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Suicides among lesbian, gay, bisexual, and transgender populations in Australia: An analysis of the Queensland Suicide Register

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Abstract

Introduction: Sexual orientation is seldom recorded at death in Australia, and to date there have been no studies on the relationship between those that have died by suicide and sexuality or minority gender identity in Australia. The aim of the present study is to determine whether or not lesbian, gay, bisexual, transgender (LGBT), and intersex individuals who die by suicide constitute a unique subpopulation of those who die by suicide, when compared with non-lesbian, gay, bisexual, transgender, and intersex suicide deaths.

Methods: The Queensland Suicide Register holds records of all suicides in Queensland since 1990. All cases from 2000 to 2009 (inclusive; a total of 5,966 cases) were checked for potential indicators of individuals' sexual orientation and gender identification. A total of 35 lesbian ($n = 10$), gay ($n = 22$), bisexual ($n = 2$), and transgender ($n = 1$) suicide cases were identified. Three comparison cases of non-LGBT suicides for each LGBT suicide were then located, matched by age and gender. Conditional logistic regression was used to calculate odds ratios with 95% confidence intervals.

Results: It was significantly more likely that depression was mentioned in the cases of LGBT suicides than in non-LGBT cases. While 12.4% of the comparison group had been diagnosed with psychotic disorders, there were no such diagnoses among LGBT individuals. LGBT individuals experienced relationship problems more often, with relationship conflict also being more frequent than in non-LGBT cases.

Discussion: Despite its limitations, this study – the first of its kind in Australia – seems to indicate that LGBT people would require targeted approaches in mental and general health services.

Introduction

There is a scarcity of recent international studies on lesbian, gay, bisexual, transgender, and intersex (LGBTI) people who have died by suicide, and findings from earlier research may not be reliable. Shaffer *et al.* (1995) found no evidence for an increased risk of suicide among individuals who had been openly gay in their psychological autopsy study in New York City. In a study of suicides in San Diego, Rich *et al.* (1986) found similar risk factors associated with suicides

among (known) gay and straight men, and no greater incidence of previous suicide attempt, psychiatric treatment, or likelihood of living alone among gay men. However, the fact that these studies were carried out approximately 20 years ago (or more) raises doubt as to whether or not identification of same-sex-attracted individuals was very accurate.

One noteworthy exception in more recent research is a Danish report (Mathy *et al.*, 2011). In that study, Mathy *et al.* (2011) took advantage of the introduction of same-sex domestic-registered partnerships

in 2001 in Denmark to cross-reference marriage and partnership data with suicide data from the Danish National Board of Health for the period 1990–2001. Significant differences emerged in the data for men only. The age-adjusted suicide mortality risk was nearly eight times greater for men in same-sex registered domestic partnerships than men who had ever been married and nearly twice as high as men never married.

In Australia, the majority of available research is represented by “gray” literature, and there is very little in terms of population-based studies. The Australian Bureau of Statistics (ABS, 2010) holds nationally representative data on nonfatal suicidal behaviors comparing “homosexual/bisexual” and “heterosexual/sexuality not stated” males and females aged 16–85 years. Sexual minorities report higher incidence of suicidal thoughts, suicide plans, and suicide attempt (ABS, 2010). A review of the evidence base for a heightened vulnerability to suicidal behaviors among LGBTI populations in Australia by Skerrett *et al.* (2012; 2014) found that sexual minorities are indeed at a higher risk for nonfatal suicidality.

In terms of suicide, however, De Leo *et al.* (2010) noted that sexual orientation is seldom recorded at death in Australia. As such, suicide in lesbian, gay, bisexual, transgender (LGBT) populations is probably underreported in Australia and one of the reasons for this is the lack of information gathered on sexual orientation or identification. Skerrett *et al.* (2012; 2014) reported that there were no existing studies on the relationship between those that have died by suicide and sexuality in Australia at the time of writing.

Given the significant amount of research carried out on nonfatal suicidal behaviors among LGBTI populations and the almost complete nonexistence of studies into fatal behaviors, there is the need to investigate the characteristics of those LGBTI suicides that can be identified. The aim of the present study is to determine whether or not LGBTI individuals constitute a unique subpopulation of those who die by suicide, when compared with non-LGBTI suicide deaths.

