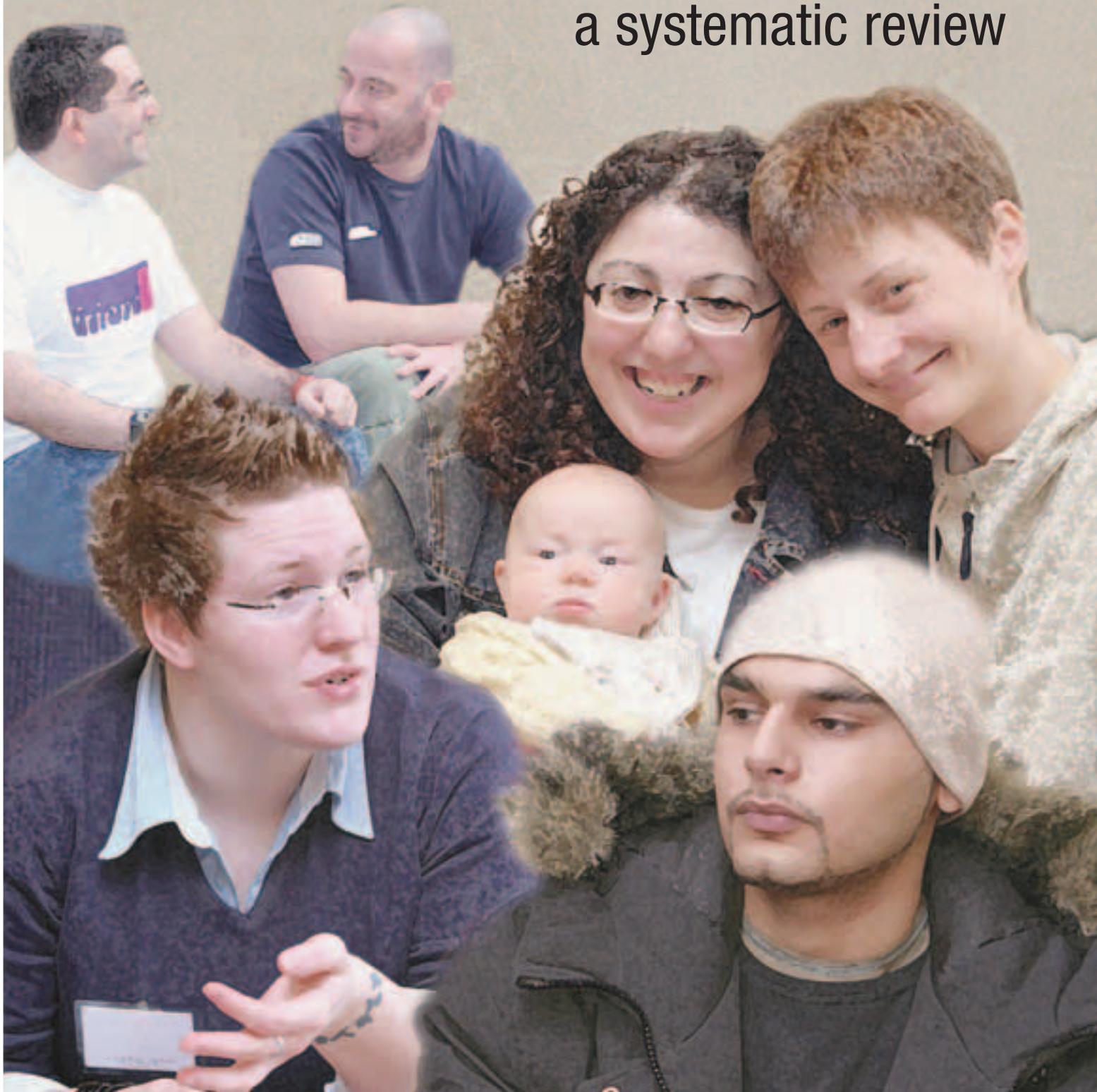


Mental disorders, suicide, and deliberate self harm in lesbian, gay and bisexual people

a systematic review



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Foreword

When we published the national suicide prevention strategy for England in 2002, we applied clear criteria for the inclusion of groups in Goal 1 (reduction of risk in key high risk groups).

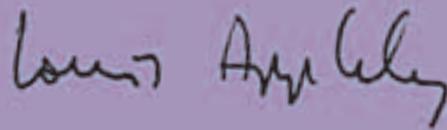
These criteria included:

- a known statistical risk of suicide
- actual numbers of suicides in the group were known
- evidence exists on which to base preventative measures
- effective monitoring of preventive measures exist.

Lesbian, gay and bisexual (LGB) people were not included as a high risk group because they did not meet these criteria. For example, routine data collection and monitoring of the number of suicides in this group is not possible because sexual orientation is not recorded when the death is registered, nor at the inquest.

