Published in final edited form as:

J Youth Adolesc. 2019 April ; 48(4): 788–801. doi:10.1007/s10964-018-0954-y.

Are Developmental Assets Protective Against Suicidal Behavior? Differential Associations by Sexual Orientation

Russell B. Toomey, Ph.D.¹, Amy K. Syvertsen, Ph.D.², and Melissa Flores, M.S.³

¹The University of Arizona, Family Studies and Human Development, Tucson, AZ, USA; toomey@email.arizona.edu.

²Search Institute, Minneapolis, MN, USA; amys@searchinstitute.org.

³The University of Arizona, Family Studies and Human Development, Tucson, AZ, USA; maflor@email.arizona.edu.

Abstract

Sexual orientation disparities in suicide behavior are well-documented. Yet, few studies have examined how developmental assets – key values, self-perceptions, skills, relationships, and opportunities that have been identified as the building blocks of positive youth development – are associated with suicide behaviors, particularly among sexual minority youth. This study examined concurrent associations between young people’s developmental assets and suicidal behavior by sexual orientation using a large sample of 116,925 in-school U.S. adolescents (ages 11 to 19, $M = 14.74$, $SD = 1.78$). Most of the sample identified as only heterosexual (90.2%); 5% identified as mostly heterosexual, 3.5% as bisexual, 0.6% as mostly lesbian/gay, and 0.7% as only lesbian/gay. Most participants identified as White, non-Latina/o (62.6%) and as cisgender female (50.3%) or cisgender male (47.8%). Compared to only heterosexual adolescents, youth with all other sexual orientations reported lower levels of internal and external developmental assets except for non-sports extracurricular activity participation and social justice values. Identifying as a racial/ethnic minority, particularly for only heterosexual adolescents, and specifically as Latina/o for sexual minority adolescents was associated with greater risk for suicidal behavior. Further, identifying as a gender minority exacerbated risk for suicidal behavior. Relatedly, when youth reported feeling unsafe with their family, or in their school or neighborhood, they were at greater risk for suicidal behavior, regardless of sexual orientation. Feeling hopeful was associated with lower risk for suicidal behavior for all youth. Regardless of sexual orientation, planning and decision-making skills were associated with lower risk and social-emotional skills were associated with heightened

Correspondence concerning this article should be addressed to Russell B. Toomey, Norton School of Family and Consumer Sciences, The University of Arizona, 650 N. Park Ave., Tucson, AZ, 85721-0078; Phone: (520) 621-4009; toomey@email.arizona.edu.

Authors’ Contributions

RT conceptualized and designed the study, carried out the initial analyses, drafted the initial manuscript, and reviewed and revised the manuscript; AS conceptualized and designed the study, and critically reviewed the manuscript for important intellectual content; MF carried out a portion of the analyses and reviewed the manuscript for clarity. All authors read and approved the final manuscript as submitted and agree to be accountable for all aspects of the work.

Data Sharing Declaration

The manuscript’s data will not be deposited.

Compliance with Ethical Standards

Conflicts of Interest

The authors report no conflicts of interest.

risk for suicidal behavior. School boundaries and social justice values were associated with lower risk for suicidal behavior among bisexual adolescents; there were no additional protective assets for mostly/only lesbian/gay adolescents. In conclusion, sexual orientation disparities exist in the lives of adolescents for several internal and external developmental assets. Disparities in suicidal behavior by sexual orientation, however, were largely unexplained by differential associations between developmental assets and suicidal behavior.

Keywords

developmental assets; positive youth development; sexual orientation; suicidal behavior

Introduction

Three decades of research showcase the disparities that exist in adolescent suicidal behavior (i.e., suicide attempts or plans for attempts): sexual minority adolescents – including those who identify as “mostly heterosexual” (Savin-Williams & Vrangalova, 2013) – are at greater risk than their heterosexual peers (Haas et al., 2010; Institute of Medicine, 2011). Sexual orientation disparities in suicidal behavior appear to be heightened during adolescence (Russell & Toomey, 2012). The dearth of empirical research on factors that protect sexual minority adolescents against suicidal behavior is concerning (Russell & Fish, 2016), especially given the critical gateway feature protective factors have in the design of effective prevention programs.

The Developmental Assets® framework (Benson, Leffert, Scales, & Blyth, 1998) – a comprehensive positive youth development framework – has not been applied to the study of adolescent suicidal behavior. Yet, such a framework could be particularly useful in designing and implementing universal suicide prevention programs to reduce suicide behavior disparities. Given the large-scale adoption of the Developmental Assets framework by thousands of school districts and hundreds of community collations and youth organizations affecting millions of youth in the United States and across the world (Benson, Scales, & Syvertsen, 2011), it is uniquely poised to be integrated into suicide prevention programs, potentially even those that target groups that demonstrate higher risk for suicidal behaviors. Notably, a foundational tenet of positive youth development posits that access to *developmental assets* are positively associated with favorable academic, social, emotional, and behavioral outcomes, *and* that these associations are universal (i.e., the associations hold regardless of youths’ positionality in society) (Benson et al., 1998). However, empirical support for these claims is still emerging. The goals of this study were two-fold. First, this study examined whether youths’ access to developmental assets – including both internal and external developmental assets, as posited by the Developmental Assets framework – differed by their sexual orientation. Second, this study examined whether internal and external developmental assets are protective against suicidal behavior universally across sexual orientation identities, including for lesbian, gay, and bisexual (LGB) adolescents.

Risk and Protection of Suicidal Behaviors by Sexual Orientation

Research has identified an inclusive list of salient risk factors that help explain sexual orientation disparities in suicidal behavior (Institute of Medicine, 2011; Russell & Toomey, 2013). Much of the literature in this area has been framed by the minority stress perspective (Meyer, 2003), which suggests that sexual orientation disparities in health are largely rooted in systemic and interpersonal oppressions like heterosexism and homophobia. Indeed, as reviewed by the Institute of Medicine (2011), risk factors associated with suicide behavior disparities by sexual orientation during adolescence include sexual minority stressors like victimization, harassment, discrimination, and rejection. Further, it is well-documented that LGB youth have less access to affirmative health services and other key sources of support (e.g., schools, families), and these factors contribute to suicidal behavior and other poor health-related outcomes (Institute of Medicine, 2011). Thus, much of the research on suicide behaviors among LGB youth has focused on the systemic and interpersonal stigmas that contribute to large disparities by sexual orientation.

Research on protective factors that buffer against suicide risk among LGB youth is lacking (Institute of Medicine, 2011). However, the few studies that do exist are promising. For example, several school characteristics have been associated with lower risk for suicidal ideation among same-sex attracted youth, such as having a supportive teacher and a strong sense of school community (Russell & Toomey, 2013; Whitaker, Shapiro, & Shields, 2016). Further, high social support has been linked to lower LGB youth distress (McConnell, Birkett, & Mustanski, 2015; Snapp, Watson, Russell, Diaz, & Ryan, 2015), and, in particular, parent support is associated with lower risk for suicidal behavior (Ryan, Russell, Huebner, Diaz, & Sanchez, 2010). Much of this literature has focused on external supports – opportunities, relationships, and values in networks or structures outside of the individual – and few studies have examined how internal strengths might offer protection to LGB youth against suicide behavior. The limited research that has focused on internal assets among LGB youth has typically examined various aspects of identity development; this research demonstrates that identity disclosure of a sexual minority identity is associated with more positive young adult outcomes (e.g., self-esteem, satisfaction; Russell, Toomey, Ryan, & Diaz, 2014).

To date, most studies that examine risk and protective factors associated with suicide risk among LGB adolescents approach the research question(s) from a context-specific lens (i.e., only examining school or family experiences, but not both simultaneously). This approach does not account for the comprehensive and holistic nature of risk and resilience. For example, it is plausible that even if adolescents experience a negative or hostile home environment, the school environment may uniquely promote well-being, or vice-versa. It is perhaps more realistic to understand the comprehensive contributions of internal and external assets in understanding risk for suicidal behavior rather than viewing each asset in a siloed set of analyses. To address these gaps, this study used the Developmental Assets framework (Benson et al., 1998; Benson et al., 2011) as the lens for collectively examining both the internal (i.e., skills, competencies, and values) and external (i.e., environmental, contextual, and relational features of the socializing system) assets in young people's lives.

