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Psychosocial Interventions for Mental Illness among LGBTQIA Youth: A PRISMA-Based Systematic Review

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Abstract

Lesbian, Gay, Bisexual, Transgender, Queer, Intersex and Asexual (LGBTQIA) youth experience a unique range of psychosocial stressors often culminating in poor mental health outcomes. A systematic review of trials that evaluated psychosocial interventions for LGBTQIA youth aged 12–25 was undertaken to evaluate the effect of treatment components and participant-related variables on treatment outcome. The results suggest that creating safe, accepting places, discussion of shared experiences, and using a cognitive behavioural or attachment-based family therapy framework significantly decreased depression, sexual minority stress, anxiety and drug and alcohol use, and enhanced participant approval. LGBTQIA youth had poorer baseline mental health than non-LGBTQIA youth and experienced greater improvements. Further experimental research is needed to define effective treatment components and relevant individual factors to maximise treatment efficacy.

Keywords LGBTQIA · LGBT · Youth · Treatment · Minority stress · Mental health · Review

Introduction

Youth is an emotionally and physically challenging transitional period wherein youth are establishing their identities, forming peer and romantic relationships, and defining their values independent of their caregivers. Understandably, the challenges of youth are associated with increased risk of mental health problems. Suicide is the second leading cause of death in 10–24 year olds, with 8% of adolescents attempting suicide annually and another 20% having serious thoughts and intent to (CDCP 2012; Heron 2017). In adolescence, girls are twice as likely to self-harm as boys while completed suicide is sixfold higher in boys than girls (Gandhi et al. 2015; McMahan et al. 2014). The prevalence of anxiety disorders among youth worldwide has been reported to be as high as 28%, depressive disorders as high as 20%, and substance-use disorders in the order of 14%; with 75% of individuals who experience mental illness within their

lifespan developing first experience symptoms before age 25 (Mental Health Foundation 2016). These figures suggest the presence of risk factors unique to this developmental period and the specific challenges encountered in adolescence.

Mental Health of LGBTQIA Adolescents

Mental health risks are even higher among youth who identify as lesbian, gay, bisexual, transgender, queer, intersex or asexual (LGBTQIA). These terms combine the concepts of sexual orientation (i.e., lesbian, gay, bisexual) and gender identity (i.e., male, female, non-binary). Figures across Western countries indicate that approximately 11% of the population identify as LGBTQIA; yet are disproportionately affected by mental illness, with 28% of LGBTQIA adolescents reporting suicidal ideation annually, and 15–40% attempting suicide (Levy et al. 2016; Mosher et al. 2005; Smith et al. 2003). More than a third of transgender youth report clinically significant depressive symptoms, more than half report having thoughts of suicide, and approximately one-third have attempted suicide (Olson et al. 2015). Importantly, in transgender adolescents, self-harm and suicidal behaviors mimic those of the gender that they are transitioning to, such that higher rates of suicide attempts and self-harm behaviors are seen in those transitioning from female-to-male than from male-to-female (Haas et al. 2014;

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Peterson et al. 2017). LGBTQIA youth aged 12–18 are twice as likely as heterosexual age-peers to attempt suicide and have higher levels of depression, substance abuse and eating disorders. In addition, they are more likely to be homeless (likely due to greater instances of parental rejection) and are more often subjected to bullying which can lead to high school absenteeism and drop-out. These youth are at higher risk of sexual, physical and psychological abuse from their caregivers, which partially accounts for the 1.6- to 3.9-fold risk of PTSD (Roberts et al. 2012). Besides elevated PTSD risk, childhood abuse is well documented to have significantly deleterious effects on mental and physical health, and psychiatric treatment seeking (Spataro et al. 2004; Springer et al. 2007). Each of these aversive experiences and challenges introduces significant psychological stress and long-term health risks which may further serve to widen inequalities (Birkett et al. 2009; Connolly et al. 2016; Justice 2016; Lowry et al. 2017; Russell and Joyner 2001).

The mental ill health outcomes disproportionately faced by LGBTQIA youth do not appear to improve in adulthood. LGBTQIA adults are 2–4 times more likely to attempt suicide, and have incidences of depression, anxiety and substance use 1.5–3 times higher than heterosexual adults (ABS 2007; King et al. 2008). Transgender adults are 11 times more likely to attempt suicide than the general population, accounting for 35% of transgender adults; they are 18 times more likely to have suicidal thoughts, 6 times more likely to self-harm, have a fivefold increased risk of depression, and threefold of anxiety disorders (NLHA 2016). These statistics suggest that LGBTQIA youth experience unique stressors and developmental challenges that increase their risk of mental illness.