However, we acknowledged the concerns by organisations representing LGB groups that there was an accumulation of evidence which suggested that sexual orientation is a risk factor for self-harm and suicide. That is why NIMHE commissioned this literature review into the risks of suicide and self-harm amongst lesbian, gay and bisexual people.

This report sets out the results of this systematic review and adds to the growing evidence that suggests that LGB people are at greater risk of mental disorders and suicidal behaviour than heterosexual people. The challenge now is to promote the findings and conclusions of this review and to consider the implications for the work of the suicide prevention strategy. That is why we will now include LGB people as a specific group who have special needs under Goal Two of the Strategy (to promote the mental well-being of the wider population). This will send out a clear message to organisations working with LGB groups, including health and social care agencies, that actions need to be taken if we are to reduce the risk of suicide in this group of people.



Professor Louis Appleby

National Director for Mental Health

Background

Reduction of suicide is a primary concern of the British Government. Goal one of the National Suicide Prevention Strategy is to reduce suicide risk in key high risk groups. The criteria used for selecting such key high risk groups were a known statistical risk; numbers of suicides in the risk group were available; evidence on which to base preventive measures; and effective monitoring of such measures was possible. However, the strategy document acknowledged that there were further risk groups about which concern had been expressed but for which these criteria were as yet unmet. One such group is lesbian, gay and bisexual people, for whom there is increasing evidence of elevated risk of mental disorder, suicide, suicidal ideation, substance misuse, and deliberate self harm (DSH).

We undertook a systematic review of the world literature to quantify the risk for mental disorders, substance misuse, suicide, suicidal ideation and DSH in lesbian, gay and bisexual people. Our hypothesis was as follows: Gay, lesbian and bisexual people are at higher risk than heterosexual people of mental disorder, substance misuse and dependence, suicide, suicidal ideation and DSH.

Method

We searched (1966-2005) Medline, Embase, PsycInfo, Cinahl, the Cochrane Library Database, the Web of Knowledge, the Applied Social Sciences Index and Abstracts, the International Bibliography of the Social Sciences, Sociological Abstracts, the Campbell Collaboration and centres for the grey literature. For the purposes of the search, we included papers that provided valid definitions of sexual orientation and mental health outcomes. Random sampling is hampered by participants' reluctance to disclose their sexual orientation and the small numbers of lesbian, gay and bisexual people recruited.

Thus other methods such as snowball sampling (initial lesbian, gay and bisexual participants recruit other lesbian, gay and bisexual people in successive waves) were regarded as acceptable if the study met other inclusion criteria. We included studies in which people defined themselves as: gay, lesbian, homosexual, bisexual and/or in which they reported levels of same sex attraction or behaviour. We excluded studies based in clinical or psychological services. We only included studies in which there was a concurrent heterosexual comparison group within either a cohort, case-control or cross sectional study. Outcomes were defined as: a) a psychiatric disorder according to the International Classification of Diseases or the American Psychiatric Association's Diagnostic and Statistical Manual (including substance misuse disorders); b) scores or a recognised threshold for psychiatric morbidity on standardised scales (including alcohol or drug dependence); c) alcohol misuse: consumption above UK Government recommended maximum weekly limits (21 units men, 14 units women); d) suicide (the intentional taking one's own life) e) suicidal ideation (i.e. thoughts of taking one's life without acting on them); f) DSH: intentional self poisoning or injury irrespective of the apparent purpose of the act. These outcomes were extracted for both the lesbian, gay and bisexual and heterosexual comparison groups as cumulative incidence rates in prospective cohort studies or period prevalence rates in cross sectional studies. We used the Cochrane Handbook's general guidance on non-experimental studies to inform our choice of quality indicators for each study.

Data on setting, study design, population and sampling details, sexuality and outcomes were extracted twice by the authors working in pairs. Lifetime and 12 month prevalence estimates for each selected outcome were extracted. Relative risks and attributable risks were calculated to compare lesbian, gay and bisexual people with the comparison heterosexual population for each outcome. Where appropriate, groups of studies were combined in meta-analyses. Data are presented for men, women, and both men and women where available.

Results

Of the 476 papers selected, 28 papers reporting on 25 studies met study inclusion criteria. There were insufficient data in the three studies found concerning completed suicide to include it as an outcome in the review.

The studies were conducted in seven countries in North America, Europe and Australasia, with 67% based in the USA. The papers were published between 1997 and 2004, with two thirds published between 2000 and 2003.

