

Original Article:

**What has changed from 2001 to 2012 for sexual minority youth
in New Zealand?**

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Abstract

Aim: To provide an overview of the health and wellbeing of sexual minority high school students in New Zealand, investigate differences between sexual minority youth (SMY) and exclusively opposite-sex attracted youth (EOSAY) and examine changes across survey waves.

Methods: Nationally representative cross-sectional surveys were completed in 2001 (n=9011), 2007 (n=8002) and 2012 (n=8167). Logistic regressions were used to examine the associations between selected outcomes according to sexual attraction across survey waves.

Results: SMY accounted for 6% of participants in all three waves, with a greater proportion being “out” in 2012 ($p < 0.0001$). SMY were more likely to work as volunteers (OR=1.37) than EOSAY, and the majority of SMY reported good general health, liking school, and having caring friends. With the exceptions of binge drinking and being driven by someone dangerously, SMY reported comparatively diminished health and wellbeing, relative to EOSAY. Increasing proportions of SMY had depressive symptoms (2001 OR=2.38, 2012 OR=3.73) compared to EOSAY. There were some interactions by sex; female SMY were less likely to report positive family relationships (OR=0.59) and liking school (OR=0.55), and they were more likely to have been hit (2012 OR=1.95), than female EOSAY. Male SMY reported especially high rates of suicide attempts (2012 OR=5.64) compared to male EOSAY.

Conclusions: Health services, schools, communities and families must be more responsive to the needs of SMY, to ensure that disparities are addressed.

Key words: gay, lesbian, bisexual; wellbeing, adolescent

What is already known on this topic:

1. Sexual minority youth experience compromised health and wellbeing relative to exclusively opposite-sex attracted youth.
2. Sexual minority youth are often “problematized”, but this locates the issues as internal to the young person, rather than reflecting the impact of challenging environments.
3. The milieu in which young people live has a significant impact on their health and wellbeing.

What this paper adds:

1. A greater proportion of sexual minority youth were ‘out’ in 2012 (in comparison to the earlier survey waves in 2001 and 2007).
2. There has been no progress in relation to bullying and suicide attempts for sexual minority youth, and increasing proportions of sexual minority youth reported depressive symptoms from 2001 to 2012.
3. Despite the challenging environments, most sexual minority youth reported good general health, liking school and having caring friends, and many contribute to their communities through volunteering.

Introduction

Historically there has been a lack of systematic research on sexual minority individuals.

¹ However in recent years longitudinal and cross-sectional surveys have demonstrated that numerous disparities exist when sexual minority youth (SMY) are compared to exclusively opposite-sex attracted young people (EOSAY).²⁻⁸ The elevated rates of ill-health and the disparities for SMY are not related to sexuality per se, but are best understood as being a result of sexual minority-specific victimization.^{9, 10} This relationship has been highlighted lately in studies where this type of abuse was directly linked to suicidality and depression in SMY.^{9, 10} While there are disparities, there have also been some social improvements, as evident by the availability of same-sex marriages in over 17 countries and international campaigns such as “It Gets Better” (<http://www.itgetsbetter.org/>).¹¹ It is therefore plausible that based on these social changes, and because there have been improvements in regards to the health of young people overall,^{12, 13} that the health and wellbeing of SMY has improved over time. There is a need to monitor potential health changes at a population level, so targeted action can be taken.¹⁴ Nonetheless, to the best of the authors’ knowledge, no prior studies have investigated whether key experiences of SMY have improved over time, based on cross-sectional data from nationally representative samples.

It is important to consider how sexuality is defined, because this requires an appreciation of developmental factors. For example, high school students in industrialized countries mostly report not having sexual intercourse¹²; therefore, using sexual behaviour as the primary means of determining adolescent sexuality is limited. Sexual identity labels, such as lesbian, gay, bisexual (LGB) and straight/heterosexual

are commonly used by adolescents;¹⁵ yet many youth who are sexually attracted to people of the same sex or both sexes do not necessarily identify themselves as LGB.^{15,}