The Developmental Assets Framework

The Developmental Assets framework was created in 1990 as an early answer from the emerging positive youth development movement to the narrow deficits and prevention language dominating the field of adolescent development at the time (see Benson, Scales, Hamilton, & Sesma, 2006). Named in the framework are key values, self-perceptions, skills, relationships, and opportunities that the extant research in prevention and resilience had empirically linked to positive developmental outcomes for adolescents. The goal was to provide scholars and practitioners with a common language that they could use to mobilize organizations and communities (i.e., practitioner-focused) to strengthen positive youth development. The scientific foundation of the Developmental Assets framework was comprehensively reviewed by Scales and Leffert (2004).

For the current study, a modified version of the developmental asset measures was used that displayed strong psychometric properties and evidence of measurement invariance across sexual orientation groups (Syvertsen, Scales, & Toomey, 2018). The decision to depart from the conceptual organization posed in the original Developmental Assets framework, in this paper, was driven by the pursuit of conceptual parsimony and a strong measurement model, as well as an assessment of the face validity of items and measures as assets when considering the experiences of sexual minority youth (Syvertsen et al., 2018). The revised and modified version of the developmental asset measures adequately meet the measurement standards of contemporary applied developmental science and maintains the conceptual integrity of the original framework.

The Current Study

Utilizing a modified subset of developmental asset measures (Syvertsen et al., 2018), the purpose of this study was to examine the specific ways a variety of developmental opportunities, relationships, values, and skills – that is, developmental assets – comprehensively function in the lives of LGB adolescents to protect them from suicidal behavior. The study's goals were two-fold: (1) examine whether adolescents' access to developmental assets differs by sexual orientation, and (2) examine whether developmental assets similarly or differentially protect against suicidal behavior among LGB adolescents compared to only and mostly heterosexual adolescents. Specific to the first goal, based on prior research, it was expected that LGB youth would report lower levels of all external assets (Saewyc, 2011), but *a priori* hypotheses regarding group differences on the internal asset categories were not developed given the lack of prior research in this area of study. Similarly, given that the second goal of the study was exploratory in nature, *a priori* hypotheses about whether assets would function similarly or differentially in protection from suicidal behavior for LGB and “mostly heterosexual” adolescents compared to their heterosexual peers were not developed.

Method

Procedure

The current study includes secondary data analysis of Search Institute's *Profiles of Student Life: Attitudes and Behaviors* (PSL-AB) survey data collected between June 1, 2012 and May 31, 2015. This timeframe coincides with the addition of a sexual orientation question to the survey beginning June 1, 2012, and May 31, 2015 was selected as the end date to avoid confounding effects of the U.S. Supreme Court decision legalizing same-sex marriage (i.e., *Obergefell v. Hodges*, June 26, 2015). The PSL-AB survey is the most widely used survey of young people's developmental opportunities, relationships, values, and skills in the U.S., with 3,500 communities administering the instrument to over 4 million youth over the past two decades (Benson et al., 2011; Eccles & Gootman, 2002). The PSL-AB survey is a 160-item self-report instrument that includes measures of internal and external developmental assets, suicidal behavior, and numerous risk-taking (e.g., alcohol, tobacco, and other drug use) and positive behaviors. These data were independently collected in public middle schools and high schools across the U.S. by organizations and community coalitions who approached Search Institute. Search Institute provides local contacts with detailed administration guides and support but has little direct oversight on the data collection process. No personal identifying information was collected as part of the survey process. All secondary analyses for this project were exempt from IRB approval.

Analytic Sample

Participants included 116,925 youth ages 11–19 ($M = 14.74$, $SD = 1.78$), who represented a diverse mix of races and ethnicities: 62.6% White, non-Latina/o; 10.3% Hispanic or Latina/o; 8.0% Asian; 6.8% multiracial/ethnic; 6.6% Black or African American; 3.5% other race/ethnicity; 1.1% American Indian/Alaskan Native; < 1% Native Hawaiian or Pacific Islander; and, < 1% did not respond. A total of 11,459 youth – 9.8% of the sample – identified their sexual orientation as something other than “only heterosexual” (hereafter, heterosexual adolescents): mostly heterosexual (5%; $n = 5,861$), bisexual (3.5%; $n = 4,041$), mostly lesbian or gay (0.6%; $n = 720$), only lesbian or gay (0.7%; $n = 837$; hereafter, lesbian/gay). An inclusive gender identity measure was used: 50.3% of adolescents identified as female, 47.8% as male, 0.2% as transgender female (i.e., male-to-female), 0.1% as transgender male (i.e., female-to-male), 0.3% as transgender not exclusively male or female, 0.9% as not sure, and 0.4% did not respond. Three-quarters of youth (75.6%) resided in rural areas or small cities.

Measures

Suicidal behavior.—One question assessed history of ever engaging in suicidal behavior: “Have you ever tried to kill yourself?” Response options included: *No*; *Yes, once*; *Yes, twice*; and, *Yes, more than two times*. Responses were collapsed and coded such that *No* = 0 and *Yes, one or more times* = 1.

Developmental assets.—The revised developmental assets measures assess 7 asset categories, within which these are 18 individual assets: 3 internal categories (made up of 7 individual internal assets) and 4 external categories (made up of 11 individual external

assets). Latent variables were created for each asset. Tau-equivalence was used for identification purposes when an asset was measured with only two items. For single-item assets, the latent variance was fixed to one and the item error was fixed to zero. Measurement equivalence was established for all assets across sexual orientation, gender identity, race/ethnicity, urbanicity, grade-level, and parental education (Syvertsen et al., 2018).

The three internal developmental asset categories included Academic Engagement, Social Competencies, and Positive Values. Academic Engagement is assessed by one asset (of the same name). Social Competencies is assessed by two individual assets: Social-Emotional Skills and Planning and Decision-Making Skills. Positive Values is assessed by four individual assets: Caring, Social Justice, Integrity, and Responsibility.

The four external developmental asset categories included Boundaries, Support, Mattering and Belonging, and Extracurricular Activity Participation. Boundaries is assessed by three individual assets: Family, School, and Neighborhood Boundaries. Support is measured with four individual assets: Family Support, Open Family Communication, Parent Involvement in School, and Other Adult Relationships. Mattering and Belonging includes two individual assets: Caring School Climate and Community Values Youth. Extracurricular Activity Participation is measured with two indexes: Non-Sports Involvement and Sports Involvement. Details about the measurement of each asset is provided next.

Academic engagement.: Academic Engagement used three items to examine how actively engaged a young person is in learning (e.g., “At school I try as hard as I can to do my best work”; $\alpha = .67$).

Social-emotional skills.: Social-Emotional Skills used four items to assess how often a young person shows empathy, behaves respectfully with diverse others, and has friendship skills (e.g., “Feeling really sad when one of my friends is unhappy”; $\alpha = .67$).

Planning and decision-making skills.: Planning and Decision-Making Skills utilized four items to assess how often a young person plans ahead and makes good, healthy choices (e.g., “Thinking through the possible good and bad results of different choices before I make decision”; $\alpha = .70$).

Caring.: Caring – that a young person places high value on helping other people – was assessed by three items (e.g., “How important is each of the following to you in your life? Helping to make the world a better place in which to live”; $\alpha = .76$).

Social justice.: Social Justice – that a young person places high value on promoting equality and fairness – was assessed by two items (e.g., “Speaking up for equality (everyone should have the same rights and opportunities)”; $r = .59$).

Integrity.: Integrity – that a young person acts on convictions and stands up for beliefs – was assessed by two items (e.g., “Standing up for what I believe, even when it’s unpopular to do so”; $r = .68$).