Main Findings

Suicidal behaviour, mental disorders and substance misuse

Only one study met the highest of all our four quality criteria and seven met three of these criteria. Data was extracted on 214,344 heterosexual and 11,971 non heterosexual people aged 12 and over. Meta-analyses revealed a two fold excess in suicide attempts in lesbian, gay and bisexual people [pooled risk ratio for lifetime risk 2.47 (CI 1.87, 3.28)]. The risk for depression and anxiety disorders (over a period of 12 months or a lifetime) on meta-analyses were at least 1.5 times higher in lesbian, gay and bisexual people (RR range 1.54-2.58) and alcohol and other substance dependence over 12 months was also 1.5 times higher (RR range 1.51-4.00). Results were similar in both sexes but meta analyses revealed that lesbian and bisexual women were particularly at risk of substance dependence (alcohol 12 months: RR 4.00, CI 2.85, 5.61; drug dependence: RR 3.50, CI 1.87, 6.53; any substance use disorder RR 3.42, CI 1.97-5.92), while the risk of lifetime prevalence of suicide attempt was especially high in gay and bisexual men (RR 4.28, CI 2.32, 7.88).

Gender differences

The findings were generally similar for men and women, but lesbian and bisexual women were at particular risk of suicidal ideation and substance dependence. Gay and bisexual men were over four times as likely (relative risk 4.28) to have attempted suicide in their lifetime as heterosexual men, whereas relative risk of attempted suicide for lesbian and bisexual compared to heterosexual women was 1.87.

Strengths of findings

The review applied eligibility criteria in order to include studies that recruited relatively unselected lesbian, gay and bisexual populations and contemporaneous comparison groups, and reported clearly described and potentially replicable mental health outcomes. Inevitably, however, we had to exclude otherwise well conducted research that was based in specialised populations or in health services or that selected the lesbian, gay and bisexual sample in a particular way. Where they could be compared, our relative risks were similar to authors' reported unadjusted relative risks or odds ratios, which means that we did not extrapolate seriously beyond the studies' findings.

Conclusions

Our findings show that LGB people are at significantly higher risk of mental disorder, suicidal ideation, substance misuse, and DSH than heterosexual people. An awareness of the mental health needs of LGB people should become a standard part of training for health and social work professionals.

Routine inclusion of sexual orientation in data collection would assist in identifying this high risk group. Moreover, agencies and professionals who have particular expertise with gay and lesbian clients should be made known through appropriate publicity. Further research to address reasons for the increased risk of mental health problems in this population and to implement and assess appropriate interventions are needed. There is an urgent need for mental health services to develop LGB sensitive services and an obvious initial step would be the incorporation of LGB issues into diversity training for staff.

Mental disorders, suicide, and deliberate self harm in lesbian, gay and bisexual people

a systematic review

Background

Lesbian, gay and bisexual (LGB) people appear to be at greater risk than heterosexual people of mental disorders and suicidal behaviour^{1,2}. LGB people experience discrimination and victimisation^{1,3} and lifestyle factors such as alcohol and drugs misuse also increase the risk of morbidity¹ such as suicide attempts⁴. Previous research, however, is limited by inconsistent definition of sexual orientation, deliberate self-harm (DSH) and mental illness; difficulty in recruiting representative samples; unwillingness to disclose sexual orientation; lack of information in psychological post mortem studies and the complexity of choosing appropriate comparison groups. We undertook a systematic review of the world literature to quantify the risk for mental disorder, substance misuse, DSH, suicidal ideation and suicide in LGB people.

Hypothesis

Gay, lesbian and bisexual people are at higher risk than heterosexual people of mental disorder, substance misuse and dependence, suicide, suicidal ideation and DSH.

Objective

To undertake a systematic review of the international research literature to establish whether LGB people are at higher risk of mental disorder, substance misuse, suicide, suicidal ideation and DSH than heterosexual people and to quantify this risk.

Method

We searched for studies of mental disorder, drug and alcohol misuse and dependence, DSH, suicidal ideation and/or suicide in general (community) or selected (e.g. student) populations in which sexual orientation was reported.

Data sources

We searched Medline, Embase, PsycInfo, Cinahl, the Cochrane Library Database, the Web of Knowledge, the Applied Social Sciences Index and Abstracts, the International Bibliography of the Social Sciences, Sociological Abstracts, the Campbell Collaboration and grey literature databases for articles published between January 1966 and April 2005. We searched all terms related to homosexual, lesbian and bisexual people and all terms related to mental disorders, suicide, and deliberate self-harm. No language limits were imposed. A full internet search was also carried out using Google and Google Scholar and authors were contacted where necessary. We also searched the reference lists of relevant papers.