Methods

The Queensland Suicide Register (QSR) is a comprehensive suicide database maintained by the Australian Institute for Suicide Research and Prevention. The QSR holds records of all suicides in Queensland since 1990, and provides information on a wide range of

demographic, psychosocial, psychiatric, medical, contextual, and behavioral aspects of suicide cases (De Leo and Svetcic, 2012). Currently, the QSR does not systematically collect information on sexuality or transgendered status. However, all QSR cases from 2000 to 2009 ($n = 5,966$ cases) were rechecked for potential indicators of individuals’ sexual orientation and gender identification. Marriage, *de facto* relationship, presence of children, and *relata* from available informants were considered. The QSR was further scrutinized to allocate three comparison cases of non-LGBT suicides for each LGBT suicide, matched by age (up to 2 years younger or older) and gender (matched to the gender of identification in the one transgender case); this was done to be able to compare the characteristics of LGBT suicide cases with non-LGBT cases and increase the statistical power of the study. Matching for age and gender also helps to reduce the confounding nature of these variables, which is particularly important in a study of this size.

Descriptive analyses were conducted to identify similarities and differences with non-LGBT suicides. We examined psychiatric disorders (including depression and anxiety), as well as undiagnosed psychological and behavioral disturbances, substance abuse, living conditions, and precipitating factors (e.g., conflicts with parents and peers) for each suicide case. A multifactorial analysis was performed and LGBT suicides were compared with non-LGBT suicides applying conditional logistic regression, an appropriate method for nested case-control studies with multiple controls (Niven *et al.*, 2012). Odds ratios (ORs) with 95% confidence intervals are presented. For factors where either LGBT or non-LGBT suicides had less than four cases, Fisher’s exact test was used instead. Where appropriate, a chi-squared test was also used to test for differences between LGBT and non-LGBT cases. The level of statistical significance was set at $P < 0.05$.

Results

General characteristics of cases

We identified a total of 35 lesbian ($n = 10$), gay ($n = 22$), bisexual ($n = 2$), and transgender ($n = 1$) suicide cases for the period 2000–2009. No cases of suicide by intersex people were identified. These numbers are a likely underestimation of LGBTI suicides. The average age at the time of death of the individuals identified was 36.7 (standard deviation [SD] = 12.9; gay), 36.0 (SD = 15.0; lesbian), and 26.0 (SD = 7.0; bisexual) years. The transgender individual was aged 56 years.

Table 1. Comparison of the details of the suicide incident between LGBT and non-LGBT cases

Measure	LGBT		Non-LGBT		OR (95% CI)	P
	%	n	%	n		
Left a suicide note	48.6	17	30.5	32	1.95 (0.94–4.04)	0.070
Found by partner	25.7	9	12.4	13	2.61 (0.94–7.26)	0.065
Found by parent	14.3	5	11.4	12	1.40 (0.37–5.19)	0.613
Found by sibling	2.9	1	4.8	5	Fisher's exact test	1.000
Found by child	0.0	0	6.7	7	Fisher's exact test	0.192
Found by other relative	2.9	1	2.9	3	Fisher's exact test	1.000
Found by friend	14.3	5	5.7	6	2.50 (0.76–8.19)	0.130
Found by acquaintance	2.9	1	8.6	9	Fisher's exact test	0.451
Found by a stranger	17.1	6	23.8	25	0.64 (0.23–1.78)	0.402
Unknown who found the body	0.0	0	1.9	2	Fisher's exact test	1.000
Treated by ambulance at scene	42.9	15	22.9	24	2.85 (1.17–6.89)	0.020
Hanging as means	60.0	21	50.5	53	1.44 (0.67–3.08)	0.342
Motor vehicle exhaust gas as means	14.3	5	6.7	7	2.14 (0.68–6.75)	0.193
Poisoning as means	11.4	4	21.9	23	0.45 (0.14–1.42)	0.174
Firearms as means	0.0	0	4.8	5	Fisher's exact test	0.331
Other means	14.3	5	16.2	7	0.86 (0.30–2.50)	0.793

CI, confidence interval; LGBT, lesbian, gay, bisexual, and transgender.

