

RESEARCH ON ADOLESCENT SEXUAL ORIENTATION: DEVELOPMENT, HEALTH DISPARITIES, STIGMA AND RESILIENCE

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Abstract

The decade between 1998 and 2008 saw rapid increases in research on adolescent sexual orientation development and related health issues, both in quantity and in quality of studies. While much of the research originated in North America, studies from other countries also contributed to emerging understanding of developmental trajectories and social influences on the health of sexual minority adolescents. This paper reviews the body of research from the past decade on adolescent sexual orientation, focused on issues of measurement, developmental trajectories, evidence related to health disparities, and the risks and protective factors that help explain the health and developmental challenges some lesbian, gay, and bisexual adolescents experience. Although many sexual minority adolescents face stigma and rejection within their families, their schools, or their communities, it should be noted that most successfully navigate the developmental tasks of adolescence, and attain similar levels of health and well-being as their heterosexual peers, often despite the stigma and discrimination they encounter. Further research is needed to understand population trends as well as individual patterns of development; cultural variations in both development and health disparities; the interplay of general and unique risk factors that contribute to various health disparities and protective factors that buffer those risks; and interventions to promote the healthy development of sexual minority adolescents.

Introduction

The study of sexual orientation, especially the development of homosexual or bisexual attractions and behaviors, is not new. From Sigmund Freud's monograph on theories of sexuality in 1905, to Kinsey's work in 1948 and 1953, and Sorenson's paper in 1973, nearly every decade has seen published theory and research about sexual orientation among adolescents. Yet, beginning in 1998, the past decade or so has seen a huge increase in research on sexual orientation in adolescence, across a variety of disciplines, including education, family studies, genetics, medicine, nursing, nutrition, psychology, public health, social work, and sociology. Thus, this decade has offered considerable progress toward understanding sexual orientation development and related health issues among adolescents, and has provided key studies that have altered both professional and popular understandings.

While much of the research prior to 1998 was from the United States, the rapid growth of research after that point has included a growing diversity in geographic coverage, with studies of adolescents in countries on nearly every continent, as well as varied ethnic and cultural groups within countries. Similarly, the preponderance of research in previous decades focused on gay adolescent males (with a smaller proportion of bisexual males included in the studies), but this decade's research has included a greater attention to gender and ethnic differences in sexual orientation development (and included heterosexual teens), as well as exploring the heterogeneity of orientation groups within the "sexual minority" category.

The decade has also seen an expansion in design and methods used in studies of adolescent sexual orientation, including a growing number of multivariate modeling studies, large-scale, population-based surveys, as well as longitudinal studies in various countries. These design approaches have strengthened the body of evidence in understanding developmental milestones, health disparities, and potential risk and protective factors affecting the health and well-being of sexual minority adolescents. Because of this rapid growth in research, there have finally been enough studies for meta-analysis, and repeated population studies in the same regions to allow for studies of population trends. At the same time, while research in the early- to mid-1990's often focused on descriptive results, and population-based studies tended to be devoid of theoretical frameworks, in this decade there has been more attention to theory development, theory testing, and even some intervention studies.

A great deal of the research has focused on areas of health or social disparities, or increased risk for problems. Documenting health inequities for a particular population is often a first step to focus attention, to facilitate a shift of priorities in practice and policy, and to develop effective interventions to support healthy youth development. Thus, much of the research in this decade has focused on disparities in health and risk behaviors, but has included more sophisticated approaches to exploring contributing factors to explain these disparities.

As with most fields of study relevant to a wide range of disciplines and areas of practice, there is an equally wide range in quality of research in this topic area. Some studies lacked any theoretical grounding, and some used weaker designs and methods; however, the decade saw a growing number of soundly conceptualized studies, rigorous and sophisticated methodology, and critical discussion of results. In general, there is more to laud than to dismiss. Given the greatly increased volume of research, however, it is not possible to describe every study published during this decade, or to critically evaluate each paper's quality. Therefore, this review will emphasize studies that have greater scientific rigor, or wider generalizability, or are the sole studies about an issue, or whose theory development or findings subsequently exerted a stronger influence on the field than have other studies. In terms of timing, the decade is loosely defined as 1998 to 2008; a few key studies that occurred just prior to 1998 will also be included, as will a number of studies available in on-line editions during 2008 but published in print in 2009, which offer important perspectives or touch on relatively understudied issues. Although much of the research is U.S.-based, this review includes research from other countries where it is of similar rigor. The focus of this review is on adolescence, so the studies included are primarily limited to adolescents of high school age or younger, i.e., under age 19; however, a few important longitudinal studies

track adolescents into young adulthood, and offer important insights into developmental outcomes.

The paper is organized into several sections. First is a discussion of measurement, followed by research on sexual orientation development. Next, the health disparities that have been documented for sexual minority youth are covered, as well as evidence for the theoretical explanations and factors contributing to these health disparities. Moving beyond health disparities and problems, the next section explores emerging studies on protective factors and resilience among sexual minority youth. Finally, the limited research on interventions to promote healthy development and reduce health disparities for sexual minority adolescents will be examined.

Despite impressive progress in the past decade, there remain an array of areas that need further evidence or additional directions of inquiry. Each section of this paper will include suggestions for future research, and a final section will offer recommendations for the next decade of research on sexual orientation and adolescent well-being.

Measurement of Sexual Orientation among Adolescents

The definition and measurement of sexual orientation generally, and among adolescents specifically, has been consistently difficult. The most common definitions of sexual orientation are focused around the concept of “orientation,” that is, an erotic inclination towards people of one or more genders, most often described as sexual or erotic attractions (Savin-Williams & Ream, 2007; Sell, 1997). Although described in earlier research as a primarily physiological response, consistent sexual arousal (Spitzer, 1981), the way the term has been used in both research and the general public suggests a cognitive component of erotic attraction, and romantic or emotional attractions, not just arousal responses (Diamond, 2003a; Russell & Consolacion, 2003). Some researchers consider internal recognition of these attractions and self-labels—as gay, bisexual, or heterosexual—to be an important element of sexual orientation. Others feel identity labels are unduly influenced by cultural and social factors, especially if the identity carries serious social stigma. There is less agreement on whether sexual behavior is a manifestation of sexual orientation, or a separate, only partially related construct; sexual behavior usually requires at least one other person, may not be consensual, and may take place for reasons other than sexual desire, so is contingent upon many factors unrelated to internal sexual attractions (Savin-Williams & Ream).