Responsibility.: Responsibility – that a young person accepts and takes personal responsibility – was assessed by three items (e.g., “Telling the truth, even when it’s not easy”; $\alpha = .78$).

Family boundaries.: Family Boundaries, measured by three items, assessed whether the family has clear rules and consequences and monitors the young person’s whereabouts (e.g., “If I break one of my parents’ rules, I usually get punished”; $\alpha = .56$).

School boundaries.: School Boundaries, measured by three items, assessed whether the school provides clear rules and consequences (e.g., “In my school there are clear rules about what students can and cannot do”; $\alpha = .52$).

Neighborhood boundaries.: Neighborhood Boundaries assessed whether neighbors take responsibility for monitoring young people’s behavior (1 item; “If one of my neighbors saw me do something wrong, he or she would tell one of my parents”).

Family support.: Family Support was measured with three items and assessed whether a young person’s family provides high levels of love and support (e.g., “My parents give me help and support when I need it”; $\alpha = .80$).

Open family communication.: Open Family Communication assessed whether a young person communicates with parent(s) and is willing to seek advice and counsel from them (2 items; e.g., “I have lots of good conversation with my parents”; $r = .47$).

Parent involvement in school.: Parent Involvement in School assessed whether parent(s) are actively involved in helping their young person succeed in school (4 items; e.g., “How often does one of your parents ask you about homework?”; $\alpha = .75$).

Other adult relationships.: Other Adult Relationships assessed whether a young person receives support from nonparental adults (3 items; e.g., “How many adults have you known for two or more years who talk with you at least once a month?”; $\alpha = .82$).

Caring school climate.: Caring School Climate is assessed with three items and measures whether the school provides a caring, encouraging environment (e.g., “My teachers really care about me”; $\alpha = .71$).

Community values youth.: Community Values Youth assesses whether a young person perceives that adults in the community value youth and that youth are given useful roles in their community (7 items; e.g., “In my town or city, I feel like I matter to people”; $\alpha = .82$).

Non-sports involvement.: Non-Sports Involvement measured how many hours in an average week a young person spends participating in non-sports-based activities (5 items; “In clubs or organizations (other than sports) outside of school (such as 4-H, Scouts, Boys and Girls Clubs, YWCA, YMCA)”).

Sports involvement.: Sports Involvement measured how many hours in an average week a young person spends participating in sports-based activities (1 item, “Playing on or helping with sports teams at school or in the community”).

Sociodemographic characteristics.—Adolescents reported their sexual orientation (only heterosexual, mostly heterosexual, bisexual, mostly lesbian or gay, only lesbian or gay), gender identity (female; male; transgender, male-to-female; transgender, female-to-male; transgender, do not identify as exclusively male or female; and, not sure), race/ethnicity (American Indian or Alaska Native, Asian, Black or African American, Hispanic or Latino/Latina, Native Hawaiian or Other Pacific Islander, White, Other), age (11 or younger to 19 or older), urbanicity (coded as 0 = on a farm to small city less than 50,000 people, 1 = medium to large city over 50,000 people), and highest parental education (coded as 1 = completed grade school or less to 6 = graduate or professional school after college).

Covariates.—Hope was measured by three items (e.g., “When I am an adult, I’m sure I will have a good life”; $\alpha = .83$). Feeling unsafe was indexed by three items that all began with the stem “How often do you feel afraid of...” and included three contexts: neighborhood, school, and home ($\alpha = .58$).

Analytic Strategy

Prior to examining group differences by sexual orientation in adolescents’ experiences of the developmental assets, propensity-score adjustment techniques (Robinson & Espelage, 2012, 2013) were used to balance sexual orientation groups with similar sociodemographic profiles. This method reduces the likelihood that estimated disparities are due to differences in sociodemographic characteristics other than sexual orientation and allows for the adjustment of potential confounders without requiring models to assess their association with outcomes (Rubin, 2001; Vansteelandt & Daniel, 2014). Multinomial logistic regressions were estimated with sexual orientation as the outcome and age, race/ethnicity, gender, urbanicity, and parental education as predictors. Coefficient estimates from these models were then used to compute the relative probability of each young person experiencing the ‘exposure’ of each sexual orientation category. Regression adjustment techniques were used to adjust for these probabilities in subsequent models.

Mean-level group differences by sexual orientation in adolescents’ reports of each developmental asset were examined using multiple-group latent mean modeling (Little, 2013) in *Mplus* (Muthén & Muthén, 2015). A series of nested models were conducted to examine whether the means could be constrained to be equal across sexual orientation groups, or if the means differed by group membership. Cohen’s *d* effect sizes are interpreted such that effect sizes of $d = 0.20$ are considered small but meaningful, $d = 0.50$ are considered medium, and $d = 0.80$ or more are considered large (Cohen, 1992).

Next, the internal and external developmental assets were examined in a multiple-group structural equation model using logistic regression to predict suicidal behavior. The purpose of these analyses was to understand how developmental assets differentially predict suicidal behavior by sexual orientation. A series of sequential nested model comparisons were tested to investigate whether estimates could be constrained across sexual orientation groups.

Missing data, except for sociodemographic variables, were handled through multiple imputation ($n = 20$) (Enders, 2010).

Results

Disparities in Internal Developmental Assets

Figure 1 displays mean-level differences (Cohen's d effect sizes) in adolescents' internal developmental assets by sexual orientation.

Academic engagement.—Compared to heterosexual adolescents, all other youth reported lower levels of academic engagement (d s ranged from -0.89 to -0.42). Similarly, compared to mostly heterosexual youth, bisexual, mostly lesbian/gay, and lesbian/gay youth reported lower academic engagement (d s ranged from -0.42 to -0.32). Negligible differences were found among bisexual, mostly lesbian/gay, and lesbian/gay youth (d s ranged from -0.10 to -0.03).

Social competencies.—Compared to heterosexual adolescents, all other sexual orientation groups reported lower social-emotional skills, and planning and decision-making skills (d s ranged from -1.08 to -0.28). Bisexual, mostly lesbian/gay, and lesbian/gay adolescents reported less social-emotional and planning and decision-making skills than mostly heterosexual adolescents (d s ranged from -0.79 to -0.08). Compared to bisexual adolescents, mostly lesbian/gay ($d = -0.54$) and lesbian/gay ($d = -0.63$) adolescents reported lower levels of social-emotional skills. And, compared to bisexual and mostly lesbian/gay adolescents, lesbian/gay adolescents reported higher levels of planning and decision-making skills ($d = 0.06, 0.29$, respectively).

Positive values.—Heterosexual adolescents reported higher levels of caring (d s ranged from -0.71 to -0.26), integrity (d s ranged from -0.55 to -0.24), and responsibility (d s ranged from -0.78 to -0.67) values compared to bisexual, mostly lesbian/gay, and lesbian/gay adolescents. Few differences emerged between heterosexual and mostly heterosexual youth (d s ranged from -0.39 to -0.01) on the positive value assets, with the largest difference being in responsibility values. Mostly heterosexual adolescents also reported higher levels of caring, integrity, and responsibility values compared to bisexual, mostly lesbian/gay, and lesbian/gay adolescents (d s ranged from -0.60 to -0.12). Lesbian/gay adolescents reported lower levels of caring and integrity compared to bisexual adolescents ($d = -0.27, -0.35$, respectively) and mostly lesbian/gay adolescents ($d = -0.36, -0.11$ respectively). There were no differences between bisexual, mostly lesbian/gay, and lesbian/gay adolescents on responsibility (d s ranged from -0.09 to -0.03).