Minority stress theory offers an explanation for these unique risk factors. It posits that individuals of minority groups are often subject to prejudice and stigma, resulting in unique stressors with adverse effects on mental and physical health, risk behaviors and quality of life (Meyer 2003). Four major unique stressors are experiences of harassment and abuse; identity development and internalized homophobia; identity disclosure and associated rejection fears; and developing relationships with sexual minority peers (Safren et al. 2001). These four factors may also encompass experiences of violence, bullying, stigmatization, everyday discrimination and micro-aggressions, real or perceived discrimination or rejection from peers or parents, opportunity loss related to employment and education, higher rates of sexual and physical assault, losing friends after coming out, stresses of belonging to a homophobic religious community or family, parents not knowing about, or reacting negatively to their sexuality; and ongoing negative reactions and interactions due to sexual orientation (D'augelli 2002; Hall 2018; Higa et al. 2014; Katz-Wise et al. 2016). Fears of discrimination may delay treatment seeking such that mental health issues

are not detected, symptoms escalate and treatments are less likely to be effective (Leonard et al. 2012). Similarly, there is often a 10-year gap between recognizing and disclosing gender incongruence, dysphoria or same-sex attraction associated with fears of threats to one's education or career, or being of higher socioeconomic status, which may be an important within-group risk factor to explore (Olsen et al. 2015; Savin-Williams and Diamond 2000). These factors are associated with compounded chronic strain, increased mental health problems, suicidality and engagement in risky sexual and substance use behaviors, with this pattern stronger for LGBTQIA than heterosexual individuals also experiencing victimization (Bontempo and D'Augelli 2002; Kuyper and Fokkema 2011; Meyer 2003). It has also been found that common adolescent struggles are often amplified for LGBTQIA adolescents in intensity, frequency, salience and meaning (Safren et al. 2001).

Beyond common challenges faced by all LGBTQIA individuals, recent research has identified differences within the LGBT community, which have significant implications for treatment approaches. For example, gay and bisexual men experience higher rates of depression, panic attacks and psychological distress, while lesbian and bisexual women experience higher rates of generalized anxiety disorder than their heterosexual counterparts (Cochran et al. 2003). Within certain populations, young bisexual women are at the highest risk of non-suicidal self-injury and low treatment-seeking compared to heterosexual and lesbian youth, with the latter at the lowest risk (Zaki et al. 2017). Others have found, however, that young lesbians may be at higher risk as parental support isn't as strong a protective factor for mental health as it is for most adolescents (Watson et al. 2016). Interestingly, non-heterosexual daughters tend to receive more parental support and acceptance than non-heterosexual sons due to greater societal tolerance of female sexuality (Kane 2006; Katz-Wise et al. 2016). While rates of mental health are higher within the LGBT community than the general population, LGBT youth are not a homogenous group and thus demonstrate variability in their responses to stressors. All are not at risk of negative health outcomes as a result (Savin-Williams 2001). Thus it is important to identify specific factors that increase risk for poor outcomes as well as protective factors that can be targeted to improve health outcomes.

The aforementioned evidence for minority stress theory suggests that the risk factors associated with mental illness, self-harm and suicide in sexual minority youth are largely socially determined. Parental rejection also has significantly deleterious impacts including predicting depression, suicidality, risky drug use, sexual risk behaviors, as well as interrupting parent–child relationships which has implications for subsequent adult relationship quality (Katz-Wise et al. 2016; Ryan et al. 2009; Yadegarfar et al. 2014). Although many family members are eventually accepting of their children's

sexuality, many will initially not be, and half of these youth will be verbally abused by parents or siblings (D'Augelli 2003). Unfortunately, not only is parental support a major protective factor against mental ill-health, but LGBTQIA youth may be less likely to receive this support immediately following 'coming out' (Needham and Austin 2010). The importance of parental acceptance points towards the necessitation of psychoeducation for parents on the positive potential of parental support, the negative impacts of parental rejection and disapproval, and also biological and psychosocial factors underlying sexual orientation and gender identity.