Study selection

Eligibility

We included papers that provided valid definition of sexual orientation and mental health outcomes. Random sampling is hampered by participants' reluctance to disclose their sexual orientation and the small numbers of LGB people recruited. Thus other methods such as snowball sampling (initial LGB participants recruit other LGB people in successive waves) were regarded as acceptable if the study met other inclusion criteria. We included studies in which people defined themselves as: gay, lesbian, homosexual, bisexual and/or in which they reported levels of same sex attraction or behaviour. We excluded studies based in clinical or psychological services. We only included studies in which there was a concurrent heterosexual comparison group within either a cohort, case-control or cross sectional study. Outcomes were defined as: a) a psychiatric disorder according to the International Classification of Diseases or the American Psychiatric Association's Diagnostic and Statistical Manual (including substance misuse disorders); b) scores or a recognised threshold for psychiatric morbidity on standardised scales (including alcohol or drug dependence); c) alcohol misuse: consumption above UK Government recommended maximum weekly limits (21 units men, 14 units women); d) suicide (the intentional taking one's own life) e) suicidal ideation (i.e. thoughts of taking one's life without acting on them); f) DSH: intentional self poisoning or injury irrespective of the apparent purpose of the act⁵. These outcomes were extracted for both the LGB and heterosexual comparison groups as cumulative incidence rates in prospective cohort studies or period prevalence rates in cross sectional studies.

Screening process and assessment of eligibility

The titles and abstracts of citations were screened by JS and DP and those not meeting eligibility criteria, unpublished dissertation theses, case reports, letters, commentaries, or review papers were excluded. Decisions on papers included in the final review were made by pairs of authors and disagreements discussed at steering group meetings involving all authors.

Data extraction

At least two of the authors extracted data from each paper on study setting, study design, population and sampling details, attrition and response rate. We recorded the definition of LGB sexual orientation (same sex attraction; same sex behaviour; self identification as lesbian gay or bisexual; a score above zero on the Kinsey scale⁶) and outcome (mental disorder, substance misuse, DSH, suicidal ideation and suicide). Where appropriate we extracted prevalence estimates and/or odds ratios; for continuous data we extracted means and standard deviations. In instances of disagreement, each case was discussed by all authors.

Quality of studies reviewed

We used the Cochrane Handbook's general guidance on non-experimental studies to inform our choice of quality indicators (2 indicating higher quality than 1). We examined for: sampling: non random =1, random =2; representativeness: response rates: <60% =1, 60% or more=2; population definition: selected sample (e.g. school students) =1; general population = 2 and sample size: <100 LB or GB people = 1, >100 LB or GB people=2.

Data synthesis

Studies were grouped according to lifetime or 12 month prevalence and where possible we analysed outcomes for lesbians, gay men and bisexual people separately and collectively. We calculated risk ratios and attributable risks (differences between rates in LGB and non LGB people) from extracted prevalence data. We examined suicide attempts when reported instead of or in addition to DSH. For continuous outcomes, we calculated the effect size as standardised mean difference in scores between LGB people and controls.

Meta-analytic approach

We adopted standard methods for conducting meta-analyses where there were two or more studies with useable outcome data. We used a random effects model which used inverse variance methods to calculate the pooled effect estimate in which the weight given to each study is the inverse of the variance of the study estimate together with the common heterogeneity variance. We quantified the effect of heterogeneity⁷ by using² which describes the percentage of total variation across studies that can be attributed to heterogeneity rather than chance⁸.

Results

From 13706 citations identified, 476 papers were retrieved of which 429 were excluded (figure 1*). Eighty-three of those excluded were controlled studies^{36-120,122,123}; two^{39,40} were excluded because the data were repeated elsewhere²⁹; seven did not meet sampling criteria^{36-38,75,76,118,119}; 34 did not report suicide, DSH or diagnostic outcomes⁴¹⁻⁷⁴; 37 involved unrepresentative populations⁷⁷⁻¹¹³ and three on closer inspection did not concern LGB people¹¹⁴⁻¹¹⁶. There were insufficient data in three studies on completed suicide to include it as an outcome in the review. One that involved suicide in a cohort of bisexual and gay men was excluded because it was uncontrolled¹¹⁷; one study comparing clinical characteristics of a subpopulation of gay and non-gay male suicides was excluded because of sampling concerns¹¹⁸ and a psychological autopsy study carried out in 1995¹¹⁹ was excluded as it contained only three gay male suicides.

Study characteristics

Twenty-eight papers^{1,9-35} reporting on 25 studies^{1,9,10-12,14,15,17-31,33-35} met our inclusion criteria (table 1*); six papers^{12,13,15,16,31,32} reported data on three studies. Five studies could not be included in a meta-analysis because the data were not extractable or in a format that allowed comparison^{10,11,22,27,34}. Three of the four longitudinal cohorts^{11,18,33}, presented nested cross-sectional data on sexual orientation and mental health at one time point. One cohort study, however, conducted a longitudinal analysis of cumulative incidence of suicidal attempts but did not provide extractable data³⁴. No case-control studies were identified. The studies were conducted in seven countries in North America, Europe and Australasia, with most based in the USA (17/25, 67%). The papers were published between 1997 and 2004, with two thirds published between 2000 and 2003. Participation rates ranged from 25%²³ to 95%²⁸.

