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## Suicidal acts and ideation in homosexual and bisexual young people: a study of prevalence and risk factors

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**Abstract** *Background:* Suicide attempts are the most robust clinical predictor of suicide, which is now the second cause of death among young people in many countries. Previous research has shown an increased risk of attempted suicide associated with a homosexual orientation. However, the mechanisms underlying this increased risk are not yet clear. This study therefore aimed to determine the risk of attempted suicide and the effect of potential risk factors on the occurrence of suicidal ideation and behaviour among homosexual youngsters. *Methods:* The association between suicidal ideation and behaviour and potential risk factors was assessed by means of a questionnaire in a general population sample of homosexual or bisexual young people and a control sample consisting of school pupils. *Results:* A twofold increased risk of suicidal ideation was found associated with a homosexual or bisexual orientation. A significantly increased risk of attempted suicide associated with homosexuality or bisexuality was found in females. Independent of sexual orientation, depression was identified as a significant risk factor for suicidal ideation, while suicidal behaviour was associated with low self-esteem, higher levels of hopelessness and suicidal behaviour in someone close. Among homosexual or bisexual young people, less satisfying homosexual

friendships were an additional risk factor for suicidal behaviour. *Conclusions:* The identified increased risk of suicidal ideation among homosexual or bisexual young people is associated with depression and may lead to suicidal behaviour, independent of sexual orientation, especially in the presence of a role model of suicidal behaviour, and among those with unsatisfying friendships.

### Introduction

Suicide is now the second cause of death among young people in many Western countries. Based on currently available knowledge, suicidal behaviour can be regarded as the consequence of an interaction between a persistent vulnerability and stressor-induced state-dependent characteristics. This vulnerability consists of distal risk factors such as low self-esteem. When vulnerable individuals are confronted with stressors or proximate risk factors, such as interpersonal crises, leading to feelings of hopelessness, they may engage in suicidal behaviour if facilitating factors (e.g. use of alcohol or availability of role models) operate or inhibiting factors (e.g. social support) are absent [1].

Depression and hopelessness can be considered core features in the pathogenesis of suicidal behaviour. The feeling of hopelessness that may lead to suicidal behaviour is commonly induced by psychosocial stressors that can be divergent in nature, but may share common characteristics. Such stressors may act as proximate risk factors by inducing a sense of entrapment, which is due to the perception or reality of negative social comparison. Social comparison measures the acquired rank and status within the system in which a person lives, but also the extent to which the person fits in with the group in which they live. Thus, suicidal behaviour can be seen as the response elicited by negative social comparison and the perceived situation of entrapment [2].

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Suicide attempts are the most robust predictor of completed suicide. A recent follow-up study in Gent, for instance, showed that among a large group of suicide attempters, 3% died within 1 year due to suicide [3]. Based on observations like these, the so-called suicidal process has been described, indicating a progression of suicidality within an individual, starting with fleeting suicidal thoughts (ideation), and evolving through (commonly repeated) suicide attempts to completed suicide. The duration of such a suicidal process may vary according to psychiatric diagnosis (relatively shorter in depression and longer in personality disorder) and gender (being shorter in males than in females) [4]. However, the suicidal process approach underlines the important pathogenic role of suicidal ideation and non-fatal suicidal behaviour with regard to suicide.

Considerable controversy exists regarding the relationship between sexual orientation and suicide [5]. Homosexual individuals have commonly been portrayed in popular culture as victims of suicide, and anecdotal case reports frequently associate suicidal behaviour in the young with homosexuality and conflicts over sexual orientation [5]. Such anecdotal case reports are, however, hardly supported by the scarce scientific data. This paucity of scientific data is, at least partly, due to a taboo-based reluctance to include questions on sexual orientation in psychological autopsy studies, thus contributing to the myths that always feature in discussions of this topic. In view of the strongly increasing rates of suicide in the Western world among young males [1], there is, however, a great need for further study of risk factors, including those associated with sexual orientation.