A slightly different pattern of findings emerged for social justice values. Mostly heterosexual and bisexual adolescents reported higher levels of social justice values compared to heterosexual adolescents ($d = 0.21$ and 0.10 , respectively). While there were no differences between heterosexual and mostly lesbian/gay adolescents on social justice values ($d = -0.01$), lesbian/gay adolescents reported moderately lower levels compared to heterosexual adolescents ($d = -0.36$). Compared to mostly heterosexual adolescents, bisexual ($d = -0.11$), mostly lesbian/gay ($d = -0.23$), and lesbian/gay ($d = -0.57$) adolescents reported lower

levels of social justice values. Finally, lesbian/gay adolescents reported lower levels of social justice values compared to bisexual and mostly lesbian/gay adolescents (d s = -0.43 and -0.29 , respectively).

Disparities in External Developmental Assets

Figure 2 displays mean-level differences (Cohen's d effect sizes) in adolescents' external developmental assets by sexual orientation.

Boundaries.—Compared to heterosexual adolescents, all other sexual orientation groups reported experiencing fewer family, school, and neighborhood boundaries (d s ranged from -0.71 to -0.07). Differences across all sexual minority groups were small (d s ranged from -0.34 to 0.20): when differences did emerge, lesbian/gay adolescents reported lower family boundaries compared to all other groups (d s ranged from -0.34 to -0.19). Gay/lesbian adolescents reported slightly higher levels of school and neighborhood boundaries compared to mostly lesbian/gay adolescents (d s ranged from 0.07 to 0.20).

Support.—Compared to heterosexual adolescents, all other sexual orientation groups reported lower levels of family support, open family communication, and other adult relationships (d s ranged from -0.62 to -0.22). For parent involvement in school, there were no substantial differences between heterosexual adolescents and mostly heterosexual ($d = -0.11$), mostly lesbian/gay ($d = 0.03$), or lesbian/gay ($d = -0.10$) adolescents. Among sexual minority adolescents, bisexual, mostly lesbian/gay, and lesbian/gay adolescents generally reported less support compared to mostly heterosexual youth (d s ranged from -0.34 to 0.13). Few differences emerged between bisexual and mostly lesbian/gay and lesbian/gay adolescents (d s ranged from -0.20 to 0.45). Compared to bisexual adolescents, lesbian/gay adolescents reported less open family communication ($d = -0.20$), whereas mostly and lesbian/gay adolescents reported greater parental involvement in school (d s = 0.45 , 0.33 , respectively). Finally, lesbian/gay adolescents reported lower levels of other adult relationships compared to mostly lesbian/gay adolescents ($d = -0.37$).

Mattering and belonging.—Similar patterns emerged for both assets that tapped young people's feelings of mattering and belonging: Compared to heterosexual adolescents, all other sexual orientation groups reported a lower sense of mattering and belonging assets (d s ranged from -0.64 to -0.15). Compared to mostly heterosexual adolescents there were negligible differences with all other sexual minority adolescents (d s ranged from -0.16 to 0.15), except for caring school climate (lesbian/gay adolescents reported moderately lower levels compared to mostly heterosexual adolescents; $d = -0.47$). Further, lesbian/gay adolescents reported lower levels of caring school climate compared to bisexual and mostly lesbian/gay adolescents (d s = -0.30 , -0.28 , respectively). Mostly lesbian/gay and lesbian/gay youth reported slightly higher levels of feeling valued by their community compared to bisexual youth (d s = 0.15 , 0.26 , respectively).

Extracurricular activity participation.—No substantive differences were found between sexual orientation groups in levels of non-sports participation (d s ranged from -0.06 to 0.15). Large differences were found, however, between heterosexual adolescents

and all other groups on sports participation (d s ranged from -0.79 to -0.53). Mostly heterosexual adolescents were more likely than bisexual adolescents to participate in sports ($d = -0.29$); however, there were no differences between mostly heterosexual adolescents and mostly lesbian/gay or lesbian/gay adolescents. Mostly lesbian/gay and lesbian/gay adolescents were slightly more likely to participate in sports compared to bisexual adolescents (d s = 0.27 and 0.26 , respectively).

Disparities in Suicidal Behavior

Descriptive analyses revealed that 14.1% of adolescents in our sample reported lifetime suicidal behavior. Sexual orientation disparities existed in suicidal behavior: bisexual (49.3%), mostly lesbian/gay (41.1%), and lesbian/gay (37.7%) adolescents reported higher suicidal behavior rates than adolescents who identified as mostly heterosexual (27.8%) or heterosexual (11.7%).

Covariates.—Significant differences emerged in predicting suicidal behavior by sociodemographic characteristics, hope, and perceived lack of safety (Table 1). Age was positively associated with suicidal behavior for youth who identify as heterosexual, mostly heterosexual, or bisexual. Having parents with higher levels of education and residing in more urban communities was somewhat protective against suicidal behavior for heterosexual, mostly heterosexual, and bisexual adolescents. Specific to gender identity, identifying as a female was positively associated with suicidal behavior, regardless of sexual orientation. Identifying as a male-to-female transgender adolescent was positively associated with suicidal behavior for those who also identified as mostly lesbian/gay or lesbian/gay. Identifying as a female-to-male transgender adolescent was positively associated with suicidal behavior for all youth, except those who identified as heterosexual. Further, identifying as not exclusively male or female was positively associated with suicidal behavior for those who identified as bisexual, mostly lesbian/gay, or lesbian/gay. Finally, questioning one's gender identity was positively associated with suicidal behavior for those who also identified as heterosexual, mostly lesbian/gay, or lesbian/gay.

Specific to race/ethnicity, identifying as any non-White racial/ethnic identity and heterosexual was positively associated with suicidal behavior. Elevated suicide risk was also demonstrated for Latina/o youth who identified as mostly heterosexual, bisexual, or lesbian/gay, as well as multiracial/ethnic youth who identified as mostly heterosexual. Identifying as Asian and mostly heterosexual or bisexual was associated with lower risk for suicidal behavior. Finally, feeling unsafe was associated with higher risk for suicidal behavior for all youth, regardless of sexual orientation, while hope was associated with lower suicidal behavior regardless of sexual orientation.

Internal assets.—Of the internal assets (Table 2), academic engagement was not significantly associated with suicidal behavior for any of the adolescent groups. Social-emotional skills were associated with slightly higher suicide risk for all adolescents, while planning and decision-making skills were associated with lower risk for all sexual orientation groups. Caring and social justice values were associated with lower risk for suicidal behavior for heterosexual and bisexual adolescents. Integrity and responsibility

values were associated with slightly higher risk for suicidal behavior for heterosexual, mostly heterosexual, and bisexual adolescents.

External assets.—Of the external assets (Table 2), neither family support nor open family communication were associated with suicidal behavior for any of the sexual orientation groups. Parent involvement in school was associated with lower suicide risk for heterosexual adolescents. A caring school climate was associated with lower risk for mostly heterosexual adolescents. Sports participation was associated with lower risk for heterosexual adolescents. School boundaries were associated with lower risk for bisexual adolescents while neighborhood boundaries were associated with lower risk for heterosexual and mostly heterosexual adolescents. Contrary to expectations, other adult relationships, feeling valued by the community, family boundaries, and non-sports participation were associated with slightly higher risk for suicidal behavior among heterosexual and mostly heterosexual youth. Notably, none of the external assets were associated with suicidal behavior among mostly lesbian/gay or lesbian/gay adolescents.

Discussion

Sexual orientation disparities in suicidal behavior are well-established, particularly during adolescence (Russell & Toomey, 2012). Yet, few studies have comprehensively examined factors that protect against suicidal behavior for sexual minority youth. This study responds directly to the Institute of Medicine's 2011 call for scientifically rigorous research on protective factors that contribute to the health of sexual minority youth, including examinations of within-group differences by race/ethnicity, urbanicity, and gender. Consistent with prior research, our findings demonstrate the stark disparities in suicidal behavior by sexual orientation (Haas et al., 2010; Institute of Medicine, 2011). This study comprehensively examined sexual orientation differences in developmental assets, aligned with Search Institute's Developmental Assets framework. Consistent with research on external supports (e.g., Russell & Fish, 2016), small to large sexual orientation differences in young people's experiences of each of the developmental assets, except for non-sports participation and social justice values, were identified. Notably, there were very few differences across sexual orientation groups in the associations among internal and external developmental assets and suicidal behavior, suggesting that, if integrated into ongoing suicide prevention programs, the Developmental Assets framework may work similarly for protection (and, perhaps, exacerbation) of risk of suicidal behaviors.