Population

The papers contained data on 214,344 heterosexual and 11,971 non heterosexual people aged 12 and over. Four studies involved people aged under 18^{10,17,29,30} and 18 involved people under 25 years. Four studies included only women^{11,20,24,26}, three only men^{9,14,21} and 18 both sexes. Eight studies^{10,17,21,25-26,28-30,34} concerned high school and college students. Of the 21 cross sectional studies, nine used random sampling^{9,15,19,20,22,25,26,31,35}; two multi-stage sampling^{12,14}; two snowball sampling^{1,24}; one systematic sampling (i.e. 26 years follow up data on a birth cohort)²³; and seven did not specify their sampling method^{10,17,21,27,28,29,30}.

* To view figures and tables, please visit www.nimhe.csip.org.uk

Definition of sexuality

Sexuality was defined in a number of ways even within the same study: four studies used same sex attraction^{24,30,33,34}; 13 used same sex behaviour^{9,10,12,14,17-19,21,24,29-31,34,35}; 15 used participant self identification^{1,9,10,11,15,18,20,22,23,25-29}; and three used a score above zero on the Kinsey scale^{1,28,34} (see Table 1*). Nine studies used two definitions of sexual orientation^{1,9,10,18,24,28-30,35} and one used three definitions³⁴. Self-identified sexuality was based on the categories heterosexual, homosexual or bisexual^{9,15,18,20,22,23,28} or included the choices gay or lesbian^{1,10,11,25,26,27,29}. Eighteen studies used a specific time frame to assess sexuality. Lifetime same sex attraction was assessed in two studies^{30,33}; current same sex attraction assessed in four^{24,33-35} and in one study both were assessed³³. Same sex behaviour was assessed as occurring 'in the last year' in two studies^{12,24}, 'in the last five years' in one study¹⁹ or 'ever' in nine studies^{9,10,14,17,18,21,29,30,34}.

Outcomes of interest

Fifteen studies assessed suicide attempts or DSH^{1,9,10,14,17-19,21,23,24,28-30,33,34} and 12 assessed suicidal ideation^{14,17-19,21,22,23,24,26,28,30,33}. Data on mental disorder were assessed in 10 studies^{1,9,11,12,14,15,18,19,22,31}, substance dependence in six studies^{12,15,18,19,31,35} and substance misuse in nine studies^{1,19,20,22,25,26,27,31,35}. Eighteen studies assessed more than one of these outcomes^{1,9,12,14,15,17-19,21-24,26,28,30,31,33,35} and one study assessed all¹⁹. Risk ratios and attributable risks were calculated for all outcomes of interest (figures 2-9*). We used the following abbreviations: GB (gay and bisexual men); LB (lesbians and bisexual women) and LGB (lesbians, gay men and bisexual men and women).

Quality of cross sectional studies

Nine studies were based on random populations but only seven of these were sampled from the community rather than from specific groups (e.g. schools). Only four of these reported responses of at least 60% and of these only one¹⁹ sampled 100 or more LGB people (table 2*).

Data syntheses

Suicide attempts and DSH

Only one cohort study³⁴ reported cumulative incidence of suicide attempts over two years in 2924 Norwegian school youths. They reported an odds ratio of 4.69 (95% CI 2.29, 10.62) for LB girls after adjustment but no significant differential for BG boys.

Meta-analyses of cross-sectional studies of lifetime suicide attempts demonstrated increased risk in all groups when compared to heterosexuals but there was substantial heterogeneity when these data were combined for both sexes and for men only (Figure 2*). Attributable risk ranged from 0.03 to 0.25 and was higher in men than women. Studies in this analysis were limited by small samples^{9,14,18,33} or selection bias^{18,23,28,33} (Table 2*). One small study that met all but one quality criteria showed a high risk of suicide attempts in men (Figure 2*)⁹. Meta-analysis in women demonstrated 1.82 times increased risk of lifetime suicide attempts in lesbians and bisexuals compared to controls and showed little heterogeneity (Figure 2*). However, all the studies failed to meet several of our quality indicators.

Risk ratios for 12 month prevalence of suicide attempts ranged from 1.96 to 2.76 (men 2.23 to 2.53; women 1.94 to 2.46), while attributable risk ranged from 0.01 to 0.14 (men 0.01 to 0.03; women 0.01 to 0.07). The pooled estimate for men and women was 2.56 (Figure 2*) with similar values for LB and GB people and all showed little or no heterogeneity. The highest quality study¹⁹, however, showed a non significant risk ratio for all groups.