For both LGBT and comparison cases, the majority of suicides occurred among individuals residing in metropolitan areas (57.1% and 59%, respectively), with the remainder of LGBT cases being either regional (40%) or institutionalized (2.9%) and the remainder of non-LGBT cases being regional (35.2%), remote (4.8%), or institutionalized (1.0%). A chi-squared test revealed that the differences were not significant ($\chi^2 = 2.51$, d.f. = 3, $P = 0.473$).

In terms of suicide method, no statistically significant differences were detected between hanging, motor vehicle exhaust gas, and poisoning. The proportion of non-LGBT suicides that used firearms was 4.8%, while there were no cases of firearm suicides among LGBT cases. However, even this difference was not significant (Fisher's exact test = 0.331).

LGBT individuals were more likely than the comparison cases to have been found by their partner, with the difference close to statistical significance (OR = 2.61, $P = 0.065$). A slight prevalence was noted for LGBT cases to have left a suicide note (48.6%) than non-LGBT cases (30.5%; OR = 1.95, $P = 0.070$). LGBT individuals were at almost three times greater odds to have been treated by an ambulance at the scene, with the difference being statistically significant (42.9% versus 22.9%; OR = 2.85, $P = 0.020$) (Table 1).

Physical health

Average body mass index (BMI) of decedents was 25.1 (SD = 4.0; gay) and 20.4 (SD = 1.9; lesbian) and 23.6 (SD = 4.7; male non-LGBT) and 23.1 (SD = 9.0;

female non-LGBT). A healthy BMI falls within the range 18.5–24.9 (State Government of Victoria, 2013). The difference between lesbian and female non-LGBT cases approached statistical significance ($P = 0.094$), with lesbian individuals having a lower BMI. The difference between gay and male comparison cases was not significant ($P = 0.762$). The average BMI for bisexuals could not be calculated as data were only available for one individual.

Table 2 presents the results related to physical health. Findings in two areas of physical illness were statistically significant or very close thereto. First, the proportion of LGBT individuals with any infectious disease was 11.4% compared with 2.9% in the comparison group (Fisher's exact test = 0.066). This finding is mainly due to the fact that fully three LGBT individuals were human immunodeficiency virus-positive (HIV+) or had full-blown acquired immunodeficiency syndrome (AIDS) when they died by suicide, whereas no non-LGBT people were HIV+/AIDS sufferers (Fisher's exact test = 0.015). This represents 8.6% of LGBT cases, or almost 1 in 10 LGBT individuals.

Mental health

Findings related to mental health are shown in Table 3. The difference in the prevalence of any psychiatric disorder between LGBT and comparison cases was irrelevant (57.1% versus 55.2%, respectively; OR = 1.08, $P = 0.842$). Nevertheless, it was significantly more likely that depression was mentioned

Table 2. Comparison of physical health between LGBT and non-LGBT cases

Measure	LGBT		Non-LGBT		OR (95% CI)	P
	%	n	%	n		
Any physical illness	45.7	16	35.2	37	1.59 (0.70–3.58)	0.262
Infectious diseases (all)	11.4	4	2.9	3	Fisher's exact test	0.066
HIV/AIDS	8.6	3	0.0	0	Fisher's exact test	0.015
Circulatory system disorder (all)	14.3	5	6.7	7	2.26 (0.68–7.53)	0.181
Heart or artery disorder	14.3	5	4.8	5	3.00 (0.86–10.36)	0.082
Cancer	0.0	0	3.8	4	Fisher's exact test	0.572
CNS disorder	2.9	1	6.7	7	Fisher's exact test	0.679
Digestive disorder	0.0	0	3.8	4	Fisher's exact test	0.572
Sensory disorder	2.9	1	0.0	0	Fisher's exact test	0.250
Metabolism or nutritional disorder	0.0	0	5.7	6	Fisher's exact test	0.337
Musculoskeletal disorder	2.9	1	3.8	4	Fisher's exact test	1.000
Respiratory disorder	5.7	2	4.8	5	Fisher's exact test	1.000
Trauma near time of death	5.7	2	2.9	3	Fisher's exact test	0.599
General of unspecified health problems	14.3	5	16.2	17	0.86 (0.30–2.50)	0.793

AIDS, acquired immunodeficiency syndrome; CI, confidence interval; HIV, human immunodeficiency virus; LGBT, lesbian, gay, bisexual, and transgender; CNS, central nervous system.