Protective factors that can help buffer minority stress include individual coping skills, self-acceptance, self-esteem, and perception of sexuality as a positive and unique trait; and interpersonal factors such as a strong sense of in-group acceptance and solidarity, involvement in LGBTQIA groups, open discussion about one's identity and struggles, social support and connectedness, school safety, perceived caring from adults, and parental acceptance and support (Bontempo and D'Augelli 2002; Eisenberg and Resnick 2006; Hall 2018; Higa et al. 2014; Meyer 2003; Ryan et al. 2009). Open discussion with social supports likely helps individuals to re-appraise negative experiences, address unhelpful cognitions and enhance resilience (Alessi 2014; Kertzner 2001). As a protective factor in adolescence, family support is crucial. Evidence suggests that while peer social support eventually leads to reduced mental illness, it's magnitude is less than familial support (McConnell et al. 2016; Watson et al. 2016). Furthermore, family support and acceptance has been linked to lower levels of depression, substance abuse, suicidal ideation, and greater self-esteem, physical health and social support within LGBTQIA youth (Katz-Wise et al. 2016). Encouragingly, recent research suggests between 89 and 97% of youth receive positive parental responses, and that parents generally become more accepting over time (Padilla et al. 2010; Rosario and Schrimshaw 2013). This does however beg the question: if parental acceptance and support is so crucial to the mental health of LGBTQIA youth, why is there still such a high prevalence of mental illness and suicidality in the face of trends towards greater acceptance?

Therapies Targeting the Unique Needs of LGBTQIA Youth

Therapies adapted to the unique needs of LGBTQIA youth have been developed, both medical and psychological. Medically, transgender adolescents and those in emerging adulthood may seek puberty suppression, hormonal treatment, cosmetic, and gender reassignment surgery. There are few controlled studies in this area, and findings are mixed, with some studies indicating a heightened risk of attempted and

completed suicide, mortality, psychiatric illness and medical risks in those seeking identity-affirmative medical therapies, and others reporting improvements in gender dysphoria, body image concerns, behavioral problems, psychological health, quality of life and sexual function (Asscheman et al. 2011; Connolly et al. 2016; De Vries et al. 2014; Dhejne et al. 2011; Murad et al. 2010; Newfield et al. 2006). These mixed findings suggest the need for the development of LGBTQIA-specific psychological therapies to address emotional and social challenges experienced in transition by transgender youth.

A few promising psychological therapies adapted to the needs of LGBTQIA individuals have emerged in recent years. Gay-affirmative psychotherapies aim to promote self-acceptance and to recognize the impact of societal homophobia on self-identity. Pachankis et al. (2015) conducted a randomized control trial (RCT) implementing an LGB-affirmative cognitive behavioral therapy (CBT) called effective skills to empower effective men (ESTEEM) for gay and bisexual men. The intervention focused on reducing unique stressors through addressing maladaptive coping strategies, cognitive restructuring, exposure, mindfulness, emotion regulation skills, motivational enhancement, and building efficacy in coping with sexuality-related rejection and stigma. This therapy led to significant improvements in depressive symptoms, alcohol abuse and sexual compulsivity, and lead to small improvements in minority stress and anxiety symptoms. It is likely that some therapeutic elements from the treatment of adults would generalize effectively to an adolescent population.

Therapeutic elements that LGBTQIA individuals in emerging and later adulthood have found helpful and unhelpful within the therapeutic setting have been identified (Israel et al. 2008). Helpful factors included therapist warmth, confidentiality, knowledge and respect, setting goals and homework, and teaching coping, anger management, and communication skills. Unhelpful factors involved therapist disengagement, judgment, invalidation, and imposition of their own beliefs and views. Overall, the helpful psychological treatments were found to improve mental health, quality of life, relationships, and self-acceptance. While many of these therapeutic factors would generalize to the general population, there seems to be an increased focus on openness and acceptance, perhaps in the context of increased risk of harassment and victimization within this community. While these studies show promise in adapting therapies to the treatment of LGBTQIA youth, the alarming suicide and mental health statistics suggest that there is further work to be done.