With regard to attempted suicide, less controversy exists, as recent epidemiological research has shown a clearly increased risk in association with a homosexual or bisexual orientation when compared to the general population [6, 7]. Although the mechanisms underlying this increased risk are not yet clear, it has been hypothesised that negative psychosocial experiences play an important role [8, 9], possibly through the effect of social comparison. However, a number of other potential confounding variables have been suggested, including a history as a runaway, celibacy, sexual abuse, substance abuse, self-identification as homosexual at a younger age, family dysfunction and interpersonal conflicts regarding sexual orientation [10].

This study aimed, first, to estimate the risk of suicidal ideation and behaviour among homosexual or bisexual youngsters when compared to their heterosexual age peers. Secondly, the study aimed to determine the effect of potential distal (self-esteem), proximate (depression and hopelessness), facilitating (negative psychosocial experiences related to homosexual or bisexual orientation, use of alcohol and availability of role models) and inhibiting (social support) factors on the odds of suicidal ideation and behaviour in homosexual or bisexual young individuals.

## Subjects and methods

The study group consisted of 404 individuals who were recruited in two ways. A first group ( $n = 215$ , 53.2%) consisted of participants in a holiday camp for homosexual or bisexual youngsters, and a second group ( $n = 189$ , 46.8%) was drawn from classes of a secondary and a high school. These holiday camps are organised by an association of homosexual and bisexual youngsters, which aims at providing support and educational or recreational activities for homosexual and bisexual youngsters. All subjects who were asked to participate in this study agreed to fill in a questionnaire consisting of questions regarding gender, age, sexual orientation, history of suicidal ideation and behaviour, social support, self-esteem, hopelessness, and use of alcohol. Socio-economic status was defined by the profession of the father of the participants. The participants of the holiday camps also responded to questions on the number and quality of homosexual friendships, awareness and acceptance of homosexual orientation by parents and siblings, experience of violent threats due to homosexual orientation, having been the victim of physical violence due to homosexual orientation, and having come into contact with the police due to homosexual orientation.

According to the procedure as described by Coleman [11], sexual orientation was assessed by means of a number of questions on the gender of the persons with whom there was current sexual activity, with whom they were intimate, or who were objects of sexual fantasies. Answers to these questions could be given on a ten-point scale ranging from 1 (exclusively with females) to 10 (exclusively with males). Using K-means clustering, cases were clustered into three groups i.e. homosexual, bisexual and heterosexual youngsters. Statistical analysis was performed by comparing the characteristics of the combined groups of homosexual and bisexual participants to those of the heterosexual youngsters.

Suicidality was defined by a reported history of suicidal ideation or suicide attempts. Suicidal ideation and behaviour were assessed by means of the questions 'Have you ever considered attempting suicide?' and 'Did you once, or more than once, attempt suicide?', respectively. Preceding these questions, a definition of a suicide attempt was given in which a suicide attempt was defined as 'the deliberate ingestion of medication in a higher dosage than prescribed or of substances not meant for human consumption, or the deliberate infliction of self injury'. Thus, in agreement with current approaches to deliberate self harm, (suicidal) intent or motives were not included in the definition.

Hopelessness was measured by means of the Hopelessness Scale [12]. Depression was assessed by means of the depression subscale (scale D: severe depression) of the 28-item version of the General Health Questionnaire [13]. Self-esteem was measured by means of the Rosenberg Self-Esteem Questionnaire [14]. Social support was assessed by the questionnaire developed by Vincke and Bolton [15]. Data on alcohol consumption were included by means of a question about the daily ingested number of glasses of alcohol.

Statistical analysis included Chi-square tests, *t*-tests for independent samples, and logistic regression procedures where appropriate.

The study was approved by the Ethical Review Committee of the Gent University Hospital.