Table 3. Comparison of mental health between LGBT and non-LGBT cases

Measure	LGBT		Non-LGBT		OR (95% CI)	P
	%	n	%	n		
Any psychiatric diagnosis	57.1	20	55.2	58	1.08 (0.49–2.38)	0.842
Unipolar depression	50.0	17	33.3	35	2.28 (0.94–5.52)	0.066
Depression mentioned in case	70.6	24	52.4	55	2.44 (1.00–5.98)	0.050
Anxiety	5.9	2	3.8	4	Fisher's exact test	0.634
Psychotic disorder	0.0	0	12.4	13	Fisher's exact test	0.038
Substance use disorder	2.9	1	5.7	6	Fisher's exact test	1.000
Personality disorder	2.9	1	1.9	2	Fisher's exact test	0.572
Other disorder	0.0	0	4.8	5	Fisher's exact test	0.334
Taking any prescription drug	45.7	16	52.4	55	0.76 (0.35–0.76)	0.487
Taking sertraline (Zoloft®, Pfizer Inc, New York, NY, USA)	11.4	4	3.8	4	3.00 (0.75–11.99)	0.120
Any psychiatric treatment	42.9	15	47.6	50	0.81 (0.36–1.81)	0.612
Psychiatric treatment from a GP	34.3	12	23.8	25	1.59 (0.72–3.48)	0.247
Current or previous outpatient psychiatric treatment	8.6	3	21.00	22	Fisher's exact test	0.128
Current outpatient psychiatric treatment	5.7	2	14.3	15	Fisher's exact test	0.240
Previous outpatient psychiatric treatment	2.9	1	3.8	4	Fisher's exact test	1.000
Current or previous inpatient psychiatric treatment	11.4	4	21.0	22	0.51 (0.17–1.55)	0.240
Current inpatient psychiatric treatment	0.0	0	4.8	5	Fisher's exact test	0.331
Previous inpatient psychiatric treatment	11.4	4	15.2	16	0.74 (0.24–2.25)	0.601
Current or previous "other" psychiatric treatment	11.4	4	16.2	17	0.66 (0.20–21.3)	0.495
Current "other" psychiatric treatment	8.6	3	9.5	10	Fisher's exact test	1.000
Previous "other" psychiatric treatment	2.9	1	2.9	3	Fisher's exact test	1.000
Illicit drug user	17.1	6	6.7	7	3.00 (0.89–10.05)	0.070

CI, confidence interval; GP, general practitioner; LGBT, lesbian, gay, bisexual, and transgender.

in the cases of LGBT suicides (70.6%) than in non-LGBTs (52.4%; OR = 2.44, $P = 0.050$), and the incidence of diagnosed depression came close to statistical significance (50.0% versus 33.3%; OR = 2.28, $P = 0.066$). Anxiety disorders were diagnosed in very few cases of both groups: 5.9% of LGBT and 3.8% of comparison cases (Fisher's exact test = 0.634). In terms

of psychotic disorders, 12.4% of non-LGBTs had been diagnosed with such a disorder, yet there were no such diagnoses whatsoever among LGBT individuals, a finding which was statistically significant (Fisher's exact test = 0.038). No difference in prescription medication usage was found overall (45.7% in LGBT versus 52.4% in comparison cases; OR = 0.76, $P = 0.487$).

