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Contested conclusions: Claims that can (and cannot) be made from the current research on gay, lesbian, and bisexual teen suicide attempts

Elizabeth M. Saewyc, PhD, RN, PHN
Michael Smith Foundation for Health Research Scholar
Associate Professor, School of Nursing, University of British Columbia
Senior Scientist, Centre for Community Child Health Research
and
Research Director, McCreary Centre Society
Vancouver, British Columbia, Canada

Reprints and contact information:

Dr. Elizabeth M. Saewyc
School of Nursing, University of British Columbia
T201-2211 Wesbrook Mall
Vancouver, BC V6T 2B5 Canada
saewyc@interchange.ubc.ca

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Abstract

As the press and communities interpret research reports, their conclusions may go far beyond a study's evidence, especially if groups are trying to support politically-motivated claims about controversial causes and solutions to health problems. Few research designs can "prove" cause and effect, especially in population health research. However, some designs are better than others at identifying influences on health. Several strategies can help non-researchers evaluate studies critically. Using these strategies, this paper explores claims that can (and cannot) be made about causes of suicide attempts among gay, lesbian, and bisexual adolescents, based on current research evidence available.

Contested conclusions: Claims that can (and cannot) be made from the current research on gay, lesbian, and bisexual teen suicide attempts

As the press and communities try to make sense of research reports, they may draw conclusions that go far beyond what a study can actually claim. Most people who are not researchers do not know the limits of various research designs. A recent example: research we presented about suicide attempts for lesbian, gay, and bisexual adolescents (LGB) at the Canadian Public Health Association meeting (Saewyc, Skay, Poon & Murphy, 2006) sparked unexpected media attention. A local journalist's article was carried on the front page of a major Canadian newspaper (Bohn, 1996), then picked up by a newswire, and disseminated across the globe, spurring follow-up stories and interviews from Australia to India, North and South America, and across Europe.

Although we merely reported the gap between LGB and heterosexual teens, humans are seldom satisfied with just knowing a difference exists. Humans want to know why. Prevalence studies cannot tell why, but non-scientists were quick to attribute causes, even implying their conclusions were in the study (Focus on the Family, 2006). One assertion, attributing higher rates of suicide to “pro-gay advocates in the schools” convincing lesbian teens to “embrace homosexuality” was challenged by a media watchdog group, and a second flurry of press reports focused on how the research had been “hijacked” by a “conservative religious group...to support its beliefs” (Gorham, 2006).

Few research designs can even come close to “proving” cause and effect (Rothman & Greenland, 2005) and those that more strongly suggest causal links between risk factors and outcomes may be impossible or unethical for public health research to use. Experimental

designs, which randomly assign some people to be exposed to a risk, are a type of scientific Russian roulette which ethical scientists rule out when the risk is life threatening.

There are some strategies public health researchers use to help tease out influences where experimental studies cannot be conducted, for topics such as suicide attempts. This paper explores the claims that can (and cannot) be made about causes of suicide attempts among gay, lesbian and bisexual adolescents, based on the current level of research evidence available. The question to consider: “What are the individual characteristics, past experiences, or current environments of sexual minority adolescents that might cause them to be at higher risk for suicide attempts than other teens?” While future research may provide insight into unmeasured causes, some fairly simple evaluation criteria and logic can help us rule whether a claim can be made or not based on current research evidence. Below are a series of questions to help examine research critically.

1. Is the sample in the study biased in the way it was gathered? Who does it represent?

How people are recruited into a study can influence its results, and make it stronger or weaker for making claims about populations. If research about LGB youth suicide attempts only sampled teens from inpatient psychiatric units, or counseling support groups, the results would be skewed to the small percentage of teens who use those services. Studies that recruit teens from LGB organizations only tap youth who are publicly “out” about their orientation, and miss those who have not disclosed yet. Neither of these sources may be “typical” of most LGB teens. In trying to identify health disparities, the best samples are drawn from the general population, where you are likely to find both well-adjusted and troubled teens. Larger samples are usually better, but only if they are not biased in how they were chosen. Thousands of participants

recruited through special organizations are not as valid a sample as hundreds randomly sampled from the general population through telephone surveys or other population-based approaches.