Access to and Endorsement of Developmental Assets

Findings demonstrate that LGB adolescents and adolescents who identify as “mostly heterosexual” report lower levels of internal assets and less access to external assets – with few exceptions (i.e., social justice values, non-sports participation). Overall, disparities in access to and endorsement of internal and external assets are consistent with prior research on external supports and supportive climates (Russell & Fish, 2016), suggesting that perhaps the first point of intervention to reduce health disparities among LGB youth is to improve family, school, and community contexts (e.g., remove systemic barriers, increase knowledge and acceptance).

Disparities in access to developmental assets are not surprising given the continued presence of heteronormativity and LGB minority stress in the U.S. (Hatzenbuehler & Pachankis, 2014), and *yet* it is important to call attention to them and unpack with specificity the experience of subgroups of LGB youth to inform prevention efforts. For example, it is not surprising that LGB and mostly heterosexual youth reported lower levels of external assets given that LGB youth report higher levels of school-based victimization compared to heterosexual youth (Toomey & Russell, 2016), rejecting or hostile family relationships or lack of familial support (Katz-Wise, Rosario, & Tsappis, 2016), and experience structural bias from laws that are not inclusive or that discriminate against them (Hatzenbuehler & Pachankis, 2016). Future research is needed that identifies the social and relational barriers that sexual minority youth experience in accessing these external assets, as well as LGB-specific external supports (e.g., Gay-Straight Alliances) that may promote thriving.

While we are not aware of any study that has examined internal assets in a comprehensive way, particularly beyond examining identity development among LGB youth, future attention is needed to understand *why* LGB youth report lower levels of these internal assets. It may be the case, for example, that the experience of structural or interpersonal minority stress related to one's sexual orientation helps explain differences in internal assets, such as social-emotional skills or planning and decision-making skills. Specifically, experiences of minority stress may limit opportunities for the growth and development of internal assets. For example, specific to academic engagement, experiences of a hostile school environment may limit a student's ability to focus and engage in their school work (Kosciw, Greytak, Giga, Villenas, & Danichewski, 2016). Further, it may be the case that internalized minority stress (e.g., internalized homonegativity, negative sense of self; Meyer, 2003) acts as a barrier to the development of internal assets (e.g., hypervigilance related to minority stress may limit the healthy development of planning and decision-making skills). Interventions are needed to help build developmental assets among sexual minority youth, and perhaps, these begin by addressing inequities in environments (e.g., schools, families), that may then gradually promote the growth of internal developmental assets.

Developmental Assets as Protective?

Overall, there were very few differences by sexual orientation in the associations between developmental assets and suicidal behavior, suggesting that they do indeed function in a universal fashion, as posited by the Developmental Assets framework (Benson et al., 1998). For mostly/only lesbian and gay youth in our sample, the only asset associated with lower risk for suicidal behavior was planning and decision-making skills, an internal asset. Notably, prior research has documented a link between suicide risk and impaired decision-making (Ackerman et al., 2015; Bridge et al., 2012), which is not surprising given that decision-making skills are used to identify and choose the best solution in response to a particular challenge or problem. When decision-making is impaired, suicide might be viewed as the most viable option by an adolescent for challenges or problems that are perceived as beyond their control, for example. Given the sexual orientation disparities that existed in this sample in planning and decision-making skills, it is critical that future research examine how to foster this internal asset among LGB and mostly heterosexual youth. This is particularly necessary given that many of the stressors linked with suicidal

behavior that LGB youth experience are beyond their control (e.g., discrimination; Rivers, Gonzalez, Nodin, Peel, & Tyler, 2018).

For bisexual youth – as well as heterosexual youth – social justice values were also associated with lower risk for suicidal behavior. A social justice value orientation was captured in this study by the importance youth place on helping ensure that all people are treated fairly and speaking up for equality. This aligns with previous research showing that LGB youth engaged in social justice activities report higher academic grades and a greater felt sense of school belonging (Toomey & Russell, 2011). Deepening an understanding of why these values are only protective for some subgroups of youth warrants further study. Also, for bisexual youth, school boundaries were associated with lower risk for suicidal behavior; this finding also warrants future attention, given that it is unclear in the wording of the survey items whether the school rules were inclusive of diverse sexualities (e.g., anti-bullying, non-discrimination policies).

Unexpectedly, social-emotional skills were associated with higher risk for suicidal behavior for all sexual orientation groups. Behaviors in this measure are akin to empathy (e.g., “Feeling really sad when one of my friends is unhappy” “Caring about other people’s feelings”). Although empathy is typically framed as an adaptive trait, emerging research suggests that empathy may come at a cost for some adolescents, with highly empathetic adolescents being more sensitive to conflicts (Van Lissa, Hawk, Koot, Branje, & Meeus, 2017). Given the unexpected nature of this finding, we conducted follow-up item-level analyses. The item “Feeling really sad when one of my friends is unhappy” was positively associated with suicidal behavior ($d = 0.20$), suggesting that when youth take on the negative feelings of others that it, in turn, appears to compromise their own mental health. Notably, all other items in this measure (i.e., the two mentioned above, and “Respectively the values and beliefs of people who are a different race or culture than I am.”) were negatively associated with suicide behavior. Among sexual minority adolescents, researchers have found that rumination (which was highly correlated with emotional awareness) mediated the association between sexual minority stress and comprised mental health (Hatzenbuehler, McLaughlin, & Nolen-Hoeksema, 2008), further suggesting that research needs to examine the nuances of emotion regulation, perspective-taking, and mental health.

The importance of examining multiple aspects of identity (O’Brien, Putney, Herbert, Falk, & Aguineldo, 2016) when attempting to understand risk for suicidal behavior were made clear by the results. This study highlights the intersecting nature of risk for suicidal behavior when combining oppressed sexual orientations with oppressed gender identities (e.g., LGB female-to-male transgender adolescents) and racial/ethnic identities (e.g., LGB Latina/o adolescents). While not the focus of this study, it is important to note that identifying with both an oppressed sexual orientation and an oppressed gender identity was associated with exacerbated risk for suicidal behavior. Additionally, it is critical to note that only identifying as Latina/o heightened risk for suicidal behaviors among LGB adolescents, while this pattern was not found for youth who hold other marginalized racial/ethnic identities. This finding is consistent with an emerging pattern that documents inconsistencies in the additive hypothesis related to intersectional oppressed identities (i.e., that two marginalized identities

will yield greater disparities compared to just one marginalized identity; see Toomey, Huynh, Jones, Lee & Revels-Macalinao, 2017 for review).

In sum, this study's findings differ somewhat from the extant literature on supports for LGB youth. This is because many of these prior studies have examined LGB-specific supports and policies that are, indeed, associated with reduced risk (e.g., inclusive anti-bullying or non-discrimination school policies [Hatzenbuehler & Pachankis, 2016; Hatzenbuehler, Birkett, Van Wagenen, & Meyer, 2014; Whitaker et al., 2016], family support related to LGB identity [McConnell et al., 2015; Ryan et al., 2010; Snapp et al., 2015]), whereas this study examined assets more globally. Nonetheless, it may behoove researchers to continue to explore the beneficial nature of planning and decision-making skills, and their malleability in universal suicide prevention efforts.