There has been growing consensus on measurement, as interdisciplinary expert panels have been convened to develop recommendations about measurement, drawing on experiences of a wide range of researchers and empirical validation of measures (LGB Youth Sexual Orientation Measurement Work Group, 2003; Saewyc et al., 2004; Sexual Minority Assessment Research Team, 2009). Such recommendations take time to filter to the wider field, however; although these panels have recommended including at least two dimensions of orientation in studies where possible, most adolescent research studies that incorporate sexual orientation measures include only identity, attraction, or behavior. Even within a specific dimension, measures are not consistently worded, or have the same number of

response options. Terms change in popularity and usage over time, and researchers may include new terms, or ethnic-specific labels. Recent years have seen a growing number of the larger longitudinal or population studies adopting similar measures; for example, the later waves of the National Longitudinal Survey of Adolescent Health and the Growing Up Today Study added measures with the same response options as those from the earlier Minnesota Adolescent Health Survey (Remafedi, Resnick, Blum & Harris, 1992) which has also been used in the National American Indian Adolescent Health Survey and repeated rounds of the British Columbia Adolescent Health Survey in Canada (Saewyc et al., 2004) as well as in a growing number of school-based population surveys in other parts of Canada since 2007.

Studies that include multiple measures of orientation reveal another important issue: attraction, identity and behavior are not always concordant among adolescents or adults (Austin et al., 2007; Floyd & Stein, 2002; Russell & Seif, 2002; Saewyc et al., 1998a, 2004a, 2009; Savin-Williams & Ream, 2007). Such studies face complex choices for defining groups: do they choose a primary measure of orientation relevant to a particular analysis? Do they combine measures into an aggregate scale or score? Do they use a dichotomous “any indicator of non-heterosexuality” vs. “exclusively heterosexual”? The most common choice has been to define orientation via a single measure, usually attraction or self-labeling, but a dichotomous “any indicator” approach has also been frequent (see, for example, Russell & Joyner, 2001, or Bontempo & D’Augelli, 2002). Researchers who use multiple dimensions to create a score (see for example, Floyd & Stein) still tend to end up categorizing the scores into three or four groups, most often the commonly-accepted categories of heterosexual, bisexual, gay or lesbian.

Defining and measuring sexual orientation in adolescent research must also take into account development. The process of puberty and physiological sexual maturation unfolds over several years, beginning between 7 and 13, and may not be complete until the later teens (Patton & Viner, 2007). Cognitive development associated with sexual maturation, i.e., sexual attractions and romantic feelings, and the related behavioral milestones, generally occur during later pubertal stages (Floyd & Stein, 2002; Patton & Viner; Rosario, et al., 1996). The majority of younger adolescents have not had sexual relationships; in the U.S., fewer than half of high school students in 2007 reported ever having sexual intercourse (47.8%), and only 7% of teens had sex by age 13 (Eaton et al., 2008). In a national longitudinal survey of adolescents in grades 7 to 12 (approximately 12 to 18 years old), nearly 1 in 5 youth indicated they did not have romantic attractions (Russell & Seif, 2002), and a similar Canadian population survey of students age 12 to 18 found similar rates of teens did not yet fantasize about sex (Saewyc et al., 2004). When significant segments of the teen population do not yet report a behavior, using those measures can potentially miss, or misclassify, adolescents’ orientation. Measurement of any developmental aspect across the intense physical, cognitive, and behavioral transformations of adolescence is fraught with such difficulties and limitations.

This “developmental milestones” perspective of sexual orientation also generally assumes an underlying orientation that, once it unfolds during adolescence, is stable, consistent, and endures throughout the life course, although changing social norms and opportunities for

relationships might influence how that orientation is manifested (Diamond, 2003b). In this decade an important set of longitudinal studies have examined the stability of sexual orientation across adolescence and young adulthood (Austin et al., 2007; Diamond, 2000b, 2003a, 2008; Savin-Williams & Ream, 2007), and will be discussed in the next section. Whether the study of sexual orientation can only make sense if it is a stable trait, or we can live with some of the ambiguity uncovered in this decade's research, is yet unresolved. Societal understandings about sexual orientation have generally been far more simplistic than the evidence reflects (Diamond, 2003b) yet we must translate research in ways the public and professionals can understand, to promote sexual minority teens' healthy development. There are significant risks when research findings from a topic that generates social controversy are misapplied (Saewyc, 2007).

How big a problem are these measurement challenges for the field? Certainly they create difficulties in comparing across studies, across regions, or across time (Austin et al., 2007), yet there is a fairly striking consistency of findings. Whatever nuances in definition or measurement of orientation, a greater proportion of adolescents who indicate some form of non-heterosexual orientation report unsupportive environments, less nurturing parental relationships, increased risk of developmental stressors and health disparities compared to heterosexual peers. The robustness of these findings, especially in population-based or large-scale longitudinal studies, provide some reassurance that studies are capturing the same groups.

There is also reason for encouragement. In this decade a few measurement studies, thoughtful critiques of theory development, and expert panels have worked to resolve these challenges. Sell (1997) and Diamond (2003b) provided constructive reviews, while my colleagues and I evaluated measures of sexual orientation within several large-scale school-based surveys across North America (Saewyc, et al., 2004).

Another approach is to ask young people themselves; at least three studies have examined how adolescents and young adults conceptualize sexual orientation and make sense of measures assessing it (Austin, Conron, Patel, & Freedner, 2007; Diamond, 2000a; Friedman, et al., 2004), and a fourth explored whether youth would opt for terms other than gay, lesbian and bisexual if given the choice (Russell, et al., 2009). According to these studies, adolescents consider attractions (sexual and romantic) to be the principal element of sexual orientation, and questions about attractions the easiest to understand and answer. Youth rejected behavior questions as a measure of sexual orientation, and expressed some discomfort with identity labels, in part because of the potential permanence implied by labels, in part because of stigma as a result of negative peer responses to sexual minority labels. Finally, a recent study among more than 2,500 California high school students (Russell, et al., 2009) found that the majority of sexual minority youth (71%) still find gay, lesbian, and bisexual categories salient options. Although all of these studies are important beginning steps in validating definitions and measures among young people, they only include older adolescents from the U.S., and somewhat limited ethnic diversity.

In sum, the past decade has seen a developing consensus about the definition and measurement of sexual orientation for adolescent research, supported by a growing body of

validation studies. Given the developmental stage of adolescence, the expert panels recommend studies should measure more than one dimension of orientation, whether attraction, identity labels, or behavior, and where at all possible, disaggregate orientation categories in analyses. We still need to pilot existing measures in studies, especially with diverse cultural groups or younger teens, to ensure that the measures remain understood and relevant.