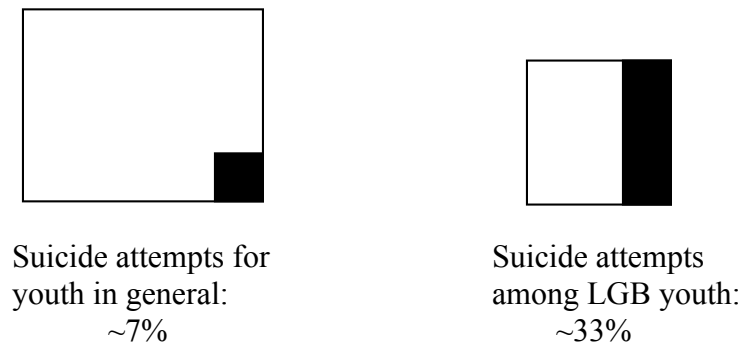
Many studies documenting higher rates of suicide attempts among LGB youth come from stratified, random population surveys of all youth in school, or national adolescent health surveys, a robust way of exploring health disparities (Russell & Joyner, 2001; Robin, Brener, Donahue, Hack, Hale, & Goodenow, 2002; Saewyc, Skay, & Pettingell, 2004). However, reporting a disparity is not enough to make claims about *why* there is a difference.

2. *Have the proposed causes actually been measured in the study (or in other similar studies)?*

People suggest reasons for study results, but unless these causes have been measured in the study, or in previous, similar studies, they are speculation only, and often far beyond the results. Health problems may have multiple causes (either smoking or exposure to asbestos can cause lung cancer), or may require a combination of circumstances before they occur (unprotected sexual intercourse between opposite sex teens will cause pregnancy, but only if both teens are sexually mature, and fertile). *Sufficient causes* are single sources of the outcome, that is, every time you have this circumstance, the outcome *must* happen. *Necessary causes* are another piece of the puzzle: without them, the outcome does not happen, but they may not be sufficient by themselves (Rothman & Greenland, 2005).

Since no reported suicide attempt rates among LGB youth are anywhere near 100%, we can rule out being LGB as a “cause” of suicide (see Figure 1). Indeed, in all of the population-based studies already mentioned, the majority of LGB teens did not attempt suicide. Sexual minority status is not a sufficient cause; nor is it a necessary cause, since heterosexual teens in those same studies also had attempted suicide.

Figure 1. Representing the disparities in suicide attempts



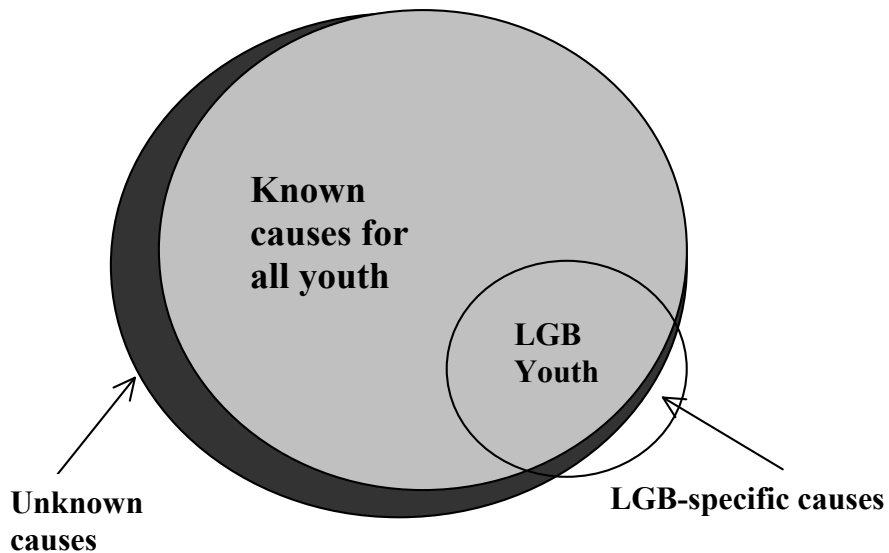
Fryrear (Focus on the Family, 2006) could not support her claim that higher suicide rates were caused by school-based pro-gay advocates from our study. We did not measure the presence of such advocates. We have found no published studies reporting greater distress among LGB students in schools with gay-friendly policies or staff. In fact, a recent population-based study of Massachusetts students directly undermines the claim: Goodenow, Szalacha, & Westheimer (2006) found that students in schools with supportive staff and policies were actually *less* likely to report recent suicide attempts. Their study focused on teens on the opposite coast; if these populations are similar, their results could apply to our students, but it would be better to repeat their study.