## Results

### Risk of suicidality associated with homosexuality or bisexuality

Homosexual or bisexual orientation was found in 219 participants, i.e. the 215 participants of the holiday camps and 4 of the 189 students (2.1%). The study group consisted of 208 males and 196 females

(homosexual or bisexual: 137 males and 82 females, heterosexual: 71 males and 114 females;  $\chi^2 = 23.47$ ,  $P < 0.0001$ ). The mean age was 20.4 years (range 15–27,  $SD = 2.3$ ; homosexual or bisexual: 20.9,  $SD = 2.5$ , heterosexual: 19.9,  $SD = 2.0$ ;  $t = -4.22$ ,  $P < 0.0001$ ).

Significantly more homosexual or bisexual individuals ( $n = 81$ , 37.7%) than heterosexual individuals ( $n = 39$ , 21.5%;  $\chi^2 = 12.102$ ,  $P < 0.001$ ) reported the occurrence of suicidal ideation. Equally, a history of suicidal behaviour was reported by more homosexual or bisexual ( $n = 36$ , 17.2%) than heterosexual ( $n = 10$ , 5.6%) youngsters ( $\chi^2 = 12.36$ ,  $P < 0.0001$ ). The difference in occurrence of suicidal behaviour between homosexual or bisexual and heterosexual youngsters was more marked for females (homosexual or bisexual:  $n = 20$ , 25.0%; heterosexual:  $n = 6$ , 5.5%;  $\chi^2 = 14.98$ ,  $P = 0.000$ ) than among males (homosexual or bisexual:  $n = 16$ , 12.4%; heterosexual:  $n = 4$ , 5.9%;  $\chi^2 = 2.08$ ,  $P = 0.150$ ). No significant difference between homo- or bisexual and heterosexual groups was found with regard to socio-economic status.

In view of these significant differences, the risk of suicidality associated with homosexual or bisexual orientation was estimated by means of a multivariate model with suicidal ideation and suicidal behaviour as the dependent variables and gender, sexual orientation, and age as the independent variables. The model including suicidal ideation as dependent variable showed significant effects of sexual orientation and gender. The odds ratio of suicidal ideation associated with sexual orientation was 2.46 (95% CI = 1.52–3.96; Wald  $\chi^2 = 13.63$ ;  $P = 0.0002$ ). In view of the significant effect of gender, the final model to estimate the risk of suicidal ideation associated with homosexual or bisexual orientation was constructed following stratification by gender, while controlling for age (Table 1).

With regard to the risk of suicide attempts, the model showed a significant effect of sexual orientation (OR = 4.48; 95% CI = 2.09–9.60; Wald  $\chi^2 = 14.82$ ;  $P = 0.0001$ ) and a near-significant effect of gender (OR = 1.87; 95% CI = 0.97–3.59; Wald  $\chi^2 = 3.52$ ;  $P = 0.060$ ). The final analysis was performed following stratification by gender, and with sexual orientation and age as covariates.

As shown in Table 1, a significantly increased risk of suicidal ideation and behaviour associated with homosexual or bisexual orientation was found in females and a significantly increased risk of suicidal ideation was found in males. No significantly increased risk of attempted suicide was found associated with male homosexual or bisexual orientation.

**Table 1** Odds ratios (OR) of suicidal ideation and behaviour associated with homosexual or bisexual orientation

Suicidality	Males				Females			
	OR <sup>a</sup>	95%CI	Wald $\chi^2$	<i>P</i>	OR <sup>a</sup>	95%CI	Wald $\chi^2$	<i>P</i>
Ideation	2.45	1.16–5.17	5.117	0.013	2.49	1.34–4.67	8.224	0.004
Behaviour	2.47	0.78–7.81	2.382	0.122	6.25	2.35–16.65	13.456	0.000

<sup>a</sup> Adjusted for age

Risk factors of suicidality associated with homosexuality or bisexuality

### Suicidal ideation

Homosexual or bisexual individuals who reported suicidal ideation differed from those without such a history in that they had a lower mean score on self-esteem and higher mean scores on hopelessness and depression (Table 2). Moreover, they more commonly knew someone close who had shown suicidal behaviour and rated their homosexual friendships as less satisfactory. No differences were found regarding age, social support, gender distribution, alcohol consumption, socio-economic status, having a stable relationship and the proportion of friends who were homosexual. Among heterosexual youngsters a similar pattern of associations was found, with low social support as an additional characteristic in association with suicidal ideation.