¹⁶ Various reasons could account for this. For instance, many of those who will eventually describe themselves as LGB may not yet have come out to themselves or others¹⁷ and some may instead prefer terms like “queer” or “questioning”.¹⁵ After reviewing school-based health surveys, Saewyc and colleagues¹⁸ suggested that if only one sexuality item were to be permitted on a health survey, it should be a sexual attraction question. Moreover, same-sex sexual attractions are highly correlated with same-sex sexual behaviour and self-identification as LGB.¹⁹

The present study utilizes nationally representative data from more than 25,000 students over three waves of a cross-sectional survey. This study’s design is particularly useful as other research over time has tended to be longitudinal,²⁻⁶ or selected participants based on their sexual identity.^{9,20} In the current research comparisons between time points and sexual attraction groups can be made, because the sample is representative and the results are not confounded by having the same participants (as they would be in a longitudinal study). Furthermore, participants were surveyed about a range of risk and protective factors and health and wellbeing indicators, so that the strengths and challenges of SMY could be investigated simultaneously.

Materials and methods

The Youth2000 surveys are cross-sectional, self-administered questionnaires, carried out with representative samples of New Zealand secondary school students. The surveys were conducted in 2001, 2007 and 2012. The anonymous surveys were completed by students at school using multimedia, computer-assisted, self-interviewing

technology on laptop computers in 2001, or on internet tablets in 2007 and 2012.²¹

Questions appeared in text and were read out loud via a voice-over; students could only hear the voice-over for their own survey on individual headphones. To ensure maximal privacy for participants: study personnel administered the survey in venues such as the school hall or gymnasium; the seating was carefully arranged, so that participants were at a sufficient distance from each other; and, no school staff were present in the venue whilst students were completing the survey. Detailed descriptions of the surveys' methodologies are available elsewhere¹² (see also <http://www.fmhs.auckland.ac.nz/faculty/ahrg/>).

Each student provided their consent before completing the survey. Ethics approval was obtained from the University of Auckland Human Participants Ethics Committee.

Measures

Demographic information. Participants were asked: "what sex are you?" and their age in years. Students indicated the ethnic groups that they belonged to using the NZ Census standard 2001/2006 ethnicity questions.²² Those participants who chose more than one ethnicity were assigned a single ethnic group based on an ethnicity prioritization method.²³ Sexual attraction was determined by the question: "Which are you sexually attracted to?" and the responses were 'the opposite sex (e.g., I am a male attracted to females or I am a female attracted to males)', 'the same sex (e.g., I am a male attracted to males or I am a female attracted to females)', 'both sexes (e.g., I am attracted to males and females)', 'not sure' or 'neither'. Analyses categorized participants into: those attracted to the opposite sex (EOSAY) and those attracted to the same sex, both sexes and those not sure (SMY). Neither sex attracted students were

excluded from analyses. It was inappropriate to include neither sex attracted students in the SMY group, as they do not appear to experience comparable issues.⁸ The combined SMY group was created as prior research has grouped those attracted to the same sex, both sexes and not sure into a single category.^{10, 24} Furthermore, previous studies have indicated that this group's health is diminished relative to EOSAY.^{8, 25, 26}

Coming out. Those same/both-sex attracted students who gave an affirmative response to “have you come out (told people close to you openly of your sexuality)?” were classified as “has come out”.

Risk and protective factors & health and wellbeing indicators. Selected factors and indicators were chosen for analysis a priori, based on their importance for adolescent health and wellbeing (see Tables 3-8).

Analyses

In all analyses the data have been weighted by the inverse probability of selection and the variance of estimates were adjusted to allow for correlated data from the same schools. Total numbers and adjusted percentages were calculated for the various outcomes and indicators according to sex and sexual attraction by survey wave. Logistic regression models, including the possible confounders of age, sex and ethnicity, were used to investigate the associations between sexual attraction and the various outcomes or indicators. For each outcome or indicator the interactions with sex, sexual attraction and survey wave (controlled for by age and ethnicity) were investigated to see whether further analyses should be separated by sex. Firstly, the three-way interaction was tested, and where this interaction was significant ($p < 0.01$)

further analyses were stratified by sex. If the three-way interaction was not significant the two-way interaction between sex and sexual attraction (controlled for by wave, ethnicity and age) was tested and, where this was significant, further analyses were stratified by sex. The interactions between wave and sexual attraction [controlled for by ethnicity, age and sex (if sex was not stratified)] were then tested, and where this interaction was significant analyses were separated by wave. All analyses were carried out using SAS software version 9.3 (2010) survey procedures. Differences are interpreted conservatively (i.e., a p-value of ≤ 0.01 was taken to indicate statistical significance) given the sample size and number of comparisons.