Research on the Development of Sexual Orientation among Adolescents

There have been a growing number of informative studies about sexual orientation development during adolescence in the past decade. These studies have explored the timing and patterns of sexual identity development milestones, the stability of sexual orientation elements over the course of adolescence and young adulthood, and differences by gender and ethnicity. There have even been a few studies exploring changing trends in sexual orientation milestones, as well as studies examining factors that could influence the development of non-heterosexual orientations. A few studies have also begun to explore genetic and evolutionary perspectives on sexual orientation, although to date, there are distinct weaknesses in the methodologies that have been used. These will be summarized briefly below.

The idea of sexual orientation unfolding along developmental pathways or trajectories, with specific developmental tasks demonstrated by achieving “milestones” along the way, has received both a great deal of support and critique during the past decade. Earlier conceptualizations of sexual orientation development (e.g., Troiden, 1988) posited a linear path, beginning with “sensitization” or awareness as one started to recognize same-sex attractions that did not fit the typical developmental trajectory of heterosexuality, moving to “identity confusion,” because of stigma and distress, then behavioral responses to manage the identity crisis and stigma (including potentially adopting a “transitional” bisexual identity), and eventually reaching identity commitment as gay, lesbian, or bisexual. These linear models did not differentiate paths for males and females, and laid out a set of milestones that were supposed to occur in mostly the same order, although with variable lengths of time between each stage. During the mid-1990s, studies began to test these trajectories, and recognized a greater variability in pathways than was previously thought, and as a result developed further, nuanced descriptions of the trajectories (see for example, Rosario, Meyer-Bahlburg, Hunter & Exner, 1996; Savin-Williams & Diamond, 2000). Between 1998 and 2008, studies explored sex-based differences in trajectories, orientation-specific differences, ethnic variation, and even differences in trajectories among those with early and later onset (see Diamond, 1998, 2000a, 2000b, 2008; Floyd & Stein, 2002; Rosario, et al., 2001; Rosario, Schrimshaw, & Hunter, 2004; Saewyc, Skay, et al., 1998a). Research became more sophisticated, including prospective longitudinal research rather than solely retrospective recall, and cluster analyses for patterns of coming out, rather than averaged group responses. In general, studies documented milestones were occurring at earlier ages than in previous cohorts, they differed for males and females quite noticeably, and there was heterogeneity of patterns in their timing and order; for example, those who came out at younger ages appeared to have more comfort with their status (Floyd & Stein, 2002), but increased risks for family rejection and school harassment than those who waited

until young adulthood to come out (D'Augelli, Hershberger, & Pilkington, 1998). Studies noted more fluidity of attractions and labels among females (Savin-Williams & Diamond, 2000), with a significantly higher proportion of females than males identifying as bisexual or mostly heterosexual in population surveys (Russell & Seif, 2002; Saewyc et al., 1998a, 2004a, 2007). One of the few studies examining sexual orientation among ethnic groups found that African-American and Latino groups showed no differences in most milestones compared to White teens, but delays in public disclosure and less involvement in gay-related social networks (Rosario, et al., 2004). The only study of cohort trends over time among adolescent populations found a decrease in heterosexual identification, and increase in the prevalence of bisexual and mostly heterosexual identification, but only among girls (Saewyc, Poon et al., 2007).

One of the primary critiques of a milestones approach to orientation development is that it taps experiences and behaviors without necessarily considering the contexts in which those behaviors occur, or the meanings for individual adolescents, or the changing societal contexts for teens in the most recent decade, compared to previous generations (Hammack, et al., 2009). Savin-Williams (2005) suggests a new “post-gay,” generation, i.e., teens who no longer consider sexual orientation a central identifying status, or the typical labels particularly salient; while teens may not be universally “post-gay,” (Russell, et al., 2009) the argument is that greater visibility of positive sexual minority role models, and changing legal status, such as legal same-sex marriage in Canada, several European countries, and several U.S. states, may alter the pressures and opportunities experienced by adolescents during the developmental process. Hammack and colleagues suggest that the master narratives, i.e., the stories told of the sexual orientation developmental process, may be changing. In addition to the extant narrative of struggle against heteronormativity and success in developing a gay or lesbian identity and social network, current teens’ experiences may also incorporate a narrative of “emancipation,” or a resistance to the more structured categories of sexual orientation that previous generations embraced (Hammack et al., 2009). The evidence for such change in narratives is limited; however, one potential reason for a shifting narrative may be the dominant narrative’s overemphasis on gay or lesbian identity and same-gender desire, without adequate stories to explain bisexuality: even when narratives include the “B” in the LGB acronym, the text often does not integrate bisexual desire or behaviour as authentic orientation. Both popular narratives and research narratives often imply bisexuality is a transitional stage to homosexuality, or experiments out of curiosity by heterosexuals (Diamond, 2008), or even a temporary performance to gain popularity, as in the narrative of “bisexual chic” among high school girls (Thompson, 2006). Bisexuality remains under-theorized and under-investigated, despite some increase in research.

Another problem with the milestones approach is it suggests orientation is a fundamental trait unfolding during adolescence, but once adulthood is reached, labels and behaviors are stable and consistent. Without longitudinal data, this may have been a reasonable assumption, and inconsistencies in attractions, behaviors, and self-labels among teens could be attributed to immaturity, experimentation, or strong social pressures to conform during the teen years (Russell & Seif, 2002; Saewyc et al., 2004, 2009). However, longitudinal studies published during the past decade have raised awareness about the fluidity of orientation among some teens during adolescence and into adulthood. Rosario and

colleagues (2006a) explored changing orientation labels among older sexual minority teens in New York over 12 months; they found most teens remained consistent, but 30–40% of bisexual teens shifted to a gay or lesbian label during the year, and 7% shifted from gay or lesbian to bisexual; only 2–3% of teens shifted to “straight.” They noted their brief time period and lack of heterosexual teens were distinct limitations to understanding longer-term fluidity or permanence in sexual orientation. Studies by Lisa Diamond (1998, 2000a, 2000b, 2008) documented this fluidity among older adolescent and young adult women over a longer period, charting attractions, labels and behavior. She found relative consistency in their sexual attractions, but up to 67% changed labels and behavior over the course of 10 years, with a small number of young women dropping a lesbian or bisexual label for a heterosexual identity, but far more of them switching between lesbian and bisexual, or shifting to “unlabeled.” A much larger population-based study of sexual orientation stability, over 6 years, was conducted by Savin-Williams & Ream (2007), using the National Longitudinal Survey of Adolescent Health. They found adolescents with a non-heterosexual orientation in any dimension were less likely than exclusively heterosexual teens to remain consistent in their attractions and behavior over time. However, Savin-Williams and Ream also noted that as some gay, lesbian and bisexual adolescents shifted to opposite-gender attractions, behavior, or heterosexual self-labels, a larger absolute number of heterosexual teens shifted to same- or both-gender attractions and behaviors, keeping the overall prevalence relatively similar across time.