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Only two studies reported lifetime prevalence of DSH^{1,33} (Figure 3*) and meta-analyses of these data produced equivocal results. One further study that met all but one of our quality criteria reported elevated risk of lifetime prevalence of DSH and/or suicide attempts⁹ in gay rather than bisexual men (RR: Gay=3.61, CI 1.86, 7.01; Bisexual men=1.95, CI 0.73, 5.19).

Suicidal ideation

Meta-analyses of lifetime prevalence of suicidal ideation revealed risk ratios of 2.04 for both sexes (range: both sexes 1.72 to 2.42; men 2.0 to 4.10; women 1.75 to 2.10) with considerable heterogeneity. Attributable risk ranged from 0.10 to 0.40 (Figure 4*). All studies included in this analysis were limited by selection bias²³⁻²⁴ and small samples^{12, 17}.

The combined meta-analysis of 12 month prevalence of suicidal ideation contained some heterogeneity in both sexes and in women, but none in men. The risk ratio in both sexes was 1.71 (men 1.64; women 2.31) while attributable risk ranged from 0.02 to 0.21 (men 0.02 to 0.13; women 0.02 to 0.21). One study that met all four quality criteria¹⁹ demonstrated over three times the risk in women but not in men. The other studies were limited by selection of very young populations^{17, 28, 30, 33, 26} or low participation rates²⁶.

In summary, there were elevated risks for suicide attempts and ideation in LGB people but quality of studies was limited. Data from higher quality studies showed higher cumulative incidence of suicide in LB school girls, increased lifetime risk of suicide attempts in GB men and increased 12 months risk of suicidal ideation in LB women.

Mental disorders – depression

Three studies reported lifetime prevalence of depression^{14, 18, 31}. Increased risk of lifetime depression was observed in both sexes and men with little heterogeneity in the analyses (Figure 5*). One of the two studies that met all but one quality criteria demonstrated a risk ratio of 2.2 in both sexes; 2.68 in men (Figure 5*); and 2.21 (CI 1.57, 3.12) in women³¹.

The risk of 12 months prevalence of depression in LGB people on meta-analysis was at least twice that of heterosexual controls with little heterogeneity (Figure 5*). All studies in this analysis were of good quality based on general population samples with high participation rates. Risk ratios ranged from 1.57 to 3.74 (men 1.57 to 3.74; women 1.67 to 3.69) and attributable risk from two studies ranged from 0.04 to 0.20 (men 0.04 to 0.20; women 0.04 to 0.22). The only study that met the highest standard on the four quality criteria demonstrated significantly higher risk ratios and attributable risk for women but not men¹⁹. Lastly, a study of 45 gay and 37 bisexual men that recorded depression on a standardised scale and met all but one of our quality criteria showed a small but positive effect size indicating more depression in gay or bisexual men (standardised mean difference in depression score 0.16)⁹.

Mental disorders – anxiety

Two studies reported lifetime prevalence of any anxiety disorder and both met all but one of the quality criteria^{18,31}. Although their data could not be combined in a meta-analysis, increased risk was reported in both sexes (RR 2.28 CI 1.25, 4.21)¹⁸ and in men (RR 2.40, CI 1.72, 3.35)³¹, but not in women (RR 1.02, CI 0.61, 1.70)³¹. The meta-analyses of data on 12 month prevalence of any anxiety disorder (Figure 6*) resulted in a pooled RR of 1.54 for both sexes and 1.88 in men with little heterogeneity. Attributable risk ranged from 0.00 to 0.17 (men 0.01 to 0.12; women 0.00 to 0.17). The result in women was less convincing because of heterogeneity. The only study of the four in this analysis that met the highest of all four of our quality criteria demonstrated an elevated risk of 1.75 in women¹⁹. All the studies were based on general population samples and were of reasonable quality.

In summary, on the basis of studies of relatively good quality, there was an elevated risk of lifetime and 12 month prevalence of depression and anxiety disorders in all LGB groups compared to heterosexual controls.

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Alcohol misuse

Data from a single study that met all but one of our highest quality criteria showed increased risk of lifetime prevalence of alcohol dependence in both sexes (RR 2.59 CI 1.62, 4.15) and women (RR 6.51, CI 2.74, 15.44) but not in men (RR 1.60, CI 0.91, 2.80)³¹. All the studies in this analysis met at least three of our four quality criteria. Risk ratios for alcohol dependence in the previous 12 months in both sexes ranged from 1.76 to 3.05 and were higher in women (Figure 7*). Attributable risk for alcohol dependence over 12 months was higher in women (Figure 7*). Two studies presented data in accordance with our definition of alcohol misuse within the previous 12 months. McCabe et al (2003)²⁵ reported little difference between LGB people and controls, but Gruskin et al (2001)²⁰ reported higher risk of alcohol misuse (RR 3.52, CI 1.97, 6.26) in LB than heterosexual women, with an attributable risk of 7% .