Results

The overall proportions of SMY across the three survey waves were similar (Table 1) and Table 2 highlights that SMY were varied and represented across sex, age and ethnicity.

Insert Tables 1 & 2 about here

The proportion of same/both-sex attracted students who had come out had increased between the survey waves ($p < 0.0001$); approximately a third were out in 2001 ($n=109$, 31.3%, 95% CI 26.6-36.1), compared to approximately forty percent in 2007 ($n=135$, 39.8%, 95% CI 33.7-45.9) and over half in 2012 ($n=158$, 53.1%, 95% CI 48.2-58.0).

Most SMY across all three survey waves reported that they had caring friends, that they were not bullied on a weekly basis and that they liked school (a lot, a bit, thought school was okay) (Table 3). Additionally, there was a general pattern of improvements in relation to family relationships and reductions in being hit for SMY and EOSAY when

the results from 2001 are compared to the results from 2012. There were some significant interactions by sex in relation to liking school ($p=0.008$), family relationships ($p=0.008$) and being hit ($p=0.003$) (Table 3).

Insert Table 3 about here

The majority of SMY reported having good general health and most did not report clinically significant depressive symptoms, attempting suicide or binge drinking (Table 4). There was a general pattern of improvements in relation to recent binge drinking and being driven by someone dangerously for SMY and EOSAY when the results from 2007 are compared to the results from 2012. There was a significant interaction by survey wave in relation to depressive symptoms ($p=0.009$) and a significant interaction by sex in relation to suicide attempts ($p<0.0001$) (Table 4).

Insert Table 4 about here

For further analyses, where data were combined by sex and survey wave, SMY were significantly less likely to have friends that cared about them ($OR=0.72$) and to have rated their general health as good ($OR=0.46$), and they were more likely to have been bullied ($OR=2.88$) in comparison to EOSAY. However, SMY were more likely to have worked as volunteers ($OR=1.37$) than EOSAY. SMY were statistically no more likely to have engaged in recent binge drinking or being driven dangerously (Table 5).

Insert Table 5 about here

For analyses where data were separated by survey wave, SMY were more likely to report clinically significant depressive symptoms in all three waves, and the disparities

in relation to this outcome increased between 2001 (OR=2.38), 2007 (OR=3.55), and 2012 (OR=3.73) (Table 6).

Insert Table 6 about here

Where analyses were separated for males and females (see Tables 7 and 8), male and female SMY were less likely to report liking school and positive family relationships. However, the differences were more pronounced amongst female SMY, when they were compared to female EOSAY, than male SMY when they were compared to male EOSAY (e.g. female SMY OR=0.59 compared to female EOSAY, and male SMY OR=0.73 compared to male EOSAY, for positive family relationships). Male SMY were no more likely to have been hit, than male EOSAY. However, female SMY were more likely to have been hit, compared to female EOSAY in 2007 (OR=2.30) and 2012 (OR=1.95).

The item on suicide attempts is not directly comparable across survey waves due to differences in question branching between 2001, 2007 and 2012. However, sexual minority youth were at increased risk of suicide attempts in every survey wave, with male SMY being at especially high risk of this when compared to male EOSAY (e.g. in 2007 OR=7.65).

Insert Tables 7 & 8 about here

Discussion

In this series of cross-sectional national surveys, the majority of students who were SMY reported good general health. Most SMY liked school and had friends that cared. SMY were more likely (than other students) to work as volunteers. This is a notable

finding, as the authors of this study are unaware of any population-based studies which have indicated that SMY are significantly more likely to report an asset²⁷ such as this relative to EOSAY. However, compared to EOSAY, SMY were significantly more likely to experience difficulties in relation to their family, school and community environments. Over an 11 year period there have been significant changes for SMY, such that an increasing percentage had come out and the rates of depression had worsened, whilst there was little overall change in depressive symptoms for the majority.¹³ Why this should occur in the context of improvements in relationships and declining substance use, with little change in depression for EOSAY, is not clear and warrants further attention.