Table 4. Comparison of life events between LGBT and non-LGBT cases

Measure	LGBT		Non-LGBT		OR (95% CI)	P
	%	n	%	n		
Relationship problems (all)	65.7	23	33.3	35	3.76 (1.66–8.54)	0.002
Relationship problems (separation)	34.3	12	23.8	25	1.79 (0.73–4.39)	0.203
Relationship problems (conflict)	31.4	11	9.5	10	3.73 (1.48–9.36)	0.005
Conflict (all)	20.6	7	21.9	23	1.00 (0.39–2.55)	1.000
Conflict (familial)	5.7	2	17.1	18	Fisher's exact test	0.160
Conflict (interpersonal)	14.3	5	4.8	5	3.00 (0.86–10.36)	0.082
Childhood trauma	5.9	2	1.0	1	Fisher's exact test	0.148
Child custody dispute	0.0	0	2.9	3	Fisher's exact test	1.000
Alcohol/drug dependency	14.7	5	21.9	23	0.61 (0.21–1.71)	0.350
Sexual abuse	2.9	1	1.0	1	Fisher's exact test	0.431
Pending legal matters	11.8	4	5.7	6	2.12 (0.56–8.07)	0.267
Financial problems	14.7	5	13.3	14	1.09 (0.34–3.46)	0.882
Recent or pending unemployment	8.8	3	7.6	8	Fisher's exact test	0.730
Work or school problems (not financial)	5.9	2	3.8	4	Fisher's exact test	0.634
Bereavement	5.7	2	5.7	6	Fisher's exact test	1.000
Other life event	35.3	12	20.0	21	2.00 (0.96–4.41)	0.086

CI, confidence interval; GP, general practitioner; LGBT, lesbian, gay, bisexual, and transgender.

The prevalence of illicit drug use was close to being significantly different: 17.1% of LGBT versus 6.7% of comparison cases (OR = 3.00, $P = 0.070$).

Life events

Table 4 presents the findings in relation to life events. In terms of relationship problems overall, LGBT individuals experienced such problems in the majority (65.7%) compared with exactly one-third in comparison cases, the difference being statistically significant (OR = 3.76; $P = 0.002$). Within the category of relationship problems, relationship conflict was significantly more common in LGBT than in non-LGBT cases (31.4% in LGBT versus 9.5% in comparison cases; OR = 3.73, $P = 0.005$). While family conflict was less common among LGBT suicides than non-LGBT (5.7% versus 17.1%, respectively; Fisher's exact test = 0.160), the difference was not statistically significant. Interpersonal conflict, however, was revealed to be more frequent among LGBT individuals (14.3%) than in comparison cases (4.8%), with the difference approaching statistical significance (OR = 3.00, $P = 0.082$).

Finally, "other" life events occurred somewhat more frequently in LGBT suicides (35.3%) than in non-LGBT suicides (20.0%) (OR = 2.00, $P = 0.086$). The QSR was scrutinized to unpack the content of these other events. These ranged from fear of contracting HIV to social isolation and alienation and conflict over sexuality.

Discussion

While the present study is unable to determine prevalence of LGBT suicides because of the unsystematic way in which data are gathered about the sexuality or gender identity of individuals who have died by suicide in Australia, we have been able to identify factors that seem to be specific to LGBT suicide cases when compared with non-LGBT suicides. To the best of our knowledge, the present study is only the second in almost 30 years (the only other recent study being Renaud *et al.*, 2010) and the first of its kind ever in the Australian context – to investigate these factors.

The results seem to paint a picture of a great deal of emotion and conflict in the lives of those that have died. It is clear that LGBT people who died by suicide had higher prevalence of depression than non-LGBT suicides. Indeed, the study on the health and well-being of 3,835 LGBTI Australians by Leonard *et al.* (2012) found that 55% of females and 40% of males scored in the "very high" level of psychological distress as measured by the K10 scale, compared with 11.4% and 7.1% of all respondents, respectively, in the ABS (2010) national survey using the same scale. While the K10 measures nonspecific psychological distress, it is based on symptoms of depression and anxiety, and very high scores may be indicative of the presence of mood disorders.