The Current Study

While there is a plethora of evidence that LGBTQIA youth are at higher risk of mental illness and social disparities, there is a lack of research indicating the specific treatment

adaptations necessary, or what individual factors (e.g. gender identity, age, psychiatric comorbidities, or co-occurring medical interventions) influence treatment outcomes within this population. While medical components of treatment have been found to be helpful in reducing psychological distress in some, there is a need to understand specific psychotherapy components that contribute to better outcomes for transitioning youth not benefiting from medical treatments, or other youth with diverse sexual identities experiencing mental illness. Considering the unique set of risk and protective factors present within this population, it is likely that treatment specifically tailored to the risk factors, needs and presenting concerns of LGBTQIA youth would be more effective than non-tailored treatments. Ideally, available research evidence should be investigated to integrate the existing literature and to provide evidence for effective decision making in treatment within this population. It needs to be established whether certain treatment components consistently show greater efficacy/effectiveness over others, and whether certain individual characteristics lead to varied treatment outcomes.

A systematic review of the literature is proposed to describe current psychological therapies developed for use with adolescents experiencing the unique range of risk factors often associated with identifying as LGBTQIA. The review will search the databases Medline, PsycINFO, Scopus, Web of Science, and Cochrane Central Register of Controlled Trials, using search terms encompassing broad variants on the terms mental health, psychiatric disorders, self-harm and suicide; adolescents; identifying as LGBTQIA; and receiving psychological therapy. Literature from the year 2000 onward will be searched. The review aims to inform the development of more effectively targeted mental health treatments within schools, youth centers, and health-care settings and to advise health professionals of ways to create more inclusive therapeutic environments. In combination with medical therapies, if certain treatment components are found to be more efficacious than others, these findings could ease the pressures of transitioning. Furthermore, effective treatment may enhance engagement in therapy and contribute to a reduction in dropout rates.

Methods

Protocol and Registration

This systematic review was conducted in accordance with PRISMA guidelines, registered under PROSPERO CRD42017052549 (Moher et al. 2009; Shamseer et al. 2015). The review methodology was developed to follow the procedural outlines from the Cochrane Handbook for

systematic reviews (Higgins and Green 2011). No ethics approval was required as no direct human data was collected.

Eligibility Criteria (PICOS; Higgins and Green 2011)

Participants

Eligible studies were those that included participants aged 12–25 and identifying as LGBTQIA. Ineligible studies were those that included participants who were incarcerated, or had cognitive, autism spectrum or other neurodevelopmental disorders. This age range was selected in order to observe factors influencing the developmental periods of adolescents aged 12–28, and those in emerging adulthood, aged 18–25; as both of these transitional periods can be considered to involve considerable exploration of identity, relationships, and therefore sexuality and one's place in their social environment.

Interventions

Eligible studies evaluated psychological treatment programs for mental illness, or school or community-level interventions targeting mental health through other psychosocial factors.

Comparison

Studies were included with or without control groups. Experimental and quasi-experimental designs were included whether they included a comparison group (i.e., randomized to treatment, control group, waitlist or to treatment as usual) or not (no comparator, trial, pilot etc.).

Outcomes

Studies were included if they measured psychosocial stressors or psychiatric symptoms with at least one standardized screening interview or questionnaire prior to inclusion in the trial. Studies were also required to apply an intervention and report the impacts on psychosocial outcomes on the basis of assessment with at least one of these measures. For the purposes of this review, a standardized screening interview or questionnaire must have published, peer reviewed psychometric data.

Study Designs

Studies were included if they were published in a peer-reviewed journal from 1st January 2000 until 6th May 2018. The commencement date was chosen because changes to the psychological assessment, diagnosis and treatment of sexual orientation represented in the DSM-IV were largely

consolidated with the publication of the DSM-IV-TR in 2000 (APA 1994, APA 2000). Study designs included RCTs, pre-post open trials and retrospective research designs. Case series, case reports and studies with $N < 10$ were excluded due to limited generalizability.

Search Strategy

A search of electronic databases PsychINFO (APA), Scopus (Elsevier), Ovid Medline (US National Library of Medicine), Cochrane Collaboration's Central Register of Controlled Trials (CENTRAL; Cochrane), and Web of Science Core Collection (Clarivate Analytics) was conducted between the 5th and 6th of May 2018. The databases were searched in a multi-field format with search terms combined with Boolean logic and searched by keyword in order to capture a greater number of studies than would be gathered with a title search (see Table 1 for search terms utilized). Ancestry searches were utilized to search the reference lists of papers found, as well as searches of other studies citing these papers to identify additional studies that met the research criteria. Studies collected were screened to remove duplicates, and then screened by title and then abstract to exclude studies that did not meet the eligibility criteria. The remaining full-text papers were assessed for eligibility by an independent reviewer (U.M.); ambiguities between reviewers were resolved through discussion; after which 100% agreement was reached.