Strengths and limitations

This study provides a rare opportunity to consider changes for SMY over time as the results are drawn from a nationally representative survey series. This is of value as there is a shortage of population-based research on SMY.²⁸ Our analyses are unique as they reflect a socio-ecological approach by investigating a broad range of variables and recognise the importance of supportive environments for healthy development.²⁹ A prior criticism of studies conducted in the field is the lack of data on ethnicity.¹ The current study included this information, thus highlighting that SMY are represented across the main ethnic groups in New Zealand.

It should be noted that the cross-sectional nature of the surveys mean that although a number of associations have been observed, causality cannot be determined. There is also the potential for bias due to a reliance on self-report. Moreover, slight changes to the survey items and the branching of the questionnaire may have impacted upon the

comparability of some factors or indicators across the survey waves, although these changes are highlighted in the tables. Students were not asked a question about whether they were transgender (except in Youth'12, the results of this are reported elsewhere³⁰) or whether they were intersex. As a result of not asking these questions across the survey waves (or not at all) this detail is not included.

Comparisons with prior research

Our findings of disparities between SMY and EOSAY are consistent with previous research. Meta-analyses have demonstrated that SMY are more likely to attempt suicide³¹, experience depressive symptoms³¹ and report higher rates of substance use³². Our results reflect these findings, but also add to them. For example, rates of binge drinking have decreased overall in NZ¹², and rates of this appeared elevated in SMY, but the differences were statistically non-significant in this study. Furthermore, Fergusson and colleagues found that a greater proportion of sexual minority males than sexual minority females had attempted suicide in their longitudinal study.⁴ Whereas our results found that despite male SMY being at an elevated risk of suicide (compared to other males) a greater proportion of female SMY reported attempting suicide, in comparison to male SMY. Other significant sex differences in relation to liking school, family relationships and being hit were also observed in our study. Similar differences have been highlighted in the Add Health Study, where female SMY were less likely to report positive school attitudes and family interactions than female EOSAY.³³ Future research with representative samples of SMY should further examine differences according to sex.³⁴

This study highlights the need for up-to-date research, as we have found some changes from 2001 to 2012. Positive changes pertaining to relationships, substance use, risky driving, violence and suicide attempts from 2001 to 2012 for NZ secondary school students overall have been previously reported,¹² but we have been unable to find similar results highlighting any positive trends for SMY. However, research from Australia's large "Writing Themselves in 3" study also noted, over more than a decade, that SMY were coming out at an earlier age,²⁰ and this change was hypothesised as being related to social and political progress.²⁰

The majority of SMY in our study reported good general health. As previous research among SMY has focussed on identifying risk factors for negative outcomes,^{17, 34} this general health finding is important, as it highlights the resilience of SMY. This finding helps to illustrate that most SMY are healthy, suggesting that the majority will develop into happy and productive adults.^{17, 35} Future research should investigate differences within the wider sexual minority group, factors associated with resilience, as well as detecting trends and/or changes over time. Studies on changes over time will be especially important for assisting us in understanding contemporary needs and evaluating the impact of social factors and government policies.

Finally, despite commentary reminding us that "...In most respects youths with same-sex attractions are similar to all youths",^{17, p. 6} SMY in our study reported mistreatment, poorer experiences of family support and having caring friends than EOSAY. Family, friends and positive environments are important for all adolescents, but may be of particular relevance to SMY in acting as protective factors against victimization and bullying.³⁶⁻³⁸

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Table 1. Overall proportions that responded to the sexual attraction question by survey wave

	Youth'12[†] n/N(%)	Youth'07 n/N(%)	Youth'01 n/N(%)
Exclusively opposite-sex attracted	7336/8167 (89.9%)	7370/8002 (92.2%)	8308/9011 (92.1%)
Sexual minority	485/8167(5.9%)	486/8002 (6.0%)	552/9011 (6.1%)
Neither sex attracted[^]	168/8167 (2.0%)	146/8002 (1.8%)	151/9011 (1.7%)

[†]In Youth'12 students could respond "I don't understand this question" to the sexual attraction question (this response option was not available in Youth'07 or Youth'01). Just over two percent (2.2%, 178/8167) of students responded that they did not understand the question in Youth'12 and these students are excluded from all analyses. [^]For completeness of data those attracted to neither sex are only reported upon in this table, subsequent analyses only include those who were exclusively opposite-sex attracted or sexual minority youth.