Studies have explored the more fundamental question of what might cause the continuum of sexual orientation, or at least what contributes to or influences developmental pathways. A host of biological research has been conducted regarding potential genetic, psycho-neuroendocrine, or genetic-by-environment interactions as causes of non-heterosexual orientations, and in 2002, a thorough review of the literature by Mustanski, Chivers & Bailey critically evaluated the state of research to date. It should be noted that the overwhelming majority of the biological research has been conducted with adults, not adolescents, and disproportionately among males rather than both males and females. Mustanski and colleagues identified significant limitations in methods, sample sizes, lack of replicability of findings, and inconsistent results among studies. While the research provides some support for prenatal neuro-hormonal influence sexual orientation development, it is only for men; similarly, family studies and concordant/discordant twin studies provide some evidence for a genetic basis of orientation, but to date, no specific genes have been consistently identified. Perhaps the most troubling challenge in biological approaches are inherent assumptions by most researchers that orientation is a dichotomous, stable trait; many of the studies used measures of orientation that have long been considered problematic in the health and social sciences, and presume that sexual orientation development in males and females result from similar but opposite processes. It seems likely that there are genetic and environmental influences on propensity for non-heterosexuality, but the actual mechanisms are still unknown.

Beyond biological mechanisms of sexual orientation development, one suggested environmental influence that has been taken up in the wider social discourse has been childhood or adolescent sexual abuse. Studies have noted disproportionately higher rates of sexual abuse and assault among sexual minority populations (see for example, Saewyc,

Skay, et al., 2006). Given the highest incidence of sexual abuse occurs after age 12, during adolescence (Finkelhor, Ormrod, Hamby & Turner, 2005), about the same time that sexual orientation first manifests, some researchers have suggested that sexual abuse leads adolescents to develop a gay or lesbian sexual orientation due to aversive reactions from trauma (Simari & Baskin, 1982). The logic does not hold, however: since most sexual abuse perpetrators are male (even when victims are male), if sexually abused girls become lesbian or bisexual because of an aversion to their abuser's gender, then a similar response among sexually abused boys would suggest they would be more likely to become heterosexual, not gay—yet gay and bisexual-identified boys are more likely to report sexual abuse histories than heterosexual boys (Saewyc, Skay, et al., 2006). Similarly, if sexual abuse was a causal factor in gay, lesbian or bisexual orientation, the majority of sexual minority youth should report a history of sexual abuse, and the majority of sexually-abused adolescents should identify as gay, lesbian, or bisexual. Neither is true; in 7 different population-based surveys across North America, fewer than half of LGB-identified adolescents reported sexual abuse (Saewyc, Skay, et al., 2006). Since heterosexual teens vastly outnumber lesbian, gay, bisexual, queer and questioning (LGBQ) youth, the smaller percent of them who have been abused still outnumber abused LGBQ teens; based on estimates from the 1998 BC Adolescent Health Survey, for example (Saewyc, Skay, et al., 2006, 2008a), 94% of sexually abused girls would identify as heterosexual, as would 69% of abused boys. Longitudinal studies could help disentangle the timing of abuse and orientation, perhaps, except that mandated reporting requirements tend to preclude longitudinal studies from asking about sexual abuse during childhood, and retrospective recall of childhood or adolescent sexual abuse has its limitations (Kendall-Tackett & Becker-Blease, 2004).

Thus, the increase in studies over the decade on sexual orientation development have provided further nuanced understanding of how orientation unfolds during adolescence, and have challenged more simplistic views of previous work, documenting potential changes in narratives of development, identifying variability in patterns of development, and potential fluidity in sexual orientation over adolescence and young adulthood, especially for young women. Future areas of research that could improve our understanding should include longitudinal studies (preferably birth-cohort studies) to more carefully sequence potential influences or confounding factors. Similarly, international and culturally-focused studies of sexual orientation development in diverse ethnic groups will deepen understanding of how culture and social environment influence orientation identity. Finally, we need more rigorously designed studies of the genetic and biological contributions to sexual orientation, that take into account the complex interrelationship of biology with culture and context.

Health Disparities among Sexual Minority Adolescents

Although studies have explored differences in health risks among sexual minority adolescents for years, the past decade saw an important shift to studies with population-based sampling designs, which significantly strengthened the evidence about health disparities experienced by LGBQ teens in a number of countries around the world. This shift resulted from the inclusion of sexual orientation measures in large-scale, school-based cross-sectional surveys in some regions of the United States and Canada, followed by similar surveys in other countries, such as Australia, New Zealand, Guam, Belgium, Switzerland,

Norway, and Turkey. Some of these school-based cohort surveys have been repeated at regular intervals in the same regions since the early 1990s, offering opportunities to explore population trends. At the same time, the field was further strengthened when researchers added sexual orientation measures to waves of national longitudinal studies, such as the New Zealand Christchurch birth cohort study, the U.S. National Longitudinal Survey of Adolescents (Add Health), the U.S. Growing Up Today Study, and the Young in Norway Study. Most of these surveys monitor a wide array of risk exposures, protective factors, health-compromising behaviors, psychological adjustment, and psychosocial outcomes, allowing a variety of health and developmental issues to be compared between LGBQ youth and their heterosexual peers. Some topics have received far more attention than others; Coker, Austin and Schuster (2010) recently reviewed the level of evidence in U.S.-based research for many of these health disparities, and additional evidence from other regions, and over time, is included below.

Mental Health and Suicide

By far the most commonly studied health disparities have been those related to mental health, especially suicidal ideation and suicide attempts. Results have been remarkably consistent, given the diversity of sampling methods, the dimensions of sexual orientation measured, the regions and countries, and across time: within nearly all population-based studies, a higher prevalence of sexual minority youth indicate emotional distress, depression, self-harm, suicidal ideation, and suicide attempts than do their heterosexual peers (Coker et al., 2010; Saewyc, Skay, et al., 2007). For suicidal ideation and attempts, this higher rate has been documented in representative school-based surveys on the East Coast, in the Midwest, in the Pacific Northwest of the U.S. as well as in national studies (Borowsky, Ireland & Resnick, 2001). The same disparity has been found among adolescents in population-based studies in Canada (Saewyc, Poon, et al., 2007), New Zealand (Fergusson, Horwood, & Beautrais, 1999; Fleming, Merry, Robinson, Denny & Watson, 2007; LeBrun, Robinson, Warren & Watson, 2004), Guam (Pinhey & Millman, 2004), in Norway (Wichstrom & Hegna, 2003), in Turkey (Eskin, Kaynak-Demir & Demir, 2005), and in Belgium (van Heeringen & Hincke, 2000), although the studies in Turkey and Belgium were focused on older adolescents. Many of these studies also found higher levels of emotional distress or depression among LGBQ youth (see Almeida et al., 2009; Homma & Saewyc, 2007) including in Hong Kong (Lam et al., 2004).