Limitations

This study is not without limitations. First, analyses and research questions were limited by the absence of measures that assess LGB-specific processes, as such questions are typically beyond the scope of measures intended for large, population-based studies. Yet, research demonstrates that sexual minority adolescents may utilize sexuality-specific resources, such as gay-straight alliances, for protection and thriving (Russell & Fish, 2016). Future studies could address this limitation by including sexuality-specific measures along with the developmental assets to examine whether these specific-processes may have more explanatory power in understanding risk for suicidal behavior. Second, the cross-sectional nature of the data does not allow for claims about the causal nature of the examined associations; thus, it may be possible that reported suicidal behavior occurred prior to access to the seemingly iatrogenic internal and external assets. Third, despite the overall large sample size, it was not plausible to examine stratified models by both sexual orientation and other salient demographic characteristics (e.g., gender identity, race/ethnicity). Future research should examine, for example, how the associations between developmental assets and suicidal behavior differ by sexual orientation X gender identity groupings. Finally, although findings were derived from data from adolescents across the U.S., the sample was not representative and may not be generalizable to all adolescents. For example, adolescents from rural and suburban locations were slightly overrepresented in our sample (Hart, Musci, Ialongo, Ballard, & Wilcox, 2013); yet, this may be a strength given that these populations tend to be excluded from the larger literature on sexual minority youth (Institute of Medicine, 2011). Similarly, it is critical to examine whether the rates and associations documented in this study from data collected between 2012 and 2015 are consistent with data collected after the Supreme Court decision on same-sex marriage in 2015 and after the election of a presidential administration in 2016 that has attempted to remove protections based on sexual orientation and gender identity and expression implemented by the previous administration.

Conclusion

Few studies comprehensively examine how adolescents' internal strengths and external supports are associated with suicidal behavior among sexual minority youth, despite decades

of research documenting disparities for this population. This study identified stark – and troubling – disparities that exist in access to and endorsement of developmental assets by sexual orientation. These disparities necessitate action to ameliorate inequitable access to external supports (which, in turn, we posit will strengthen adolescents' internal assets) for LGB and mostly heterosexual adolescents. Notably, the study also identified that planning and decision-making skills acted as a protective factor against suicidal behavior for all adolescents, regardless of sexual orientation. Thus, research on the promise and malleability of planning and decision-making skills as a suicide prevention tool during adolescence is needed. For LGB adolescents, researchers might integrate research on disclosure decision-making models (Grafsky, 2017) and suicide prevention programs in order to incorporate LGB-specific processes with universal suicide prevention design. Collectively, these findings illuminate the critical need to target risk assessment and decision-making skills in interventions aimed at reducing health disparities among LGB adolescents; a focus on modifying the systems in which adolescent live (e.g., families, schools) – or external assets – is, alone, not enough.

Acknowledgements

We thank the young people who participated in the study. The project described was supported by Grant Number SRG-1-146-14 from the American Foundation for Suicide Prevention. The content is solely the responsibility of the authors and does not necessarily represent the official views of the American Foundation for Suicide Prevention. Support for this project was also provided by a Loan Repayment Award by the National Institute of Minority Health and Health Disparities (L60 MD008862; Toomey). We thank Stephen T. Russell who provided feedback on an earlier version of this manuscript.

Biographies

Russell Toomey, PhD, is Associate Professor of Family Studies and Human Development at the University of Arizona. Framed by the tenets of the minority stress model, intersectionality, and positive youth development, his research identifies malleable family and other salient contextual (i.e., school, community) features that contribute to and mitigate health disparities experienced by marginalized adolescents in the United States. Largely, his research has examined these relationships with explicit attention to the minority-specific stressors of prejudice, stereotyping, and discrimination that contribute to the disparate rates of negative outcomes experienced by sexual and gender diverse adolescents and Latinx youth, and the protective factors (e.g., family support, acceptance) that buffer these associations.

Amy Syvertsen, PhD, is director of applied quantitative research and a senior research scientist at Search Institute. Her program of research blends the themes of developmental theory, adolescent civic engagement, and positive youth development. Her research focuses on understanding the core values and behaviors that promote social responsibility and participatory citizenship in young people. Her work seeks to advance our understanding of the contextual (family, school, community) and developmental underpinnings of thriving in childhood and adolescence.

Melissa Flores, PhD, is a Postdoctoral Fellow in the Center for Border Health Disparities in Health Sciences at The University of Arizona. She holds an affiliated appointment with

Psychology in the College of Science. Her research focuses on the use of sophisticated and novel approaches to data-analysis with medical records and publicly available data to identify and understand risk and protective factors for Latinx individuals and families. Specifically, she focuses on modeling social networks, and interpersonal and cultural factors that are unique to these populaces.

References

- Ackerman JP, McBee-Strayer SM, Mendoza K, Stevens J, Sheftall AH, Campo JV, & Bridge JA (2015). Risk-sensitive decision-making deficit in adolescent suicide attempters. *Journal of Child and Adolescent Psychopharmacology*, 25, 109–113. DOI:10.1089/cap.2014.0041 [PubMed: 25265242]
- Benson PL, Leffert N, Scales PC, & Blyth DA (1998). Beyond the “village” rhetoric: Creating healthy communities for children and adolescents. *Applied Developmental Science*, 2, 138–59. DOI: 10.1080/10888691.2012.642771
- Benson PL, Scales PC, Hamilton SF, & Sesma A, Jr. (2006). Positive youth development: Theory, research, and applications (pp. 894–941). In Lerner RM & Damon W (Eds.), *Handbook of child psychology: Theoretical models of human development*. Hoboken, NJ: John Wiley & Sons.
- Benson PL, Scales PC, & Syvertsen AK (2011). The contribution of the developmental assets framework to positive youth development theory and practice (pp. 197–230). In Lerner R, Lerner JV, & Benson JB (Eds.), *Advances in child development and behavior: Positive youth development—research and applications for promoting thriving in adolescence*. Waltham, MA: Elsevier.
- Bridge JA, McBee-Strayer SM, Cannon EA, Sheftall AH, Reynolds B, Campo JV, ... Brent DA (2012). Impaired decision-making in adolescent suicide attempters. *Journal of the American Academy of Child & Adolescent Psychiatry*, 51, 394–403. DOI:10.1016/j.jaac.2012.01.002 [PubMed: 22449645]
- Cohen J (1992). A power primer. *Psychological Bulletin*, 112, 155–59. [PubMed: 19565683]
- Eccles JS, & Gootman JA (2002). *Community programs to promote youth development*. Washington, DC: National Academy Press.
- Enders CK (2010). *Applied missing data analysis*. New York, NY: Guilford Press.
- Grafsky EL (2017). Deciding to come out to parents: Toward a model of sexual orientation disclosure decisions *Family Process*. Advance online publication DOI:10.1111/famp.12313
- Haas AP, Eliason M, Mays VM, Mathy RM, Cochran SD, D’Augelli AR, ... Clayton PJ (2010). Suicide and suicide risk in lesbian, gay, bisexual, and transgender populations: Review and recommendations. *Journal of Homosexuality*, 58, 10–51. DOI:10.1080/00918369.2011.534038
- Hart SR, Musci RJ, Ialongo N, Ballard ED, & Wilcox HC (2013). Demographic and clinical characteristics of consistent and inconsistent longitudinal reporters of lifetime suicide attempts in adolescence through young adulthood. *Depression & Anxiety*, 30, 997–1004. [PubMed: 23804209]
- Hatzenbuehler ML, Birkett M, Van Wagenen A, & Meyer IH (2014). Protective school climates and reduced risk for suicide ideation in sexual minority youths. *American Journal of Public Health*, 104, 279–86. DOI:10.2105/AJPH.2013.301508 [PubMed: 24328634]
- Hatzenbuehler ML, McLaughlin KA, & Nolen-Hoeksema S (2008). Emotion regulation and internalizing symptoms in a longitudinal study of sexual minority and heterosexual adolescents. *Journal of Child Psychology and Psychiatry*, 49, 1270–78. DOI:10.1111/j.1469-7610.2008.01924.x [PubMed: 18564066]
- Hatzenbuehler ML, & Pachankis JE (2016). Stigma and minority stress as social determinants of health among lesbian, gay, bisexual, and transgender youth. *Pediatric Clinics of North America*, 63, 985–997. DOI:10.1016/j.pcl.2016.07.003 [PubMed: 27865340]
- Institute of Medicine. (2011). *The Health of Lesbian, Gay, Bisexual, and Transgender People: Building a Foundation for Better Understanding*. Washington, DC: The National Academies Press.
- Katz-Wise SL, Rosario M, & Tsappis M (2016). Lesbian, gay, bisexual, and transgender youth and family acceptance. *Pediatric Clinics of North America*, 63, 1011–1025. DOI:10.1016/j.pcl.2016.07.005 [PubMed: 27865331]

