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BRIEF REPORT

TITLE: Nonsuicidal self-injury, suicidal thoughts and suicide attempts among sexual minority youth in Ireland during their emerging adult years

RUNNING TITLE: Suicide and Self-Harm in Sexual Minority Youth

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INTRODUCTION

There has been growing concern about high rates of nonsuicidal self-injury (NSSI), suicidal ideation and completed suicides among youth populations (1-6). Internationally, suicide is ranked in the top three causes of death among people aged 15-44 years (7) and has been identified as the leading cause of death among 15-24 year olds in Ireland (8). In addition, self-inflicted injuries rank among the top ten causes of disability-adjusted life years (DALYs) among young people in the 20-24 year age-range (7). The public health imperatives of reducing preventable morbidity, disability and mortality have driven efforts to identify at risk groups for suicide and self-injurious behaviours so that targeted and effective suicide prevention and intervention strategies can be developed.

Existing evidence supports the view that having a minority sexual orientation confers additional risk for NSSI (9-13) and for suicide in both adolescence (14-17) and in adulthood (11, 18-24) and that sexual minority status is an independent risk factor for suicidal thoughts and suicide attempts (17, 25, 26)**.** The current study provides further evidence of vulnerability to suicidal ideation, suicide attempts and NSSI among young adults aged 19-24 years using data from a prospective cohort study on psychopathology and suicide among Irish youth.

METHODS

The Challenging Times (CT) study is a longitudinal cohort study based in North Dublin City. The subjects were recruited between the ages of 12 and 15 years (Challenging Times baseline study (CT1)) (27, 28). The study sample was obtained using a stratified, random, school-based sampling technique. In total, 743 adolescents were surveyed using the Strengths and Difficulties Questionnaire (SDQ) (29) and the Children's Depression Inventory (CDI) (30) to screen for psychopathology and suicidal ideation. From this, 104 adolescents who met at risk criteria for

psychopathology, and a group of 94 matched controls attended for clinical interview. They were assessed for mental disorder, suicidal ideation and suicide attempts using the Schedule for Affective Disorders and Schizophrenia for School-aged Children (K-SADS-PL) (31), the Scale of Suicidal Ideation (32) and the Scale of Suicidal Intent (33).

A follow–up of the cohort (Challenging Times Two study (CT2)) was carried out when the cohort was 19-24 years (mean: 20.8 years). All 212 of the CT1 interview cohort were contacted and invited to participate in a follow up assessment interview. A total of 169 agreed to take part, yielding a follow up rate of 80%. At CT2, the Structured Clinical Interview for DSM-IV Disorders Axis I (SCID I) and Axis II (SCID II) (34), the Achenbach Adult Self Report (ASR) and the Adult Behaviour Checklist (ABCL) (35) were used to assess for mental disorder, NSSI, suicidal ideation and suicidal attempts. Sexual orientation was established by self-report using the Stressful Life Events Schedule (36), one question that asked participants to indicate whether they were heterosexual, homosexual or bisexual.

Ethical approval was granted by the Ethics Committees of the Mater Misericordiae Hospital, Dublin and the Royal College of Surgeons in Ireland.

Data Analysis

Statistical analyses were conducted using Stata Version 12. Logistic regression with 95% confidence intervals was used to examine the association between sexual orientation and the outcomes. Chi-squared tests were used to ascertain if age, gender, socioeconomic background and educational attainment were confounders that needed to be accounted for in the statistical models. Chi-squared tests were also used to examine if there were any baseline differences between those who were followed-up and those who were lost to follow-up. Additional logistic regression analyses were undertaken to determine whether or not a past history of

psychopathology at CT1 or personality disorder status at CT2 confounded any associations found.

RESULTS

Sexual Orientation

A total of 75.7% (N=128) of respondents reported their sexual orientation on the Stressful Life Events Schedule (SLES). Of those, 8.6% (N=11) identified as being of a non-heterosexual orientation, 63.6% of whom were female. There were no differences between heterosexual and non-heterosexual groups in relation to age ($\chi 2 = 3.71$, df=5, p=0.59), gender ($\chi 2 = 0.70$, df=1, p=0.40), education level ($\chi 2 = 0.01$, df=1, p=0.89), parental socioeconomic status ($\chi 2 = 0.16$, df=1, p=0.68) or family psychiatric history ($\chi 2 = 2.84$, df=1, p=0.09). Within the sexual minority group 81.8% identified themselves as bisexual and 18.2% identified themselves as homosexual.

Risks of Nonsuicidal Self-Injury, Suicidal Thoughts and Suicide Attempts and among Young Sexual Minority Adults

When compared to their heterosexual peers, non-heterosexual individuals had 6.6-fold (95%CI 1.7-24.7) increase in the lifetime odds of NSSI and a 5.0-fold (95%CI 1.3-18.3) increase in the odds of having suicidal ideation over the course of their lifetime. The highest risk for the non-heterosexual group was for suicidal intent with a 7.7-fold (95%CI 1.8-32.0) increased risk in the odds of experiencing suicidal intent with a specific suicide plan over the course of their lifetime. They also had a 6.8-fold (95%CI 1.6-27.6) increase in the lifetime odds of having made a suicide attempt (Table 1).