Some of the studies have focused on ethnic minority subgroups of LGBQ youth, including African-American and Latino adolescents, (Borowsky, et al., 2001), Asian adolescents in Hong Kong (Lam et al., 2009), plus Asian-American (Homma & Saewyc, 2007) and American Indian adolescents (Saewyc, Skay, et al., 2007). Three studies have considered urban-rural differences in mental health issues (Galliher, Rostosky & Hughes, 2004; Poon & Saewyc, 2009; Waldo, Hesson-McInnis, & D'Augelli, 1998), with mixed results; Waldo and colleagues found no urban-rural differences in suicidality, while Poon & Saewyc found higher rates of suicide attempts among rural LGBQ teens, and Galliher and colleagues found greater depressive symptoms among rural girls, but not boys. The few studies that have explored suicidality among bisexual adolescents separately from gay and lesbian teens (Wichstrom & Hegna; Saewyc, Skay, et al., 2007) found bisexual teens were sometimes at

higher risk, especially boys. There appears to be only one study of population trends over time for teens (Saewyc, Skay et al., 2007), but it included cohorts from the Midwest and Northwest U.S., and western Canada; results suggest that for bisexual and lesbian girls, the prevalence of suicidal ideation and attempts has steadily increased since the early to mid-1990s, while for gay and bisexual boys, trends are mixed.

Substance use and abuse

A number of studies have examined differential rates of smoking, alcohol and other drug use among adolescents by sexual orientation over the past decade, primarily in North America (Coker et al., 2010; Marshal et al., 2008) but also in Australia (Smith, Lindsay, & Rosenthal, 1999). These have generally found a higher prevalence of smoking, alcohol use, and other drug use, including injection drug use, among LGBQ youth compared to heterosexual teens. This is one of the few areas of research on sexual orientation health disparities where a meta-analysis has been conducted, examining effect sizes from 18 different studies (Marshal et al., 2008). According to Marshal and colleagues, LGBQ youth are nearly 3 times more likely overall to report substance use than heterosexual teens, with effect sizes for most substances in the moderate to large range, and effect sizes for cigarette use, injection drug use, and multiple substance use large to very large.

During the decade, there were also a few longitudinal studies that focused on patterns of substance use over time (Coker et al., 2010). These studies found sexual minority adolescents were more likely to begin drinking earlier than heterosexual teens, and most sexual minority groups had higher levels of risky drinking. Earlier age at initiation helped explain sexual minority youth's higher risk of binge drinking in later years.

Sexual risk behaviors, sexually transmitted infections (STIs), and pregnancy

There were a large number of studies that explored risky sexual behaviors, sexual health behaviors such as condom use and contraception, and sexual outcomes, including STIs and teen pregnancy, among sexual minority youth in comparison with heterosexual teens. A number of these studies assessed lesbian and gay teens separately from bisexual teens, and others included "mostly heterosexual" teens as another separate category. While the findings are not quite as consistent as those from suicide attempts or substance use, the preponderance of evidence from carefully constructed, large-scale population-based surveys suggests that sexual minority adolescents experience sexual health disparities. LGBQ youth are just as likely or more likely than heterosexual peers to have ever had sexual intercourse (Coker et al., 2010; Saewyc, Richens, et al., 2006; Goodenow, Szalacha, Robin, & Westheimer, 2008; Saewyc, et al., 2008a), a disparity that remains when researchers have adjusted for age differences between orientation groups. A number of studies have documented higher rates of early sexual debut, i.e., before age 13 in some studies, before age 14 in others, and LGBQ youth are also more likely to report a higher number of lifetime or recent sexual partners (Coker et al.). A few studies have examined substance use at last sex as a potential risk for unprotected sexual behavior; results suggest LGBQ teens were either no more likely or less likely than heterosexual teens to have sex under the influence of alcohol or drugs (Saewyc, et al., 2008b; Goodenow et al., 2008).

Studies in the last decade also explored rates of health behaviors, such as condom use or contraception. The results have been mixed; in a study of high risk adolescents in New York, Rotheram-Borus and colleagues (1999) found LGBQ adolescents more likely to use condoms and contraception than heterosexual peers, while a study over the several cohorts of Massachusetts YRBS surveys found lesbian and bisexual girls were no more likely than heterosexual girls to report condom use at last intercourse (Goodenow et al., 2008). In contrast, a similar Canadian multi-cohort study, that also included gay and bisexual boys, found all sexual minority groups were less likely to report condom use or birth control at last intercourse (Saewyc et al., 2008a), as did multiple years of population surveys in Minnesota (Saewyc et al., 1999; Gallart & Saewyc, 2004). Studies that combined sexual health and risk behaviors into indices or scores to assess behavioral risk for HIV and other STIs likewise reported higher overall risk scores for bisexual and gay or lesbian adolescents (Goodenow et al., 2008; Busseri, Willoughby, Chalmers & Bogaert, 2008). One of the key limitations in all these studies is they do not identify the gender of sexual partners in relation to the questions about condoms or birth control, although the wording of “sexual intercourse” may lead students to assume the question is only asking about sex with opposite-gender partners. This may also explain some of the among lesbian and bisexual girls, whose most recent sexual partner was also a girl; however, it is important to remember that teens who identify gay, lesbian or bisexual may have opposite-sex partners. Some of the questions in surveys are worded to allow them to be relevant for all types of sex, such as using the phrase “condom or other latex barrier” rather than just condom (Saewyc et al., 2007); more recently some surveys have also included a response option indicating a teen had a same-gender sexual partner for questions about methods used to prevent pregnancy at last sex, but most large-scale school-based surveys do not ask focused questions about the gender of partner in the most recent episode of sex.