Drug misuse or any substance misuse disorder

One study reported higher risks of lifetime prevalence of drug dependence in both sexes (RR 4.32, CI 2.14, 8.72), men (RR 2.71, CI 1.01, 7.37) and in women (RR 7.74, CI 2.88, 20.75)³¹. Meta-analyses of data on drug dependence over the previous 12 months showed 2.73 times greater risk in both sexes, 3.5 times greater in women and 2.41 times greater in men than controls (Figure 8*). Attributable risk for drug dependence in the previous 12 months ranged from 0.002 to 0.05 in both sexes, in men 0.03 to 0.05 and women 0.02 to 0.04 (Figure 8*).

One good quality study³¹ of lifetime prevalence of any substance use disorder showed elevated risk in women (RR 3.61 CI 2.13, 6.11, attributable risk 0.11 to 0.26) but not men (RR 1.05, CI 0.76, 1.47; attributable risk -0.08 to 0.11). Similar findings arose in the meta-analyses of data from two good quality studies on 12 months prevalence of any substance use disorder (figure 9*).

In summary, there was an increased lifetime and 12 month risk of alcohol and drug dependency in all groups compared with heterosexuals with markedly higher risk in lesbian and bisexual women.

Discussion

Our findings indicate that LGB people are at higher risk of suicidal behaviour, mental disorder and substance misuse and dependence than heterosexual people. There is currently insufficient evidence to assess risk of completed suicide in LGB people. The results of the meta-analyses demonstrate a two fold excess in risk of suicide attempts in the preceding year in men and women, and a four fold excess in risk in gay and bisexual men over a lifetime. Similarly, depression, anxiety, alcohol and substance misuse were at least 1.5 times more common in LGB people. Findings were similar in men and women but LB women were at particular risk of substance dependence, while lifetime risk of suicide attempts was especially high in GB men.

Strengths and limitations of the review

This review has a number of strengths. Our search terms included all possible subcategories of mental disorder and substance dependence. We identified a wide range of study methods but excluded designs that provided biased or erroneous estimates. We included studies with consistent definitions of sexual orientation and with contemporaneous comparison groups. In some of the studies, participants were given the option of indicating they were unsure of their sexual orientation and generally these participants were excluded from the studies' analyses. However, numbers in these categories were usually very small. Our approach to retaining credible subgroups such as men and women and life-time versus recent outcomes was the most valid and made the least assumptions about the data. Selection bias can be a major problem with research into sexual orientation, especially if samples are drawn from specific community settings such as bars, support groups or health services frequented by LGB people.

* To view figures and tables, please visit www.nimhe.csip.org.uk

People attending such settings might have very different rates of mental health problems to LGB people in the general population. All studies included in this review used well-described and potentially replicable mental health outcomes. On these bases, we can conclude that the studies included in this review are likely to give the most valid estimate of the risks. However, there were also limitations. Only one study met all four of our quality criteria, while seven met all but one of our quality markers. The number of studies in each meta-analysis was relatively small and thus we were unable to interpret funnel plots to investigate sources of bias or run a meta-regression analysis to account for the variable quality of the studies identified in this review.

Given the range of study design and definitions of exposure and outcome, we encountered significant heterogeneity in our meta-analyses. However, these estimates did not deviate markedly from data reported in the better quality studies. Although, in some studies reported data were weighted or shown as percentages, our calculated risk ratios were similar to unadjusted ratios reported in these papers making it unlikely that we have extrapolated beyond the studies' findings. The distinction between suicide attempt and DSH was often unclear. We followed authors' definitions of the acts and did not judge the life threatening nature of the behaviour. Finally, uncertainties inherent in defining and recruiting a representative sample of LGB people cannot be overcome in a systematic review. For example, participants may be asked about their sexuality in ways that are unfamiliar to them and it is often assumed on little evidence that sexual orientation is a fixed characteristic over the life-time. Recall of lifetime disorders or substance use is also subject to potential error and bias. Finally, the distinction between suicide attempt and DSH was often unclear. We found very few studies on DSH that met entry criteria; most concerned suicide attempts. We followed authors' definitions of the acts when assessing their studies and did not make judgements about the life threatening nature of the behaviour reported. Despite these reservations about our review, the consistent direction of our findings suggests that mental health is poorer in LGB people.

Selection of studies

We had to exclude otherwise well conducted research that was based in specialised populations or in health services or that selected LGB people in a particular way. We wish to highlight three studies that we eventually excluded on grounds of selection of the LGB population³⁶⁻³⁸; but whose results were broadly in the direction of our findings. Russell & Keel (2002)³⁶ reported data on depression using the Beck Depression Inventory; van Heeringen & Vincke (2000)³⁸ reported data on suicide attempts and ideation and Savin-Williams (2001)³⁷ reported data on suicide attempts.