- Kosciw JG, Greytak EA, Giga NM, Villenas C, & Danichewski DJ, (2016). The 2015 National School Climate Survey: The experiences of lesbian, gay, bisexual, transgender, and queer youth in our nation's schools. New York, NY: GLSEN.
- Little TD (2013). Longitudinal structural equation modeling. New York, NY: The Guilford Press.
- McConnell EA, Birkett MA, & Mustanski B (2015). Typologies of social support and associations with mental health outcomes among LGBT youth. *LGBT Health*, 2, 55–61. DOI:10.1089/lgbt.2014.0051 [PubMed: 26790019]
- Meyer IH (2003). Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: Conceptual issues and research evidence. *Psychological Bulletin*, 129, 674–697. DOI: 10.1037/0033-2909.129.5.674 [PubMed: 12956539]
- Muthén LK, & Muthén BO (2015). *Mplus*, Version 7. Los Angeles, CA: Muthén & Muthén.
- O'Brien KHM, Putney JM, Hebert NW, Falk AM, & Aguinaldo LD (2016). Sexual and gender minority youth suicide: Understanding subgroup differences to inform interventions. *LGBT Health*, 3, 248–251. DOI:10.1089/lgbt.2016.0031 [PubMed: 27348621]
- Rivers I, Gonzalez C, Nodin N, Peel E, & Tyler A (2018). LGBT people and suicidality in youth: A qualitative study of perceptions of risk and protective circumstances. *Social Science & Medicine*, 212, 1–8. DOI:10.1016/j.socscimed.2018.06.040 [PubMed: 29981953]
- Robinson JP, & Espelage DL (2012). Bullying explains only part of LGBTQ-heterosexual risk disparities: Implications for policy and practice. *Educational Researcher*, 41, 309–319.
- Robinson JP, & Espelage DL (2013). Peer victimization and sexual risk differences between lesbian, gay, bisexual, transgender, or questioning and nontransgender heterosexual youths in grades 7–12. *American Journal of Public Health*, 103, 1810–1819. [PubMed: 23947999]
- Rubin DB (2001). Using propensity scores to help design observational studies: Application to the tobacco litigation. *Health Services and Outcomes Research Methodology*, 2, 169–188.
- Russell ST, & Fish JN (2016). Mental health in lesbian, gay, bisexual, and transgender (LGBT) youth. *Annual Review of Clinical Psychology*, 12, 465–487. DOI:10.1146/annurev-clinpsy-021815-093153
- Russell ST, & Toomey RB (2012). Men's sexual orientation and suicide: Evidence for U.S. adolescent-specific risk. *Social Science and Medicine*, 74, 523–29. DOI:10.1016/j.socscimed.2010.07.038 [PubMed: 20833460]
- Russell ST, & Toomey RB (2013). Risk and protective factors for suicidal thoughts among sexual minority youth: Evidence from the Add Health Study. *Journal of Gay and Lesbian Mental Health*, 17, 132–49. DOI:10.1080/19359705.2012.753398
- Russell ST, Toomey RB, Ryan C, & Diaz RM (2014). Being out at school: The implications for school victimization and young adult adjustment. *American Journal of Orthopsychiatry*, 84, 635–643. DOI:10.1037/ort0000037 [PubMed: 25545431]
- Ryan C, Russell ST, Huebner D, Diaz RM, & Sanchez J (2010). Family acceptance in adolescence and the health of LGBT young adults. *Journal of Child and Adolescent Psychiatric Nursing*, 23, 205–213. DOI:10.1111/j.1744-6171.2010.00246.x [PubMed: 21073595]
- Saewyc EM (2011). Research on adolescent sexual orientation: Development, health disparities, stigma, and resilience. *Journal of Research on Adolescence*, 21, 256–272. DOI:10.1111/j.1532-7795.2010.00727.x [PubMed: 27099454]
- Savin-Williams RC, & Vrangalova Z (2013). Mostly heterosexual as a distinct sexual orientation group: A systematic review of the empirical evidence. *Developmental Review*, 33, 58–88. DOI: 10.1016/j.dr.2013.01.001
- Scales PC, & Leffert N (2004). Developmental assets: A synthesis of the scientific research on adolescent development (2nd ed.). Minneapolis: Search Institute.
- Snapp SD, Watson RJ, Russell ST, Diaz R, & Ryan C (2015). Social support networks for LGBT young adults: low cost strategies for positive adjustment. *Family Relations*, 64, 420–430. DOI: 10.1111/fare.12124
- Syvvertsen AK, Scales PC, & Toomey RB (2018). The developmental assets framework revisited: Confirmatory analysis and invariance testing to create a new generation of assets measures for applied research. Manuscript submitted for publication.

- Toomey RB, Huynh VW, Jones SK, Lee S, & Revels-Macalinao M (2017). Sexual minority youth of color: A content analysis and critical review of the literature. *Journal of Gay and Lesbian Mental Health*, 21, 3–31. DOI:10.1080/19359706.2016.1217499 [PubMed: 28367257]
- Toomey RB, & Russell ST (2011). Gay-straight alliances, social justice involvement, and school victimization of lesbian, gay, bisexual, and queer youth: Implications for school well-being and plans to vote. *Youth & Society*, 45, 500–22. DOI:10.1177/0044118X11422546
- Toomey RB, & Russell ST (2016). The role of sexual orientation in school-based victimization: A meta-analysis. *Youth & Society*, 48, 176–201. DOI:10.1177/0044118X13483778 [PubMed: 26997680]
- Van Lissa CJ, Hawk ST, Koot HM, Branje S, & Meeus WHJ (2017). The cost of empathy: Parent-adolescent conflict predicts emotion dysregulation for highly empathic youth. *Developmental Psychology*, 53, 1722–1737. DOI:10.1037/dev0000361 [PubMed: 28691836]
- Vansteelandt S, & Daniel RM (2014). On regression adjustment for the propensity score. *Statistics in Medicine*, 33(23), 4053–4072. [PubMed: 24825821]
- Whitaker K, Shapiro VB, & Shields JP (2016). School-based protective factors related to suicide for lesbian, gay, and bisexual adolescents. *Journal of Adolescent Health*, 58(1): 63–68. DOI:10.1016/j.jadohealth.2015.09.008 [PubMed: 26707230]

Figure 1.

Mean-Level Differences in Adolescents' Internal Developmental Assets by Sexual Orientation Displayed as Cohen's d Effect Sizes

Notes. H = (Only) Heterosexual; MH = Mostly heterosexual; BI = Bisexual; MLG = Mostly Lesbian/Gay; LG = (Only) Lesbian/Gay. The Cohen's d effect sizes are interpreted such that effect sizes of $d = 0.20$ or less are considered small but meaningful, $d = 0.50$ are considered medium, and $d = 0.80$ or more are considered large.

Figure 2.

Mean-Level Differences in Adolescents' External Developmental Assets by Sexual Orientation Displayed as Cohen's *d* Effect Sizes

Notes. H = (Only) Heterosexual; MH = Mostly heterosexual; BI = Bisexual; MLG = Mostly Lesbian/Gay; LG = (Only) Lesbian/Gay. The Cohen's *d* effect sizes are interpreted such that effect sizes of $d = 0.20$ or less are considered small but meaningful, $d = 0.50$ are considered medium, and $d = 0.80$ or more are considered large.