Table 2. Demographics of exclusively opposite-sex attracted and sexual minority students by survey wave

	Sex		Age		Ethnicity				
	<i>Male</i> n (%)	<i>Female</i> n (%)	<i>15 or less</i> n (%)	<i>16 or older</i> n (%)	<i>NZ European</i> n (%)	<i>Māori</i> n (%)	<i>Pacific</i> n (%)	<i>Asian</i> n (%)	<i>Other</i> n (%)
Exclusively opposite-sex attracted									
Youth'12	3357 (95.0%)	3978 (92.9%)	4717 (94.5%)	2611 (92.6%)	3660 (94.6%)	1469 (94.3%)	912 (91.9%)	849 (92.9%)	438 (92.4%)
Youth'07	3968 (94.8%)	3402 (92.8%)	4732 (94.0%)	2638 (93.6%)	4067 (94.2%)	1360 (94.2%)	639 (93.7%)	861 (91.7%)	440 (94.3%)
Youth'01	3791 (93.7%)	4517 (93.8%)	5604 (93.9%)	2692 (93.4%)	4816 (95.8%)	1971 (93.0%)	548 (86.5%)	531 (87.4%)	350 (93.7%)
Sexual minority									
Youth'12	178 (5.0%)	306 (7.1%)	276 (5.5%)	208 (7.4%)	209 (5.4%)	92 (5.7%)	80 (8.1%)	65 (7.1%)	37 (7.6%)
Youth'07	220 (5.2%)	266 (7.2%)	305 (6.0%)	181 (6.4%)	253 (5.8%)	84 (5.8%)	43 (6.3%)	78 (8.3%)	27 (5.7%)
Youth'01	252 (6.3%)	300 (6.2%)	366 (6.1%)	185 (6.6%)	208 (4.2%)	151 (7.0%)	87 (13.5%)	77 (12.6%)	24 (6.3%)

Table 3. Risk and protective factors of exclusively opposite-sex attracted and sexual minority students by sex across survey waves

	Exclusively opposite-sex attracted n (%) [95% CI]		Sexual minority n (%) [95% CI]		<i>p</i> value [†]	<i>p</i> value [‡]	<i>p</i> value [§]
	Males	Females	Males	Females			
Friends care about student (a lot, some)							
Youth'12	2996 (90.4%) [89.4-91.5]	3704 (93.5%) [92.6-94.4]	148 (83.9%) [79.6-88.3]	276 (91.6%) [88.0-95.2]	0.024	0.096	0.79
Youth'07	3264 (83.9%) [82.5-85.3]	3080 (91.4%) [90.3-92.5]	173 (82.1%) [76.4-87.8]	228 (88.0%) [84.1-91.9]			
Youth'01	2971 (82.6%) [81.3-83.9]	3907 (90.1%) [89.2-91.1]	181 (81.0%) [75.1-86.8]	227 (82.4%) [77.6-87.1]			
Weekly bullying in last 12 months/this year (≥1 times)							
Youth'12	213 (6.4%) [5.4-7.4]	208 (5.3%) [4.4-6.1]	28 (15.8%) [9.6-22.0]	39 (12.7%) [8.6-16.7]	0.042	0.35	0.69
Youth'07	265 (6.7%) [5.6-7.7]	142 (4.2%) [3.4-4.9]	30 (13.7%) [8.3-19.1]	37 (13.8%) [9.4-18.3]			
Youth'01	326 (8.7%) [7.6-9.7]	217 (4.8%) [4.2-5.5]	43 (18.5%) [11.9-25.0]	27 (9.7%) [5.7-13.6]			
Likes school (i.e. likes school a lot, a bit, school's OK)							
Youth'12	3030 (90.3%) [89.0-91.6]	3595 (90.4%) [89.2-91.5]	152 (85.2%) [79.7-90.7]	256 (83.6%) [78.2-89.1]	0.16	0.008*	0.12
Youth'07	3450 (87.0%) [85.4-88.6]	3017 (88.8%) [87.3-90.3]	185 (84.3%) [78.7-89.9]	213 (80.3%) [76.1-84.4]			
Youth'01	3151 (84.6%) [83.1-86.2]	3853 (86.3%) [85.1-87.6]	212 (86.9%) [82.4-91.4]	241 (82.9%) [78.3-87.6]			
Volunteered in the last 12 months							
Youth'12	702 (26.2%) [23.8-28.7]	930 (27.8%) [25.9-29.6]	38 (29.0%) [22.1-36.0]	97 (37.0%) [30.7-43.2]	0.23	0.36	0.61
Youth'07	487 (15.5%) [13.9-17.1]	516 (18.4%) [16.6-20.3]	34 (21.2%) [14.4-28.0]	51 (24.5%) [18.6-30.5]			
Youth'01	-	-	-	-			
Relationship with family (I'm happy how we get along)							
Youth'12	2515 (75.1%) [73.7-76.5]	2772 (69.7%) [67.9-71.5]	126 (70.9%) [62.8-79.0]	168 (54.6%) [48.5-60.7]	0.008*	-	Male
Youth'07	3009 (76.1%) [74.9-77.4]	2222 (65.5%) [64.0-67.1]	138 (62.8%) [56.4-69.3]	140 (53.1%) [47.3-58.9]			0.029
Youth'01	2371 (63.9%) [62.1-65.6]	2393 (54.0%) [52.4-55.7]	150 (61.4%) [55.5-67.2]	129 (44.7%) [38.6-50.7]			0.29
Has been hit in last 12 months (≥1 times)							
Youth'12	1178 (35.2%) [32.7-37.6]	931 (23.5%) [21.9-25.1]	59 (33.4%) [25.9-41.0]	110 (36.2%) [30.4-41.9]	0.003*	-	Male
Youth'07	1940 (49.2%) [46.8-51.6]	1106 (32.5%) [30.8-34.3]	97 (44.6%) [36.5-52.6]	135 (51.0%) [45.2-56.9]			0.13
Youth'01	1907 (51.4%) [48.6-54.1]	1774 (39.9%) [38.1-41.7]	132 (55.1%) [48.0-62.1]	129 (43.4%) [38.4-48.4]			<0.0001*