TABLE 1: Lifetime Odds of Nonsuicidal Self-Injury, Suicidal Thoughts and Suicide Attempts among 19-24 year old Young Adults who Reported a Sexual Minority Orientation* compared to those who Reported a Heterosexual Orientation

Outcome Measure	Unadjusted Odds Ratio	95% CI[1]
Nonsuicidal Self-Injury	6.6	1.7-24.7

Any suicidal thoughts or behaviours[a]	6.4	1.6-25.7
Suicidal ideation	5.0	1.3-18.3
Suicidal intent	7.7	1.8-32.0
Suicide attempt	6.8	1.6-27.6

* Sexual Minority Orientation defined as any self-report of Bisexual or Homosexual Orientation (N=11)
[1] CI = Confidence Interval
[a] Suicidal Ideation, Suicidal Intent and Suicide Attempts Combined

There were no differences in the lifetime odds ratios found when adjusted for age, socio-economic status, gender, any personality disorder and at risk status for psychopathology during the screening phase of CT1.

DISCUSSION

Our findings provide further evidence of an increased risk for NSSI and for suicidal thoughts and suicide attempts among emerging adults with a non-heterosexual orientation. When compared with their heterosexual peers, the 19-24 year olds in our study had a 5-fold increase in the odds of experiencing suicidal ideation; an almost 7-fold increase in the odds of engaging in NSSI or of having made a suicide attempt; and an almost 8-fold increase in the odds of experiencing suicidal intent over the course of their lifetime.

Our findings of increased risk of suicidal thoughts and suicide attempts among the emerging adults in this study are similar to findings of increased risk for suicidal ideation and attempts among Irish adolescents (37). The 5-8-fold increase in the odds of suicidal thoughts and attempts in this study are also within the range reported in other emerging adult studies (16, 25, 26, 38), with one New Zealand cohort study finding even higher rates of suicidal behaviours (12.5-fold) among similarly-aged sexual minority males (25). The levels of increased risk for suicidal thoughts and suicide attempts found across emerging adult studies point to the possibility that, in addition to adolescence, emerging adulthood may need to be considered as a period of risk for suicidal thoughts and suicide attempts among young people with a non-heterosexual orientation. This view is strengthened by findings from a longitudinal study from the USA (39), which found that sexual minority youth remained at increased risk for suicide as

they transitioned from adolescence (ages 14-18) to emerging adulthood (ages 20-24) and into their young adult years (ages 27-31).

Evidence regarding NSSI also supports the view that a minority sexual status is associated with an increased risk for NSSI in adolescence (10, 13, 40), emerging adulthood (38) and in adulthood (24). Irish data have previously shown that concerns about sexual orientation have been found to be associated with up to a 7-fold increase in the odds of a lifetime history of NSSI among adolescents (40). Our finding of an almost 7-fold increase in the risk of NSSI among emerging adults with a sexual minority orientation points to the possibility that, as with adolescence and as in the case of suicidal thoughts and behaviours, the emerging adult years represent a period of vulnerability for NSSI among sexual minority individuals in Ireland.

While this study did not examine possible reasons for the increased risk of NSSI, suicidal ideation and suicidal attempts, evidence from other studies has highlighted a range of sexuality-specific factors that could help to explain our findings. These include the experiences of minority stress (41), of sexual minority-specific stigma, discrimination and victimization (42, 43) and of dissatisfaction with family (44, 45) and social (26) supports. Of note, many of these factors have direct relevance to the developmental phase of emerging adulthood, a key characteristic of which is the processes of identity exploration and identity formation by young people (46).

Methodological Issues

A key strength of our study is the fact that data on NSSI and on suicidal thoughts and attempts were gathered through intensive clinical interviewing by psychiatrists and a senior research psychologist, with suicide data being additionally subject to blinded independent coding by members of the research team to ensure those data were accurately coded and recorded. The small numbers who reported a non-heterosexual orientation is a limitation of this study. This

was impacted by the use of a self-report measure to determine participants' sexual orientation and the relatively high proportion of the sample (24%) who did not indicate their sexual orientation on the SLES. Balancing these limitations with the findings from this study, we believe that there would be merit in repeating this study with a larger, more strongly powered study sample to determine whether or not similar associations would be found. For any future studies, it is clear that an alternative method of data collection on sexuality and sexual orientation would be preferable to that used in the current study: for example, the inclusion of questions regarding sexuality and sexual orientation in standardised clinical interview assessments would be invaluable.

Conclusion

Findings from this study support the view that the period of risk for suicidal thoughts, suicidal attempts and NSSI among sexual minority individuals extends beyond adolescence and into the emerging adult years. Importantly, these findings should not be used to stigmatise or to pathologise young people who have a minority sexual orientation. They can, however, be used to inform public health NSSI and suicide prevention strategies and are of potential value to frontline healthcare and other professionals in enhancing their efforts to identify and respond to young people who may be at risk of NSSI and suicide.

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