3. *Could the causes for the sub-group be the same as for the overall group?*

Before we go looking for special or unique reasons, we should look first at causes for suicide attempts in the general adolescent population, because these will be reasons for some LGB youth. Indeed, if the LGB group has a higher rate of these circumstances, this could explain

most or all of the higher risk (See Figure 2). What are the reasons for suicide attempts among youth in general?

Figure 2. The universe of causes of suicide attempts for all youth and LGB youth



A review of the population-based international evidence for youth suicide attempts (Evans, Hawton & Rodham, 2004), in conjunction with other longitudinal studies, can help shed light on suicide rates among LGB youth. Table 1 lists the causes, identifies whether any studies have found LGB youth have higher rates of each cause, and if studies have directly linked that cause to suicide attempts for LGB youth. None of these are “sufficient causes,” not even depression, although it is one of the strongest predictors; many adolescents who are depressed do not attempt suicide (Fergusson, Beautrais & Horwood, 2003). Some of these causes are also interrelated, i.e., sexual abuse during childhood or adolescence can lead to depression, anxiety, and substance abuse problems (Brady & Sinha, 2005; Saewyc, Magee, & Pettingell, 2004). It

may not always be clear whether these are independent causes, or one increases the risk of another, or they are co-occurring conditions with only one of them actually leading to suicide attempts. Similarly, it is difficult to determine if substance abuse leads to depression and so causes suicide, or if it represents an attempt to cope with stressors, such as sexual abuse, and pre-existing depression (Brady & Sinha, 2005).

Some studies have also looked at protective factors, supportive resources in the lives of youth that reduce their odds of suicide involvement. Protective factors are also listed in Table 1, and include supportive and caring family members, high self-esteem, connectedness to and feeling safe at school, and doing well in school (Borowsky et al., 2001; Fergusson et al., 2003). If LGB youth have lower levels of these protective factors than heterosexual teens, this might also explain their higher risk for suicide.

What evidence is there for different levels of these risk and protective factors among LGB youth? As can be seen from the table, there is a wide array of evidence showing LGB youth at higher risk for most of the causes of suicide attempts among youth in general. A number of studies have actually tested whether this higher risk is also linked to suicide attempts among LGB youth, and have found such relationships. Most studies have noted there remains some additional risk for LGB youth, even after you account for these predictors (see Figure 2); however, no study included every listed cause, so it is possible the remainder of the risk might be explained, at least in part, by those risk factors left out of the study.

As for protective factors that offset risk, there is limited evidence so far. We explored the prevalence of protective factors among LGB youth in 8 different population-based surveys in the U.S. and Canada, and found LGB youth reported fewer supportive resources than their heterosexual peers (Saewyc, Skay, Bearinger & Resnick, 2005). A few studies have explored

whether these protective factors actually reduce the odds of suicide attempts among youth, as shown in the table, but these results should still be considered suggestive, not conclusive.

4. Are the proposed causes plausible? Do they precede the outcome in time?

A common reminder in scientific research is, “correlation does not prove causation.” Just because there is a link between two issues does not mean one caused the other. If a study surveys people at one point in time (cross-sectional research), it can be easy to find relationships between different circumstances and outcomes, but difficult to establish which came first. For an event to be considered a likely cause, obviously it must occur before the outcome it is supposed to cause. Most population surveys are cross-sectional, and unless they clearly assess ages at which events happened, they are not going to help us sort out cause and effect very well.

Longitudinal research creates stronger evidence for causation, although even here, there are limits on claims that can be made. Population-based longitudinal studies are expensive, and may have been created for many different purposes. As a result, they may not measure all the influences on an outcome, and might even be missing key influences. Uneven drop-out from a study can also affect results. For example, most longitudinal research does not ask about sexual and physical abuse while participants are minors, because mandated reporting of suspected abuse means potential victims would be dropped from the study, and their outcomes would be lost to follow-up, even though they are clearly at higher risk for a number of negative outcomes.