[†] *p* value for interaction between sex and sexual attraction and wave (controlled for ethnicity and age).

[‡] *p* value for interaction between sex and sexual attraction (controlled for wave, ethnicity and age) - where three way interaction between sex and sexual attraction and wave was not significant.

[§] *p* value for interaction between wave and sexual attraction [controlled for ethnicity, age and sex (if sex was not stratified)].

*Statistically significant (i.e. (i.e. $p < 0.01$)).

Table 4. Health and wellbeing indicators of exclusively opposite-sex attracted and sexual minority students by sex across survey waves

	Exclusively opposite-sex attracted n (%) [95% CI]		Sexual minority n (%) [95% CI]		p value†	p value‡	p value§
	Males	Females	Males	Females			
Rated general health as good							
Youth'12	3173 (94.6%) [93.8-95.4]	3564 (89.6%) [88.4-90.8]	153 (85.8%) [80.6-91.0]	240 (78.2%) [74.2-82.2]	0.44	0.48	0.07
Youth'07	3734 (94.3%) [93.4-95.2]	3086 (90.7%) [89.6-91.8]	188 (85.8%) [80.6-91.0]	216 (81.5%) [76.7-86.3]			
Youth'01	3571 (94.7%) [93.9-95.5]	4085 (90.8%) [89.8-91.9]	225 (91.0%) [87.0-94.9]	249 (83.7%) [80.0-87.4]			
Clinically significant depressive symptoms (RADS-SF ≥28)^{39, 40}							
Youth'12	240 (7.3%) [6.3-8.3]	583 (14.8%) [13.2-16.4]	40 (24.2%) [17.3-31.1]	114 (38.6%) [32.0-45.3]	0.14	0.39	0.009*
Youth'07	238 (6.1%) [5.5-6.8]	449 (13.4%) [12.2-14.6]	44 (20.6%) [14.7-26.5]	88 (34.0%) [28.4-39.5]			
Youth'01	299 (8.1%) [7.2-8.9]	623 (14.1%) [13.1-15.2]	44 (19.2%) [13.6-24.9]	81 (28.1%) [23.1-33.0]			
Recent binge drinking in last 4 weeks (≥5 alcoholic drinks in 4 hours session)							
Youth'12	785 (23.6%) [20.7-26.6]	890 (22.6%) [20.5-24.7]	47 (26.4%) [19.1-33.6]	93 (31.0%) [25.4-36.7]	0.26	0.011	0.011
Youth'07	1429 (37.3%) [34.3-40.2]	1131 (33.9%) [30.5-37.2]	77 (38.2%) [31.3-45.1]	102 (40.6%) [34.0-47.3]			
Youth'01	1518 (42.4%) [39.1-45.8]	1719 (39.9%) [37.1-42.6]	73 (35.0%) [28.5-41.6]	92 (34.9%) [28.3-41.5]			
Driven by someone dangerously (speeding, car chases, burnouts) in last month							
Youth'12	620 (18.6%) [17.1-20.1]	679 (17.1%) [15.9-18.4]	40 (21.9%) [15.8-27.9]	62 (20.2%) [15.1-25.4]	0.03	0.47	0.73
Youth'07	1073 (27.3%) [25.4-29.1]	741 (21.7%) [20.0-23.4]	66 (30.2%) [24.5-35.9]	73 (27.2%) [20.2-34.2]			
Youth'01	620 (20.0%) [13.8-26.3]	679 (23.8%) [17.6-30.1]	40 (19.2%) [11.3-27.1]	62 (26.6%) [17.9-35.3]			
