p < .01; *** p < .001; ^a=age in years

Table 19. Hierarchical Regression Analysis Sibling Bullying Victimization as a predictor of Peer Bullying Victimization at 17.5 while controlling for Internalising Behaviour Problems

Variables	Perpetrator of Peer Bullying at 17.5 years of age					
	B	SE B	β	B	SE B	β
Conduct Problems at 16.5 ^a	.02	.03		.02	.03	
Hyperactivity Problems at 16.5 ^a	.02	.02		.02	.02	
Peer Problems at 16.5 ^a	.07***	.01		.07***	.01	
Sibling Bullying Perpetration at 12.5 ^a				.01*	.002	
R²	.02			.02		
F₁	F(3, 10586)=74.72, p<.001			F(4, 10585)=59.33, p<.001		
F₂	F(3, 10411)=112.51, p<.001			F(4, 10410)=93.43, p<.001		
F₃	F(3, 10581)=52.81, p<.001			F(4, 10580)=42.56, p<.001		
F₄	F(3, 10498)=41.63, p=.089			F(4, 10497)=34.69, p<.001		
F₅	F(3, 10518)=85.89, p<.001			F(4, 10517)=68.20, p<.001		
R² change	.001					

p < .05; ** p < .01; *** p < .001; ^a=age in years