There are a few population-level longitudinal studies of youth that have incorporated measures of sexual orientation, one in the U.S. (Russell & Joyner, 2001), one in Norway (Wichstrom & Hegna, 2004), and one in New Zealand (Fergusson et al., 1999). The Norway and New Zealand studies assessed orientation at adulthood, which is a limitation. However, these

three studies offer compelling evidence of higher suicidal involvement for LGB youth, and identify at least some of the common causes of suicide among youth in general as precursors to suicide attempts among LGB youth. Indeed, in all three studies, accounting for higher rates of those common causes helped explain the disparity, at least in part. Some of the strongest predictors were missing from their studies (a history of physical and sexual abuse, for example, in all three studies), and all three still showed additional risk unaccounted for. Since the extent to which these missing causes might have further explained the higher risk for suicide is unknown, these studies cannot be considered a complete picture of suicide risk for LGB youth.

Once we've accounted for common risks, then we must consider risks unique to LGB youth. One such risk is sexual orientation stigma, but it is difficult to measure social forces like stigma or discrimination, because measures specific to one small population (LGB youth) are rarely included on a general population survey, since they are irrelevant to most adolescents. One population-based survey in Seattle did students if they had been harassed because they were gay or perceived to be gay, and showed this can be relevant for all youth (Saewyc et al., 2000). Even though LGB youth were much more likely to report harassment than heterosexual teens as a percentage of their group, because they have far fewer numbers than heterosexual teens, 4 out of 5 of those who reported anti-gay harassment actually identified as heterosexual. Those who reported anti-gay harassment were more likely to also report suicide attempts, regardless of orientation. Other risks unique to LGB youth might contribute to their higher risk of suicide attempts; for example, public disclosure of orientation—"coming out"—might precipitate a crisis, with sudden loss of family and friend support, or experiencing victimization. One longitudinal study in Norway found first suicide attempts most often occurred during the year of self-recognition or same-gender sexual debut (Wichstrom & Hegna, 2004), especially for girls,

but because they had not measured other events which have their highest odds of happening within the same developmental timeframe (i.e., coercive sexual experiences, and school harassment or victimization), these results need further exploration. At present, the majority of the evidence is in favor of common causes for suicide that affect all youth, but which LGB youth are more likely than their heterosexual peers to experience.

5. Are there alternate explanations for the same results that could be just as valid or likely?

Scientists spend much time trying to rule out competing explanations for the results they observe, trying to control for influences that might be the underlying causes of this seeming association. Unfortunately, most studies do not measure every possible influence or contributing factor; even longitudinal studies leave out some key measures, as already mentioned. Identifying causes of a health issue often requires piecing together a number of different studies, each contributing some evidence. Together, they form a picture of likely causes.

Has this picture ruled out some inherent cause specific to sexual minority status, i.e., genetics or psychological states, to explain the results? Not completely. Most cross-sectional studies could just as easily claim that students who have been victimized at school are more likely to identify as gay, rather than gay students are more likely to report being victimized. However, longitudinal studies do help remove some potential alternate explanations, by carefully documenting which came first, before suicide attempts. One should be cautious in attributing cause if the study is cross-sectional, but even longitudinal studies must consider competing explanations and try to control for them. The limitations section of most papers (found near the end of the discussion section) is often a good source of caveats about what can and cannot be claimed from a study.

6. Have these results been reported before by other reputable studies?

No one study, in and of itself, is sufficient to establish a “cause” for a health problem; it takes repeated studies with a variety of populations, under a variety of conditions, to provide enough evidence to remove most doubt. To date, there are a large number of solid population studies that have established disparities in suicide attempts for LGB youth, from around the world, although even these have been challenged by a few researchers over nuances of measurement (Savin-Williams, 2001). As well, population-based cross-sectional and longitudinal studies have begun to tease out the reasons for these disparities, and they are finding similar results. Where there is similar evidence from multiple sources, drawing from unbiased samples, we can be more confident that these factors are indeed causes.

It is wise to be skeptical about novel results, because they may be an artifact of a study’s sample or measurement. It is wiser to be cautious about making claims for “all LGB youth” from one, or even a handful, of studies, as circumstances in one culture, region, or community may be very different from those elsewhere. This is why sexual orientation measures should be routinely included on population surveys, and in longitudinal studies.

In sum, the growing body of evidence gives us clues to causes of higher rates of suicide among LGB teens, but only repeated studies from many regions will support or refute the current claims. Scientists—and journalists—should be wary of assigning explanations beyond what the data can support, and critically evaluate the quality of that data.