Has attempted suicide in the last 12 months¶							
Youth'12	62 (1.8%) [1.3-2.4]	212 (5.4%) [4.4-6.3]	18 (10.3%) [6.3-14.2]	50 (16.3%) [12.1-20.6]	<0.0001*	-	Male <0.0001*
Youth'07	90 (2.3%) [1.8-2.8]	201 (5.9%) [5.0-6.7]	32 (14.8%) [10.1-19.6]	51 (18.9%) [14.0-23.7]			Female <0.0001*
Youth'01	154 (4.1%) [3.3-4.9]	434 (9.7%) [8.5-10.9]	31 (12.1%) [7.7-16.4]	63 (20.8%) [16.2-25.3]			

† p value for interaction between sex and sexual attraction and wave (controlled for ethnicity and age).

‡ p value for interaction between sex and sexual attraction (controlled for wave, ethnicity and age) - where three way interaction between sex and sexual attraction and wave was not significant.

§ p value for interaction between wave and sexual attraction [controlled for ethnicity, age and sex (if sex was not stratified)].

*Statistically significant (i.e. (i.e. $p < 0.01$).

¶ Only those who reported having thought about killing themselves were asked this in Youth'01.

RADS-SF = Reynolds Adolescent Depression Scale, Short Form (of note in 2012 and 2007 only the Short form of the RADS was used, in 2001 the full version of the RADS [which includes the RADS-SF] was administered).

Table 5. Odds ratios for factors and indicators (no significant interactions were found by survey wave, sexual attraction and sex)

	OR [95% CI]	p value
Friends care about student (a lot, some)		
Exclusively opposite-sex attracted	1.0	0.0002
Sexual minority	0.72 [0.61-0.85]	
Weekly bullying in last 12 months/this year (≥1 times)		
Exclusively opposite-sex attracted	1.0	<0.0001
Sexual minority	2.88 [2.42-3.43]	
Volunteered in the last 12 months		
Exclusively opposite-sex attracted	1.0	0.0002
Sexual minority	1.37 [1.16-1.62]	
Rated general health as good		
Exclusively opposite-sex attracted	1.0	<0.0001
Sexual minority	0.46 [0.39-0.53]	
Recent binge drinking in last 4 weeks (≥5 alcoholic drinks in 4 hours session)		
Exclusively opposite-sex attracted	1.0	0.070
Sexual minority	1.12 [0.99-1.27]	
Driven by someone dangerously (speeding, car chases, burnouts) in last month		
Exclusively opposite-sex attracted	1.0	0.011
Sexual minority	1.18 [1.04-1.34]	

OR - adjusted odds ratio, adjusted for age and ethnicity (reference category exclusively opposite-sex attracted students) for all three survey waves (i.e. Youth'01, Youth'07 and Youth'12 combined).