In order to calculate the independent effect of the characteristics that were found to be associated with suicidal ideation in homosexual or bisexual youngsters, a multivariate analysis was performed starting with a full model with suicidal ideation as the dependent variable and all characteristics for which significant differences were found between homosexual or bisexual youngsters with or without a history of suicidal ideation. Following stepwise backward elimination a significant effect of depression was identified (OR = 1.30; 95% CI = 1.17–1.43; Wald  $\chi^2 = 26.44$ ;  $P = 0.0001$ ). Among heterosexual youngsters a similar analysis showed a significant effect of depression on the occurrence of suicidal ideation (OR = 1.33; 95% CI = 1.2–1.5; Wald  $\chi^2 = 21.727$ ;  $P = 0.0000$ ).

### Attempted suicide

Homosexual or bisexual youngsters who reported a history of at least one suicide attempt differed from those without a history of suicidal behaviour in that they had a lower mean score on self-esteem and higher mean scores on hopelessness and depression (Table 2). Moreover, they were more often female, indicated more commonly that friendly homosexual contacts were unsatisfactory, and more often reported suicidal ideation and suicide attempts (without or with a fatal outcome) by someone in their direct environment. No differences were found regarding age, social support, alcohol consumption, socio-economic status, having a stable relationship and the proportion of friends who

**Table 2** Comparison of characteristics of homosexual/bisexual and heterosexual youngsters, by presence or absence of suicidal ideation or behaviour (*NA* not assessed)

	Suicidal ideation				Suicidal behaviour			
	Homosexual/bisexual		Heterosexual		Homosexual/bisexual		Heterosexual	
	Absent ( <i>n</i> = 134) Mean (SD)	Present ( <i>n</i> = 81) Mean (SD)	Absent ( <i>n</i> = 142) Mean (SD)	Present ( <i>n</i> = 39) Mean (SD)	Absent ( <i>n</i> = 173) Mean (SD)	Present ( <i>n</i> = 36) Mean (SD)	Absent ( <i>n</i> = 167) Mean (SD)	Present ( <i>n</i> = 10) Mean (SD)
Age	20.9 (2.4)	20.9 (2.6)	19.9 (1.9)	20.2 (2.2)	20.9 (2.5)	20.2 (2.0)	20.0 (1.9)	19.7 (2.4)
Social support	79.7 (9.8)	77.3 (22.8)	78.5 (9.0)	74.4 (10.1)*	79.7 (9.9)	80.4 (31.4)	77.8 (9.2)	72.5 (10.6)
Self-esteem	52.4 (7.4)	47.0 (7.9)**	50.4 (7.6)	45.1 (8.4)**	51.1 (7.9)	48.1 (7.6)*	49.5 (7.8)	42.6 (8.8)*
Hopelessness	4.7 (3.0)	6.6 (4.2)**	4.7 (3.1)	7.6 (5.1)**	5.1 (3.4)	6.6 (4.3)*	5.1 (3.6)	9.3 (4.9)**
Depression	7.7 (0.7)	11.3 (4.2)**	7.6 (2.7)	11.3 (4.2)**	8.7 (3.7)	10.4 (3.9)*	8.2 (3.3)	11.9 (4.3)*
Unit alcohol/day	1.3 (1.5)	1.1 (1.6)	1.6 (0.8)	1.6 (0.8)	1.3 (1.7)	1.2 (1.6)	1.6 (0.8)	1.8 (1.2)
Quality of relationship <sup>a</sup>	3.2 (0.7)	2.9 (0.7)*	NA	NA	3.2 (0.7)	2.9 (0.7)*	NA	NA
Females	44 (32.8)	36 (44.4)	84 (59.2)	28 (71.8)	60 (34.7)	20 (55.6)*	104 (62.3)	6 (60.0)
Suicide in environment	59 (44.0)	49 (60.5)*	76 (53.5)	30 (76.9)**	78 (45.1)	27 (75.0)*	83 (49.7)	9 (90.0)*
Engaged in relation for > 3 months	32 (23.9)	12 (14.8)	NA	NA	33 (19.1)	8 (22.2)	NA	NA