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Table 1. Do LGB teens have the same causes of suicide attempts as adolescents in general?

Influences on suicide attempts in the general population*	Evidence of higher levels among LGB youth (lower levels for protective factors)	Is evidence linked directly to LGB suicide attempts?
<i>Individual mental health:</i>		
Depression	Cochran & Mays, 2000; Fergusson, Horwood & Beautrais, 1999; Wichstrom & Hegna, 2003	All 3 studies
Hopelessness	Russell & Joyner, 2001; van Heeringen & Vincke, 2000; Wichstrom & Hegna, 2003	All 3 studies
Anxiety	Fergusson, et al., 1999	Yes
Conduct disorder/ impulsive or aggressive behavior disorders	Fergusson, et al., 1999; Wichstrom & Hegna, 2003; Russell, Franz & Driscoll, 2001	Wichstrom & Hegna, 2003 only
Low self-esteem	Wichstrom & Hegna, 2003	Yes
Eating disorders	French, Story, Remafedi, Resnick, & Blum, 1996; Wichstrom & Hegna, 2003	Wichstrom & Hegna, 2003
Substance use/ abuse (heavy alcohol use and illicit drug use)	Bontempo & D'Augelli, 2002; Fergusson, et al., 1999; Robin et al., 2004; Rostosky, Owens, Zimmerman, & Riggle, 2003; Russell, Truong & Driscoll, 2002; Saewyc, Richens, Skay, et al., 2006; Smith, Lindsay, & Rosenthal, 1999; Wichstrom & Hegna, 2003	Russell & Joyner, 2001; Wichstrom & Hegna, 2003
<i>Family & peer relationships:</i>		
Family conflict and rejection	D'Augelli, Hershberger & Pilkington, 1998; Russell & Joyner, 2001	Yes, both studies
Family history of suicide attempts	Russell & Joyner, 2001; van Heeringen & Vincke, 2000	Yes, both studies
Friend history of suicide attempts	Russell & Joyner, 2001; van Heeringen & Vincke, 2000	Yes, both studies

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Lack of friends, or lower number of supportive friends	van Heeringen & Vincke, 2000; Wichstrom & Hegna, 2003	Yes, both studies
Physical or sexual abuse	Horliss, Cochran & Mays, 2002; Saewyc, Skay, Reis, et al., 2006	Not directly tested in these studies
Early sexual debut <15	Saewyc, Bearinger, Resnick & Blum, 1999; Wichstrom & Hegna, 2003	Wichstrom & Hegna, 2003

School & community environments:

School violence and harassment	Bontempo & D'Augelli, 2002; Goodenow et al., 2006; Robin et al., 2002; Russell, Franz, & Driscoll, 2001; Russell & Joyner, 2001; Saewyc, Singh, Reis & Flynn, 2000	Bontempo & D'Augelli, 2002; Goodenow et al., 2006; Russell & Joyner, 2001; Saewyc, Singh, Reis & Flynn, 2000
School problems	Russell, Seif, & Truong, 2001	Not directly tested in these studies
Violence victimization in community	Russell, Franz, et al., 2001; Russell & Joyner, 2001	Russell & Joyner, 2001
Discrimination in community	Mays & Cochran, 2001	Mays & Cochran, 2001

Protective factors that reduce odds of suicide attempt:

Family connectedness	Saewyc, Skay, Bearinger & Resnick, 2005	Not directly tested
Feeling safe at school	Bontempo & D'Augelli, 2002; Goodenow et al., 2006; Russell, Seif, & Truong, 2001	Bontempo & D'Augelli, 2002; Goodenow et al.
School connectedness	Russell, Seif, et al., 2001; Saewyc et al., 2005	Not directly tested
Supportive teachers/school staff	Goodenow et al., 2006	Goodenow et al., 2006
Good grades	None known	Not tested
High self-esteem	Reverse of low self-esteem, see above	Wichstrom & Hegna, 2003

*Sources: Baldry & Winkel, 2003; Borowsky, Ireland & Resnick, 2001; Christoffersen, Poulsen & Nielsen, 2003; Evans, Hawton & Rodham, 2004; Fergusson, Beautrais & Horwood, 2003; Johnson, Cohen, Gould, Kasen, Brown, & Brook, 2002; Kuo, Gallo, & Eaton, 2004.