Table 6. Odds ratios for factors and indicators by survey wave (no significant interactions were found by sexual attraction and sex)

	OR [95% CI]	p value
Youth'12: Clinically significant depressive symptoms (RADS-SF ≥ 28)		
Exclusively opposite-sex attracted	1.0	<0.0001
Sexual minority	3.73 [3.04-4.58]	
Youth'07: Clinically significant depressive symptoms (RADS-SF ≥ 28)		
Exclusively opposite-sex attracted	1.0	<0.0001
Sexual minority	3.55 [2.86-4.41]	
Youth'01: Clinically significant depressive symptoms (RADS-SF ≥ 28)		
Exclusively opposite-sex attracted	1.0	<0.0001
Sexual minority	2.38 [1.95-2.91]	

OR - adjusted odds ratio, adjusted for sex, age and ethnicity (reference category exclusively opposite-sex attracted students) for each survey wave (i.e. Youth'01, Youth'07 and Youth'12 separately).

RADS-SF = Reynolds Adolescent Depression Scale, Short Form (of note in 2012 and 2007 only the Short form of the RADS was used, in 2001 the full version of the RADS [which includes the RADS-SF] was administered).

Table 7. Odds ratios for factors and indicators by sex (no significant interactions were found by wave and sexual attraction)

	OR [95% CI]	p value
Likes school (i.e. likes school a lot, a bit, school's OK)		
Exclusively opposite-sex attracted males	1.0	0.13
Sexual minority males	0.83 [0.65-1.06]	
Exclusively opposite-sex attracted females	1.0	<0.0001
Sexual minority females	0.55 [0.46-0.66]	
Relationship with family (I'm happy how we get along)		
Exclusively opposite-sex attracted males	1.0	0.0009
Sexual minority males	0.73 [0.61-0.88]	
Exclusively opposite-sex attracted females	1.0	<0.0001
Sexual minority females	0.59 [0.51-0.68]	
Has been hit in last 12 months (≥ 1 times)		
Exclusively opposite-sex attracted males	1.0	0.98
Sexual minority males	0.998 [0.84-1.19]	

OR - adjusted odds ratio, adjusted for age and ethnicity (reference category exclusively opposite-sex attracted students) for all three survey waves (i.e. Youth'01, Youth'07 and Youth'12 combined).

Table 8. Odds ratios for factors and indicators by sex and wave (significant interactions were found by survey wave, sexual attraction and sex)

	OR [95% CI]	p value
Youth'12: Has attempted suicide in the last 12 months		
Exclusively opposite-sex attracted males	1.0	<0.0001
Sexual minority males	5.64 [3.26-9.77]	
Youth'07: Has attempted suicide in the last 12 months		
Exclusively opposite-sex attracted males	1.0	<0.0001
Sexual minority males	7.65 [4.97-11.77]	
Youth'01: Has attempted suicide in the last 12 months		
Exclusively opposite-sex attracted males	1.0	<0.0001
Sexual minority males	2.88 [1.75-4.73]	
Youth'12: Has attempted suicide in the last 12 months		
Exclusively opposite-sex attracted females	1.0	<0.0001
Sexual minority females	3.71 [2.53-5.44]	
Youth'07: Has attempted suicide in the last 12 months		
Exclusively opposite-sex attracted females	1.0	<0.0001
Sexual minority females	3.97 [2.69-5.84]	
Youth'01: Has attempted suicide in the last 12 months		
Exclusively opposite-sex attracted females	1.0	0.0013
Sexual minority females	1.94 [1.30-2.91]	
Youth'12: Has been hit in last 12 months (≥1 times)		
Exclusively opposite-sex attracted females	1.0	<0.0001
Sexual minority females	1.95 [1.49-2.56]	
Youth'07: Has been hit in last 12 months (≥1 times)		
Exclusively opposite-sex attracted females	1.0	<0.0001
Sexual minority females	2.30 [1.83-2.88]	
Youth'01: Has been hit in last 12 months (≥1 times)		
Exclusively opposite-sex attracted females	1.0	0.075
Sexual minority females	1.22 [0.98-1.51]	

OR - adjusted odds ratio, adjusted for age and ethnicity (reference category exclusively opposite-sex attracted students) for each survey wave (i.e. Youth'01, Youth'07 and Youth'12 separately).