\* $P < 0.05$ ; \*\* $P < 0.01$ ;  $\chi^2$  test, *t*-test for independent samples

<sup>a</sup> Rated from 1 (very unsatisfying) to 4 (very satisfying)

were homosexual. Among heterosexual youngsters, a history of suicidal behaviour was associated with suicide attempts (without or with a fatal outcome) by someone in their direct environment. There was no significant difference with regard to gender between heterosexual youngsters with a history of suicidal behaviour and those without such a history.

Further analysis pursued the identification of the independent effects of the characteristics that were found associated with suicidal behaviour in the univariate analysis. This was done by means of a stepwise backward elimination procedure, starting with a full model with attempted suicide as the dependent variable and the characteristics that were found associated with attempted suicide in homosexual or bisexual youngsters in univariate analyses as the independent variables. Significant effects were found for gender (OR = 2.50; 95% CI = 1.1–5.8; Wald  $\chi^2 = 4.60$ ;  $P = 0.032$ ), for having experienced attempted suicide in someone close (OR = 4.14; 95% CI = 1.6–10.6; Wald  $\chi^2 = 8.76$ ;  $P = 0.003$ ), and rating of homosexual friendships as unsatisfactory (OR = 2.22; 95% CI = 1.2–4.0; Wald  $\chi^2 = 6.82$ ;  $P = 0.009$ ). A similar analysis was performed using the characteristics on heterosexual youngsters. Logistic regression with backward elimination showed a significant effect of hopelessness (OR = 1.27; 95% CI = 1.1–1.50; Wald  $\chi^2 = 8.140$ ;  $P = 0.004$ ).

## Discussion

The major findings from this study of the extent and risk factors of suicidality associated with homosexuality or bisexuality can be summarized as follows. First, when compared to a heterosexual orientation, homosexuality or bisexuality is associated with a twofold increased risk of suicidal ideation and a fourfold increased risk of

attempted suicide. A significant effect of gender, however, is found; the risk of attempted suicide being significantly increased only in homosexual or bisexual females, who show a sixfold increase when compared to heterosexual females. Secondly, suicidal ideation among homosexual or bisexual and heterosexual youngsters is associated with comparatively low self-esteem, higher levels of hopelessness and depression, having experienced suicidal behaviour in someone close, and rating homosexual friendships as less satisfactory. Among heterosexual youngsters the latter characteristic was not assessed, but an additional effect of low social support is found. Multivariate analysis identifies depression as an independent and significant risk factor for suicidal ideation in homosexual or bisexual and in heterosexual youngsters. Suicidal behaviour among homosexual or bisexual youngsters is associated with gender and with comparatively low self-esteem, higher levels of hopelessness and depression, having experienced suicidal behaviour in someone close, and rating homosexual friendships as less satisfactory. In heterosexual youngsters, similar differences are found for self-esteem, hopelessness, depression and having experienced suicidal behaviour in someone close. By means of multivariate analysis, the experience of suicidal behaviour in someone close, the rating of homosexual friendships as less satisfactory, and being female are identified as significant risk factors for suicidal behaviour in homosexual or bisexual youngsters. Among heterosexual young people, multivariate analysis shows a significant effect of hopelessness and having experienced suicidal behaviour in someone close.