In addition, a number of surveys of street-involved or homeless teens have explored sexual risk behaviors among sexual minority and heterosexual street youth, as sexual minority youth are disproportionately represented among street-involved youth populations (Coker et al., 2010). Homeless and street-involved sexual minority adolescents report significantly higher rates of some sexual risk behaviors, including multiple partners, unprotected sexual intercourse, and survival sex, as well as lower rates of condom use (Coker et al., 2010; Gangamma, Slesnick, Tovissini, & Serovic, 2008; Saewyc, MacKay, et al., 2008).

The higher rates of most sexual behavior risks and potentially lower rates of condom use or contraception among LGBQ teens may help explain documented disparities in sexual health outcomes. Although self-report of STI results is a weaker measure than laboratory tests, studies found higher rates of self-reported STI history among sexually experienced LGBQ teens compared to heterosexual peers (e.g., Goodenow et al., 2008). Teen pregnancy is another area of noted disparity: surveys throughout North America in the past two decades have found LGBQ teens, both males and females, have 2 to 10 times higher rate of pregnancy involvement than their heterosexual peers (Coker et al., 2010; Blake et al., 2001; Saewyc, Pettingell & Skay, 2004; Goodenow et al., 2008; Saewyc et al., 2008a). Despite these higher rates of teen pregnancy, there is almost no research on teen parenting among LGBQ adolescents. A single study from a statewide Minnesota survey found 36% of teen

fathers in school reported recent same-gender or both-gender sexual partners, as did 12% of teen mothers (Forrest & Saewyc, 2004).

Body image, overweight and eating disordered behaviors

There have been relatively few studies examining body image, obesity, physical activity and exercise, weight management practices among sexual minority adolescents, and results have been mixed (Coker et al., 2010). In the 1999 Growing Up Today Study, Austin and colleagues (2003) found mostly heterosexual, bisexual and lesbian girls were more likely to be overweight than heterosexual girls, but no differences among boys, after controlling for age and maturational stage. In western Canada, gay boys were more likely to be either underweight or overweight than heterosexual peers, and lesbian and bisexual girls were twice as likely to be overweight as heterosexual girls (Saewyc, Poon, et al., 2007). In terms of eating-disordered behaviors, studies in the U.S., Canada, Australia, and Norway have found LGB youth more likely to engage in bingeing and purging behaviors (Coker et al., 2010; Polimeni, Austin, & Kavanagh, 2009).

Exposure to violence, abuse, harassment, and injuries

Violence exposure, whether family violence such as physical or sexual abuse, or school-based verbal or physical violence such as bullying and harassment, can significantly affect adolescent health and development. Studies in the U.S., Canada, the U.K., and elsewhere during this decade have shown LGBQ youth are significantly more likely to be targeted for violence than heterosexual teens in every setting (Coker et al., 2010). LGBQ and mostly heterosexual adolescents were more likely to report both physical and sexual abuse in a study of 8 different population-based surveys across the U.S. and Canada (Saewyc, Skay, et al., 2006), as well as in other studies (Coker et al., 2010; Eskin et al., 2005; Goodenow et al., 2008). Some of the violence is directly attributable to the coming out process (D'Augelli, Hershberger, & Pilkington, 1998; Ryan, Huebner, Diaz, & Sanchez, 2009). LGBQ youth are also more likely to experience forced sex and dating violence (Freedner, Freed, Yang, & Austin, 2002; Williams, Connolly, Pepler, & Craig, 2003), as well as both verbal and physical sexual harassment at school and in the community (DuRant, Krowchuk, & Sinal, 1998; Williams et al., 2003).

Harassment or bullying at school, including physical assault, has been reported at consistently higher rates among LGBQ students compared to heterosexual peers across North America and other countries (Coker et al., 2010). Most of the research has focused on victimization rather than perpetration, but Russell, Franz and Driscoll (2001) also explored involvement in fights both as victim and perpetrator in the Add Health survey. They found that teens with same-sex attractions were twice as likely to be perpetrators of violence than those with only opposite-sex attractions, but when models incorporated measures of witnessing violence, as well as being victimized seriously enough to need medical attention, the difference was fully explained.

Although a number of studies explore disparities in violence experienced by sexual minority adolescents, almost no studies examine rates of physical injuries. The only study on injuries to be located was from western Canada (Saewyc, Poon, et al., 2007), which asked whether

the student had been injured in the past year seriously enough to require medical attention. Gay and bisexual boys were less likely to be injured than heterosexual peers, while lesbian and bisexual girls were more likely to be seriously injured. Although sports injuries were the most common overall, sexual minority youth were less likely to be injured during sports, and more likely to be injured in fights, or in car accidents.

In sum, during this decade, an increasingly international and rigorous body of population-based cohort and longitudinal studies have documented greater exposures to violence and injury, and disparities in mental health, sexual health, eating disorders and substance use among LGBQ adolescents compared to heterosexual peers. However, a higher risk does not mean that all LGBQ teens experience these health issues, only a larger percent than heterosexual teens. In fact, with the exception of some of the more common violence exposures (such as verbal harassment) or relatively normative risk behaviours (such as alcohol use), for each health disparity documented above, the majority of LGBQ youth do *not* experience these issues. It is important to remember that most adolescents navigate these developmental years without great risk or poor health outcomes, and while the risks are higher for LGBQ youth, the majority of them likewise navigate adolescence quite successfully. Clearly, it is not a sexual minority orientation per se that leads to health disparities, or all LGBQ youth would experience these challenges.

Theoretical Explanations for the Health Disparities: Research on Contributing Factors

While population-based, cross-sectional observational studies provide strong evidence for documenting health disparities, they are limited in their ability to explain why those health disparities exist (Saewyc, 2007). Correlation can only suggest explanatory mechanisms, and cross-sectional surveys make it difficult to ascertain the timing of events, to ensure that theorized causes actually occur before the effects attributed to them. However, correlational studies can offer evidence around theories that can be tested further within longitudinal research. A growing body of research in this decade has examined the theoretical mechanisms to explain the increased odds of health challenges among LGBQ youth.

There have been two primary approaches to developing theoretical explanations, both of which have merit, and have significantly enhanced our understanding in the past decade. One approach, drawing on Goffman's theory of stigma management (1963), is to identify factors unique to LGBQ youth that predict poorer outcomes, such as orientation-related stigma and discrimination, or the added developmental stress of "coming out," i.e., publicly disclosing a minority sexual orientation (see for example, Almeida et al., 2009; Bontempo & D'Augelli, 2002; D'Augelli, Grossman & Starks, 2006; Rosario et al., 2001, 2004, 2006b; Ryan, Huebner, Diaz & Sanchez, 2009). The other approach is to identify risk factors that commonly predict such outcomes in the general population of adolescents, such as a history of family conflict, abuse, substance use, or depression, then explore whether LGBQ youth disproportionately experience those risk factors (see for example, Birkitt et al., 2009; Borowsky et al, 2001; Russell & Joyner, 2001; Saewyc, 2007). Some theoretical explanations create a combined approach, suggesting, for example, that the stigma of a non-

heterosexual orientation may actually spur the higher rates of those general risk factors among LGBQ adolescents (Busseri et al., 2008; Meininger et al., 2007; Saewyc et al., 2008a).