Explanations for our findings

Why might LGB people have more emotional and substance misuse problems and be more likely to attempt to end their lives than their heterosexual counterparts? Our study aimed to determine whether there was unequivocal evidence for a preponderance of mental health problems in LGB people relative to heterosexuals. Thus, circumspection is required when discussing possible mechanisms which generate them¹²⁰. It is likely that the social hostility, stigma and discrimination that most LGB people experience is likely to be at least part of the reason for the higher rates of psychological morbidity observed. Prejudice against homosexuality is unlike other intolerance in that it can reach into families; rejection by parents of their own children because of their sexual orientation is likely to have a severe emotional impact. This social exclusion of LGB people encourages social contacts in specific LGB venues such as pubs, clubs and bars. Thus mental distress may be aggravated by easy access to alcohol and drugs in gay venues that LGB people frequent both to find the company of others who will accept them less critically and to meet potential partners.

Finally, it has long been argued that homosexuality is an abnormal condition that is likely to be accompanied by co-morbid psychological problems. There is no evidence, however, for developmental or physical abnormalities in gay men and lesbians that would lend support to the view that it is a developmental error¹²⁰. The difficulties LGB people face in an unsympathetic society are much more likely explanations for these findings. Unfortunately, despite considerable change for the better in the attitudes of psychiatric professionals towards LGB people¹²¹, in parts of the developed world gay men and lesbians continue to be encouraged to seek to change their sexual orientation¹²², an attitude that can only prolong the impression of disapproval and social exclusion.

Further research

Besides more qualitative and case-control research, we need prospective studies as these are most likely to reveal the mechanisms involved. Although, in this review we identified four cohorts^{15, 18, 33, 34} only one collected prospective data on suicidal risk in lesbian, gay and bisexual people³⁴. Prospective studies, however, are difficult to undertake as many people cannot or will not identify themselves as LGB until in late adolescence or even young adulthood when the emotional damage may already have occurred. Nevertheless, a cohort of young LGB people who are followed through as they complete education and career training and start relationships and families, would begin to address this difficult issue. We also need evidence on the proportion of LGB people among those who complete suicide. However, this research is particularly difficult to undertake or interpret, not only because of the sensitivity of psychological post-mortem examinations with families and close friends but also because many LGB people who commit suicide may never have declared their sexual orientation or feelings to other people,

Implications for services

An awareness of the mental health needs of LGB people and their increased risk of mental disorders should become a standard part of training for health and social work professionals. In order to identify this high risk group, sexual orientation should be included in routine demographic data collection at assessment. Links with agencies and professionals who have particular expertise with gay and lesbian clients should be made and referrals to such agencies should be encouraged where appropriate. For example, specifically trained professionals employed within statutory services could deliver psychological interventions to LGB clients and/or “sign-post” and direct their care pathways to agencies with LGB expertise. There is an urgent need for mental health services to develop LGB sensitive services and an obvious initial step would be the incorporation of LGB issues into diversity training for staff. Finally, the Department of Health needs to consider whether LGB people should be considered as a population at significant risk of DSH.

What is already known on this topic

- Lesbian, gay and bisexual people appear to be at greater risk than heterosexual people of mental disorders and suicidal behaviour.
- Evidence is limited by inconsistent definitions of sexual orientation and mental health outcomes, unwillingness to disclose sexual orientation, and lack of representative samples and appropriate comparison groups.

What this study adds

- There is at least twice the risk of suicide attempts in lesbian, gay and bisexual people compared to heterosexuals.
- This risk increased to four times in gay and bisexual men.
- Depression, anxiety, alcohol and substance misuse were at least 1.5 times more prevalent in LGB people.
- Lesbian and bisexual women were particularly at risk of suicidal ideation and substance dependence, while lifetime risk for suicide attempt was especially high in gay and bisexual men.

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Michael King FRCPsych PhD¹² *Professor*, **Joanna Semlyen** MSc¹ *Research Fellow*, **Sharon See Tai** MSc³ *Statistician*, **Helen Killaspy** MRCPsych PhD¹² *Senior Lecturer*, **David Osborn** MRCPsych PhD¹² *Senior Lecturer*, **Dmitri Popelyuk** MRCPsych¹ *Specialist Registrar*, **Irwin Nazareth** FRCGP PhD³⁴ *Professor*

1 Department of Mental Health Sciences, Hampstead Campus, Faculty of Biomedicine, University College London, London NW3 2PF, UK

2 Camden and Islington Mental Health and Social Care Trust, St Pancras Hospital, London NW1, UK

3 Department of Primary Care and Population Sciences, Hampstead Campus, Faculty of Biomedicine, University College London, London NW3 2PF, UK

4 General Practice Research Framework, Medical Research Council, 158-60 North Gower Street, London, NW1 2ND, UK

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