The high incidence of interpersonal conflict in the lives of LGBT people who have died by suicide in the present study is remarkable, with 65.7% having expe-

rienced some form of relationship problem prior to death. In the longer term, thus, the skills for resolving interpersonal conflicts require attention, as does the high prevalence of depression. Given the salience of conflict over sexuality in the life events of the LGBT individuals that died by suicide in the present study, self-acceptance and stigma reduction would seem to be important foci to target. The potential negative health outcomes of smoking, unsafe sexual practices, and illicit drug use are all also areas that (mental) health professional can pay special attention to. Finally, while there has been some suggestion that LGBT people are at a higher risk for substance use disorders (Cochran *et al.*, 2007), and it is noteworthy that prevalence of these was in fact lower in LGBT than in the non-LGBT cases in the present study, the higher likelihood of illicit drug use is an area for consideration.

The finding that odds for LGBT individuals who have died by suicide are almost three times higher than non-LGBT people to have been treated by an ambulance is curious. On the one hand, given that LGBT suicides were no more likely to occur outside metropolitan areas, this result is potentially not related to rurality. It may, on the other hand, be related to the finding that they were more likely to be discovered by a partner or friend. This further highlights the emotionality of these LGBT suicides and thus the need for a targeted approach to preventative activities that address the high degree of interpersonal conflict and distress experienced by these people.

The higher prevalence of HIV/AIDS in LGBT suicides is not surprising but has important implications for public health. Male-to-male sex still accounts for 70% of HIV diagnoses in Australia (Guy *et al.*, 2007). In addition to the obvious health risk of contracting HIV, somatic illnesses have themselves been found to be risk factors for suicide (Webb *et al.*, 2012) and hence the particular importance of addressing this issue. Indeed, the specter of HIV looms large in the present study with 3 of the 35 LGBT individuals being HIV+ and a further person who expressed strong fears related to contracting the virus. This figure is relatively high given that the prevalence rate of HIV/AIDS among gay, bisexual men in Queensland has been estimated at 4% (Prestage *et al.*, 2008) and highlights, nonetheless, the importance of ongoing government initiatives and support of nongovernment organizations working to prevent HIV infection among gay and bisexual men in particular. Furthermore, while our study was unable to measure perceived levels of societal stigma directly, this is an important topic and should warrant future attention in research in the area.

There are certain limitations to this study that need to be acknowledged. The information contained in the QSR is collected chiefly by police officers through interviews with next of kin (NOK) and the accuracy of this is likely to be affected by the grief experienced in the loss of a loved one to suicide. We were also unable to analyze all the social, cultural, and psychological factors that may have been associated with the suicides of the individuals studied, particularly as these may have been unknown to the NOK. What is more, the factors we have been able to identify cannot be claimed to have a causal relationship with the suicidal acts concerned because of the nature of this study, and caution should be exercised in interpreting the results. Perhaps the most important limitation, however, is the possible under-identification of LGBT suicide cases in the QSR and therefore limited number of suicide cases available for analysis. Of those responding to the 2007 Survey of Mental Health and Wellbeing (ABS, 2010), a nationally representative survey, 1.87% of men and 1.85% of women reported being "homosexual" or "bisexual," whereas we were only able to identify 0.58% of cases in the period studied as being LGBTI. Given the evidence for a gradually decreasing yet continued existence of stigma and discrimination related to sexuality in Australia (e.g., Hillier *et al.*, 2010), it could be expected that the ABS data still represent underreporting of minority sexuality (i.e., reluctance to truthfully report sexuality). Furthermore, taking the higher incidence of depression and anxiety in LGBTI people found in other large-scale studies (e.g., Leonard *et al.*, 2012) into account, it could be expected that incidence of LGBTI suicides would be higher rather than lower than that of non-LGBTI suicides. The relatively small number of identified LGBT cases also limited the statistical power of the analyses conducted.

Conclusion

Despite its limitations – chiefly the likely inability to identify the majority of LGBTI suicide cases – in this study, the first of its kind in Australia, we have been able to identify LGBT suicides in Queensland as a distinct subgroup. The findings – in particular, the presence of depression, particular somatic illnesses including HIV/AIDS and the frequency of interpersonal conflict – suggest that LGBT people may require targeted approaches in mental and general health services, schools, and public health and stigma reduction campaigns.

Ethics

The protocol for this research project has been approved by the Griffith University Human Research Ethics Committee (GU Ref No: CSR/01/13/HREC), which conforms to the Declaration of Helsinki in 1995 (as revised in Edinburgh 2000).

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