One of the most common explanations for health disparities among sexual minority adolescents in their exposure to stigma and discrimination, especially enacted stigma, i.e., being targeted for bullying and harassment, exclusion and violence. A number of studies have directly tested links between harassment or stigma and increased rates of health risk behaviors, including mental health problems such as depression, PTSD, and suicidality (Almeida et al., 2009; D'Augelli, Grossman & Starks, 2006; Galliher et al., 2004; Homma & Saewyc, 2007; Skegg et al., 2003; Waldo et al., 1998), substance use and abuse (Birkitt et al., 2009; Bontempo & D'Augelli, 2002; Busseri et al., 2008) and risky sexual behaviors, including teen pregnancy (Bontempo & D'Augelli, 2002; Saewyc, Poon et al., 2007, 2008a). The majority of these studies have found direct links between exposure to enacted stigma and risk behaviors.

Since sexual and physical abuse are strong predictors of developmental problems and risk behaviors during adolescence, other studies have explored the extent to which higher rates of sexual and physical abuse among LGBQ adolescents help explain health disparities. The majority of these studies have found links between abuse and risk behaviors, including suicide attempts (Borowsky et al., 2001; Saewyc, Skay, et al., 2007), substance use (Saewyc, Richens, et al., 2006), sexual behaviors and teen pregnancy (Austin et al., 2008; Saewyc et al., 1999, 2007, 2008a). However, one study exploring substance use that tested sexual abuse as a mediating factor did not find significant associations (Rosario et al., 2004).

Family rejection appears to be a significant contributor to health disparities, although only a few studies have directly examined the link between family rejection after coming out and health risk behaviours. Ryan and colleagues found family rejection was associated with significantly higher rates of depression, suicide attempts, illicit substance use, and unprotected sex (Ryan et al., 2009). Similarly, D'Augelli and colleagues (1998) found those who disclosed their orientation to families were more likely to experience physical and verbal rejection, and this in turn was linked to higher rates of suicide attempts. Rosario, Schrimshaw, and Hunter (2009) found the number of rejecting responses to sexual orientation disclosure predicted substance use longitudinally, even after controlling for other factors.

Family rejection can lead to another risk factor consistently related to health disparities among sexual minority adolescents: running away and homelessness. Coming out and then being kicked out, or running away from family conflict and abuse, helps explain the disproportionate number of LGB adolescents who are homeless or street-involved (Coker et al., 2010). This in turn increases their risk for a host of health challenges, including risky sexual behaviors and teen pregnancy (Rew et al., 2002; Saewyc et al., 1998b, 1999b, 2008a), in part related to higher rates of involvement in survival sex or prostitution (Coker et al., 2010; Saewyc, MacKay et al., 2008).

In this decade, the research evidence to date appears to support explanations of health disparities grounded in theories of stigma, rejection, and social exclusion more than other theories. Both studies that found higher rates of generic risk factors among LGBQ youth, such as child maltreatment, abuse, and violence exposure, as well as those that identified LGBQ-specific factors, such as family rejection, homophobia, or sexual minority stress, found these factors explained more than orientation identity alone. Longitudinal studies, and those which further explore the mechanisms by which stigma, rejection, and social exclusion lead to health disparities for LGBQ teens, would provide further evidence for grounding interventions.

Moving Beyond Disparities: Focusing on Resilience and Protective Factors

Not all LGBQ youth experience poor health outcomes; indeed, most live healthy, fulfilling adult lives, despite facing societal challenges during adolescence. One of the most promising emerging areas in the past decade has been the call to explore the contexts of sexual minority adolescents who do well despite stigma and discrimination, harassment and other health risks (Russell, 2005; Savin-Williams, 2005). A number of protective factors, or positive developmental assets, have been identified as promoting healthy developmental outcomes and reducing risk behaviors among the general population of adolescents, including supportive and nurturing family relationships, supportive friends, caring other adults such as teachers and coaches, connectedness to school, and religiosity or spirituality (Blum, McNeely, & Nonnemaker, 2002).

To what extent are these protective factors present in the lives of sexual minority youth, and, equally importantly, do they work in similar ways to buffer risk exposures and promote healthy development among LGBQ youth? In recent years, a growing number of studies have documented LGBQ adolescents have fewer supportive resources to draw upon, especially bisexual adolescents; they have lower family connectedness or support, as well as lower connectedness to school, lower connectedness to other adults, and lower peer support (Bos et al., 2008; Busseri, et al., 2006; Eisenberg & Resnick, 2006; Lam et al., 2004; Saewyc, et al., 2009; Williams et al., 2003). In our study of students in western Canada, LGB adolescents generally reported higher levels of religiosity than heterosexual teens (Saewyc, Poon, et al., 2007); however, in the U.S. National Longitudinal Survey of Adolescent Health, Rostosky, Danner and Riggle (2007) found same-sex attracted youth reported a significantly lower mean level of religiosity than heterosexual youth.

Do these general protective factors, when present, work to reduce risks for LGBQ adolescents in the same way as they do for the general population of teens? Although there have only been a few studies incorporating protective factors, the answer is generally, yes, protective factors work similarly for LGBQ adolescents. School connectedness has been shown to reduce odds of depression and emotional distress (Galliher et al., 2004), especially among Asian adolescents (Homma & Saewyc, 2007; Lam et al., 2004). Family connectedness, school connectedness, and feeling safe at school have been linked to lower levels of suicide attempts (Eisenberg & Resnick, 2006; Borowsky et al., 2001; Fleming et al., 2007; Rostosky et al., 2007; Saewyc, Poon et al., 2007). Both family and school connectedness have been associated with lower odds of teen pregnancy involvement

(Saewyc, Poon, Skay, & Homma, 2008b), and safety at school and caring teachers have been associated with better school performance (Bos et al., Russell, Seif & Truong, 2001). However, religiosity or spirituality was only protective against suicide for heterosexual youth, not LGBQ adolescents (Rostosky, Danner, & Riggle, 2007).