Preceding a discussion of the implications of these findings for the prevention of suicidal behaviour based on a causal interpretation of the demonstrated associations, alternative interpretations must be considered. As homosexual or bisexual individuals were recruited in

holiday camps, such an alternative interpretation mainly relates to a potential bias in the selection of participants. Due to this selection procedure, the calculated risk of suicidal ideation and behaviour associated with a homosexual or bisexual orientation may reflect an underestimation of the actual risk: participation in these holiday camps probably reflects an integration in a group of age peers, which may lead to the feeling of 'sameness' and thus protect against the occurrence of suicidal behaviour [2]. Due to the design of this study, including the selection of participants and phrasing of questions in the questionnaires, the results are most probably not biased by the myths that may have influenced the results of previous studies, as was described in the Introduction.

The current findings are consistent with those from previous studies that have found a higher prevalence of suicidal ideation and behaviour in homosexual or bisexual youngsters when compared to heterosexual peers. The majority of studies have been conducted only in males. However, the prevalence of self-reported suicidal behaviour among the homosexual or bisexual youngsters in this study (17.2%) resembles the 21% prevalence reported previously [16]. The prevalence of suicide attempts among males as found in this study (12.4%) is lower than that reported in most studies (for an overview, see Bagley and Tremblay [6]), which may be due to the above-mentioned selection bias.

The findings of this study allow for a comparison of the risk profiles for suicidal ideation and behaviour between homosexual or bisexual youngsters and their heterosexual peers. With regard to suicidal ideation, no difference in risk profiles could be demonstrated, as suicidal ideation was associated with depression in both groups. Concerning suicidal behaviour, this study showed the important role of having experienced suicidal behaviour in someone close among young people, independent of their sexual orientation. However, among homosexual or bisexual youngsters, this effect was confined to females, as they alone showed an increased risk of suicidal behaviour. Furthermore, the risk of suicidal behaviour was associated with unsatisfactory homosexual or bisexual relationships.

When the classification of risk factors as described in the Introduction is taken into account, these findings suggest that suicidality among young people can be attributed to the existence of depression as a proximate risk factor, independent of sexual orientation. Among homosexual or bisexual youngsters, suicidal ideation may lead to suicidal behaviour in the presence of social factors, i.e. a role model as a facilitating factor, while satisfactory relationships with homosexual friends are lacking as a protective factor. Among heterosexual youngsters, the occurrence of suicidal behaviour is associated with hopelessness as a psychological characteristic.

As this study had a cross-sectional design, no causal inferences can be made from the results. The findings

suggest that the higher rates of suicidal ideation and behaviour among homosexual or bisexual youngsters are not due to a confounding effect, i.e. an exposure to higher levels of commonly known risk factors such as depression, alcohol abuse, low social support or low self-esteem, but rather to a greater likelihood of suicidal behaviour in reaction to such risk factors, with the lack of a confiding relationship as an additional risk factor or absent protective factor.

The results indicate that homosexual or bisexual suicide attempters with a history of suicidal behaviour differ from those without a history of attempted suicide by the occurrence of depression and by showing a greater vulnerability on the interpersonal level, both characteristics being amenable to treatment. In view of the increased risk of attempted suicide associated with a homosexual or bisexual orientation, which apparently cannot be attributed to a confounding effect, the exploration of sexual orientation should be included in the assessment of suicidal young people.

The results of this study may provide guidelines for interventions aiming at the prevention of suicidal behaviour among homosexual or bisexual youngsters. Given the finding that risk factors for suicidal behaviour are to a large extent similar in heterosexual and homosexual or bisexual youngsters, the latter apparently are more likely to react with suicidal behaviour when confronted with psychosocial stressors. This finding suggests that homosexual or bisexual youngsters have a greater tendency to perceive entrapment in their situation of living when confronted with psychosocial adversities when compared to heterosexual youngsters. Although further research is needed to disentangle the cognitive and emotional underpinnings of this characteristic, the results of this study suggest that this tendency should be taken into account when treating depressed homosexual or bisexual youngsters. At a societal level, it can be expected that actions taken against discrimination and rejection of homosexual youngsters will contribute to the prevention of the development of feelings of entrapment, and thus to the prevention of suicidal behaviour.

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