Odds Ratios with 95% Confidence Intervals Predicting Suicidal Behavior by Sociodemographic Characteristics and Key Covariates

Table 1

	Heterosexual	Mostly Heterosexual	Bisexual	Mostly Lesbian/Gay	Lesbian/Gay
Age	1.03 (1.02,1.04)	1.03 (1.01,1.05)	1.04 (1.02,1.07)	0.97 (0.92,1.02)	1.00 (0.95,1.05)
Parent Education	0.98 (0.97,0.98)	0.96 (0.93,0.98)	0.96 (0.93,0.98)	0.99 (0.94,1.06)	1.00 (0.94,1.05)
Urban ^a	0.95 (0.92,0.97)	0.91 (0.84,0.99)	0.89 (0.81,0.98)	0.89 (0.71,1.11)	0.93 (0.74,1.16)
Gender Identity ^b					
Female	1.36 (1.33,1.38)	1.35 (1.25,1.46)	1.54 (1.39,1.71)	1.69 (1.33,2.15)	1.56 (1.27,1.92)
Transgender, male-to-female	1.13 (0.8,1.61)	1.56 (0.82,2.97)	1.10 (0.7,1.74)	1.66 (1.01,2.73)	1.86 (1.05,3.29)
Transgender, female-to-male	1.52 (0.93,2.49)	2.20 (1.24,3.91)	1.79 (1.25,2.57)	1.92 (1.16,3.16)	2.55 (1.61,4.04)
Transgender, not exclusively male or female (i.e., nonbinary)	2.47 (1.62,3.76)	1.09 (0.72,1.64)	1.31 (1.02,1.69)	1.67 (1.14,2.43)	1.67 (1.12,2.47)
Not sure	1.73 (1.53,1.95)	1.11 (0.88,1.39)	1.06 (0.85,1.34)	1.60 (1.1,2.33)	1.46 (1.02,2.08)
Race/Ethnicity ^c					
American Indian	1.39 (1.27,1.52)	1.18 (0.83,1.69)	1.36 (0.94,1.95)	1.00 (0.56,1.76)	0.91 (0.39,2.12)
Asian	1.08 (1.04,1.13)	0.85 (0.75,0.96)	0.68 (0.56,0.82)	0.76 (0.55,1.05)	0.85 (0.61,1.19)
Black or African American	1.25 (1.2,1.3)	1.16 (U.34)	0.88 (0.76,1.02)	1.01 (0.71,1.45)	1.07 (0.79,1.43)
Latina/o or Hispanic	1.42 (1.37,1.46)	1.38 (1.23,1.55)	1.17 (1.04,1.31)	1.21 (0.9,1.64)	1.35 (1.02,1.79)
Native Hawaiian, Pacific Islander	1.55 (1.37,1.76)	0.93 (0.64,1.35)	1.19 (0.75,1.9)	1.79 (0.92,3.5)	0.98 (0.52,1.82)
Other race/ethnicity	1.25 (1.19,1.32)	1.13 (0.94,1.35)	1.14 (0.94,1.38)	1.14 (0.71,1.82)	0.80 (0.49,1.3)
Multiracial/ethnic	1.41 (1.36,1.47)	1.20 (1.06,1.35)	1.14 (1,1.3)	1.12 (0.78,1.59)	1.14 (0.82,1.6)
Feeling Unsafe	1.12 (1.11,1.14)	1.14 (1.09,1.19)	1.11 (1.07,1.16)	1.13 (1.04,1.23)	1.11 (1.03,1.2)
Hope	0.57 (0.56,0.58)	0.63 (0.6,0.66)	0.62 (0.59,0.66)	0.67 (0.59,0.76)	0.60 (0.53,0.69)

Notes. Estimates in bold typeface are significantly different from 1.

^aThe referent group for urbanicity is rural and small cities.

^bThe referent group for gender identity is male.

^cThe referent group for race/ethnicity is White, non-Latina/o.

Table 2
Adjusted Odds Ratios with 95% Confidence Intervals Predicting Suicidal Behavior by Internal and External Developmental Assets

	Only Heterosexual	Mostly Heterosexual	Bisexual	Mostly Lesbian/Gay	Only Lesbian/Gay
Internal Assets					
Academic Engagement	1.00 (0.98,1.02)	0.98 (0.92,1.05)	0.97 (0.9,1.04)	1.08 (0.9,1.29)	1.19 (1,1.4)
Social Competence					
Social-Emotional Skills	1.32 (1.28,1.36)	1.42 (1.29,1.56)	1.25 (1.14,1.37)	1.34 (1.05,1.7)	1.26 (1.05,1.51)
Planning and Decision-Making Skills	0.81 (0.78,0.83)	0.71 (0.64,0.78)	0.78 (0.7,0.86)	0.69 (0.55,0.86)	0.76 (0.63,0.91)
Positive Values					
Caring	0.94 (0.9,0.98)	0.90 (0.8,1.02)	0.97 (0.83,1.13)	0.93 (0.73,1.18)	0.87 (0.66,1.15)
Social Justice	0.94 (0.91,0.98)	0.89 (0.8,1.01)	0.83 (0.73,0.94)	0.81 (0.64,1.03)	1.13 (0.84,1.53)
Integrity	1.10 (1.08,1.12)	1.15 (1.08,1.22)	1.12 (1.05,1.2)	1.09 (0.92,1.3)	1.03 (0.88,1.21)
Responsibility	1.08 (1.05,1.1)	1.11 (1.04,1.19)	1.15 (1.07,1.24)	1.11 (0.91,1.35)	1.02 (0.84,1.24)
External Assets					
Boundaries					
Family	1.06 (1.04,1.08)	1.04 (0.96,1.13)	1.04 (0.96,1.13)	1.19 (0.76,1.24)	1.17 (0.15,9.19)
School	1.00 (0.98,1.02)	1.07 (0.98,1.16)	0.88 (0.8,0.97)	0.90 (0.9,1.58)	0.88 (0.01,68.79)
Neighborhood	0.90 (0.9,0.91)	0.94 (0.91,0.97)	0.99 (0.95,1.02)	1.04 (0.8,1.01)	0.94 (0.37,2.41)
Support					
Family Support	1.01 (0.98,1.05)	1.03 (0.88,1.21)	0.98 (0.85,1.14)	1.23 (0.4,1.54)	0.69 (0.1,65)
Open Family Communication	1.04 (1,1.08)	0.94 (0.79,1.12)	1.07 (0.9,1.27)	1.06 (0.57,2.68)	1.50 (0.1,66)
Parent Involvement in School	0.92 (0.91,0.93)	0.97 (0.9,1.05)	0.92 (0.85,1.01)	0.92 (0.9,1.25)	0.93 (0.7,1.24)
Other Adult Relationships	1.09 (1.07,1.1)	1.06 (1.01,1.11)	1.15 (1.08,1.22)	1.06 (0.76,1.12)	1.04 (0.5,2.18)
Mattering and Belonging					
Caring School Climate	0.98 (0.97,1)	0.85 (0.78,0.93)	1.00 (0.9,1.12)	0.93 (0.81,1.39)	1.30 (0.02,80.78)
Community Values Youth	1.07 (1.05,1.09)	1.12 (1.02,1.23)	1.05 (0.94,1.18)	0.98 (0.68,1.29)	1.02 (0.03,36.85)
Extracurricular Activity Participation					
Non-Sports	1.08 (1.07,1.09)	1.07 (1.03,1.12)	1.02 (0.97,1.07)	1.23 (1.1,2.3)	0.92 (0.31,2.72)
Sports	0.93 (0.92,0.93)	0.99 (0.97,1.01)	0.99 (0.97,1.02)	1.11 (0.98,1.12)	1.01 (0.91,1.12)

Notes. Estimates in bold typeface are significantly different from 1. Odds ratios were adjusted for age, urbanicity, parental education level, gender identity (referent = male), race/ethnicity (referent = White, non-Latina/o), perceived lack of safety, and hope. The internal and external latent multi-group logistic regression models are presented in one table for space reasons, however they were run separately.