In addition to generic protective factors, some studies have looked at LGBQ-specific protective factors, such as involvement in the gay community, in LGB support groups, or in gay-straight alliance clubs at school. For example, Rosario and colleagues found greater involvement in gay-related organizations over time decreased alcohol and marijuana use (Rosario et al., 2004). Similarly, Goodenow, Szalacha and Westheimer (2006), found LGB students in schools with gay-straight alliances (GSAs) or supportive anti-homophobia policies and training for school staff reported less harassment in school, and lower odds of suicide attempts.

Thus, these beginning explorations of protective factors suggest that some of the health disparities might be due to lower levels of protective factors in the lives of LGBQ adolescents, yet the same factors, when present, support positive development for them as for heterosexual teens. These studies offer some promising approaches, but the amount of knowledge to date is still quite limited. More studies are needed, especially focused on youth who do well despite experiencing enacted stigma or targeted discrimination, in order to identify what helps them not just to survive, but to thrive.

Interventions to Promote Healthy Development or Reduce Health Disparities among Sexual Minority Adolescents: Suggestive Evidence, Limited Intervention Studies

Although a large number of studies have documented health disparities for LGB youth, and a growing number of studies have tested theoretical explanations for these health disparities, almost no interventions have been tested to actually reduce them, or to reduce the high rates of harassment and victimization that are associated with many of the health disparities. Even given the highest rates of HIV infection among young men who have sex with men, often identified as gay and bisexual, there are almost no interventions focused on HIV risk behaviour prevention among LGB adolescents (Harper, 2007), while appropriately evaluated interventions to reduce other risks, or promote mental health and well-being, are equally scarce. In the published literature during this past decade, only three intervention studies were found that focused on sexual risk behaviors, and only one study focused on suicide attempts and harassment. A handful of correlational studies have also examined the presence of specific school policies and practices on levels of homophobic harassment, but they were not actual intervention studies.

In 1998, Rotheram-Borus and colleagues published two randomized trials of multi-session HIV risk behavior interventions. The first offered 3 cognitive-behavioral focused sessions of 3.5 hours each, over ten days as the primary intervention (Rotheram-Borus, Murphy, et al., 1998a). The second compared that more intense approach to 7 sessions of 1.5 hours each, twice a week over one month, and to a control condition (Rotheram-Borus, Gwadz, et al.,

1998b). Although most of the adolescents in the first study identified as heterosexual, more than half identified as homosexual or bisexual in the second trial. Results indicated that youth who participated in the 7-session intervention reported fewer risky sexual behaviors over the subsequent 3 months, although the 3-session version also improved self-efficacy and the precursor attitudes and cognitions that usually lead to improvements in risky behavior.

The remaining intervention studies are not true experimental designs, but rather observational studies of differences among youth exposed to different school curricula or school climates in Massachusetts or California. In 2001, Blake and colleagues used the 1995 Massachusetts YRBS to compare LGB students who attended schools with gay-sensitive HIV education to LGB students who attended schools without such programs; they found that sexual minority students in schools with gay-sensitive curricula were less likely to engage in sexual risk behaviors, reporting fewer sexual partners, and lower rates of substance use with sex (Blake, et al., 2001). Similarly Goodenow, Szalacha, and Westheimer (2006) used the Massachusetts YRBS to explore the differential experiences of harassment and suicidality among LGB youth who attended schools with gay-straight alliances (GSAs), anti-bullying policies, and supportive staff. They found that students who attended schools with GSAs were significantly less likely to experience victimization, and were less likely to report suicidal thoughts or attempts than peers in schools without GSAs. Other supportive services, such as having supportive staff, the availability of non-academic counseling, having anti-bullying policies, staff training on sexual harassment, and a student court were also associated with lower rates of harassment and suicidality among LGB students. Similar results were documented in a national survey of sexual minority youth (Kosciw, Diaz, and Greytak, 2008).

While these are encouraging results, clearly there is a great deal of work needed to develop and test effective interventions for the range of adolescent health issues that affect the lives of LGBQ adolescents.

The Next Decade: Recommendations for Further Research on Adolescent Sexual Orientation

The previous decade of research on sexual orientation development and health disparities has greatly increased our knowledge, but there is far more work to be done to achieve equity with heterosexual teens. As mentioned above, future studies should include detailed work on developmental trajectories, including cross-cultural exploration of meanings and patterns of sexual orientation development. This can best be achieved through a combination of longitudinal prospective research to disentangle competing explanations and carefully sequence the timing of potential confounding factors, as well as in-depth qualitative studies, to elicit rich narrative meanings of experiences, plus population-based studies of sufficient size to include adequate representation from ethnic minority groups.

The shift to population-based studies of sexual orientation prevalence and health disparities over the past decade should continue. Indeed, sexual orientation measures should be incorporated as another demographic factor in national surveys of adolescents that are

regularly conducted, such as the Youth Risk Behavior Survey; at the same time, it would be extremely helpful to include a greater number of protective factors, health and coping behaviors, and positive psychology measures in these surveys, to document the positive outcomes, not just the risk behaviors and health disparities. Inclusion in recurring surveys will allow the potential to examine trends over time in development, as well as the ability to track health disparities and see whether the gap between LGBQ and heterosexual teens is narrowing or widening. It will also help track changing levels of protective factors and health behaviors, to see the effects of interventions to promote the healthy development of LGBQ adolescents.

Although there has been a distinct improvement in theory testing related to sexual orientation development and explanatory models for health disparities, including contributing risk and protective factors, research on the interplay of risk and protective factors for a host of health outcomes, including physiological or genetic development, is just beginning. Both general adolescent risks and assets, as well as LGBQ-specific exposures and protective factors, should be explored related to different health outcomes, in order to guide future interventions. The neuroendocrine and epigenetic research on sexual orientation would be significantly enhanced by interdisciplinary collaborations with social scientists who can help grapple with some of the measurement and sampling issues that currently limit the progress of that research (Diamond, 2003a; Mustanski et al., 2002). All of these studies should focus on varying ethnic groups and specific contexts, to help ensure that we understand which factors may be universal, and which may be context or group-specific, to allow us to design effective interventions.

Finally, the field needs far more intervention studies for programs that promote healthy development and adjustment among LGBQ adolescents. Interventions that reduce the risk exposures and negative environments that contribute to health disparities, as well as interventions that foster resilience and coping, even in the presence of those risk factors, need to be designed and tested. They need to be adapted for different regions and ethnic groups, for males and females, and perhaps even for specific orientation groups.

The past decade has seen a strong increase in both the numbers and quality of research studies on sexual orientation development and health issues. If this encouraging trajectory continues, the next decade should see an even greater improvement in our ability to support LGBQ teens as they navigate adolescence and become healthy adults.

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