Assessment of Methodological Quality

Methodological quality and risk of bias of selected studies were assessed using the Cochrane Collaboration's tool for assessing risk of bias in randomized trials (Higgins and Green 2011), and the Risk of Bias in Non-randomized Studies—of Interventions (ROBINS-I, Sterne et al. 2016), which allowed sources of risk to be assessed, including allocation sequence and concealment, participant selection, blinding

of participants, personnel and outcome assessors, deviations from intended intervention, incomplete outcome data, and selective reporting.

Data Extraction

Data extracted from the included studies were recorded using an extraction form developed for this review. It included study details (author, year, title, country), setting (e.g. clinical, community, school), recruitment method, targeted mental illness and standardized measures, intervention details (e.g. the length/dose of treatment), inclusion and exclusion criteria, study sample size, population demographics, and information to assess methodological quality and risk of bias.

Data Synthesis

The review used a systematic synthesis of results. Information is presented in text and tables to both summarize and explain characteristics of the included studies.

Results

Study Selection

A total of 1406 records were identified through database searches, and an additional 12 through manual and ancestry searches (total $N = 1418$). After removing 274 duplicates, screening by title removed 1107 records, and screening by abstract removed 23 records. The full texts of the remaining 14 records were reviewed. Of these papers, 11 were primary research studies and 2 were secondary research studies (neither of which presented further data on the primary study and thus were excluded from further analysis); 2 studies were conducted on an adult population, and 1 outlined a protocol for a transgender-affirmative CBT but included

Table 1 Search terms for electronic database search

Key word	Search terms
Mental illness	Suicid* OR intentional self harm OR ISH OR Deliberate self harm* OR DSH OR Self injurious behav* OR Self injurious behav* OR Self mutilat* OR self Injury OR Self destructive behav* OR Parasuicide OR Self poison* OR Self cutt* OR Non-suicidal self injury OR NSSI OR self harm) AND (Depres* OR Anxi* OR Mental disorder* OR Mood disorder* OR Psychological Stress* OR Eating disorder* OR Psychiatric illness OR Psychiatric diagnosis OR Bipolar OR Schizophrenia OR Panic OR Post-traumatic stress disorder OR PTSD OR Obsessive Compulsive Disorder OR OCD OR Personality disorder
Youth	Child* OR Adolescent* OR Youth OR Teenager OR School-aged OR Student
LGBTQIA	Lesbian OR Gay OR Bisexual OR Trans* OR Queer OR Intersex OR Asexual OR Homosexual OR Gender dysphoria OR Gender Minority OR Non-heterosexual OR Sister girl OR Brother boy
Treatment	Psychol* OR Treatment OR psychotherapy OR cognitive behav* therapy OR CBT OR dialectical behav* therapy OR DBT OR acceptance commitment therapy OR ACT OR mindfulness OR MBCT OR MBSR OR MiCBT OR schema OR interpersonal psychotherapy OR IPT OR narrative OR family OR solution focused brief therapy OR SFBT OR psychodynamic

no empirical data. This led to a final sample of 9 research studies. Figure 1 presents a flow chart of the PRISMA study selection process; and Table 2 summarizes the main characteristics of the retained research studies.

Study Characteristics

Population and Sample Demographics

Nine studies with a total of 1149 participants were included. There was an equal representation of males and females in two studies (percentage of females 47.6–56.3), females were overrepresented in four studies (percentage of females ranged from 57 to 80), males were overrepresented in two studies (percentage of males ranged from 63.6 to 100), and non-binary participants were

overrepresented in one study (percentage 75%, however participants could select more than one gender identity). Regarding gender identity, four studies included transgender participants, and two studies included participants who identified as non-binary or two-spirit (a Native American term of gender variance). In regard to sexual orientation, one study included only gay male participants, two did not list specific sexuality data, there was an overrepresentation of homosexual participants in three studies (percentage of lesbian/gay participants 36–60.1), and an over-representation of bisexual participants in one study (percentage of bisexual participants 70). Four studies also included participants who identified as queer, pansexual (attraction to any sex or gender), polysexual (attraction to multiple genders), and unsure/questioning (percentage of these participants ranged from 2 to 29). The mean

Fig. 1 PRISMA flow chart depicting study selection

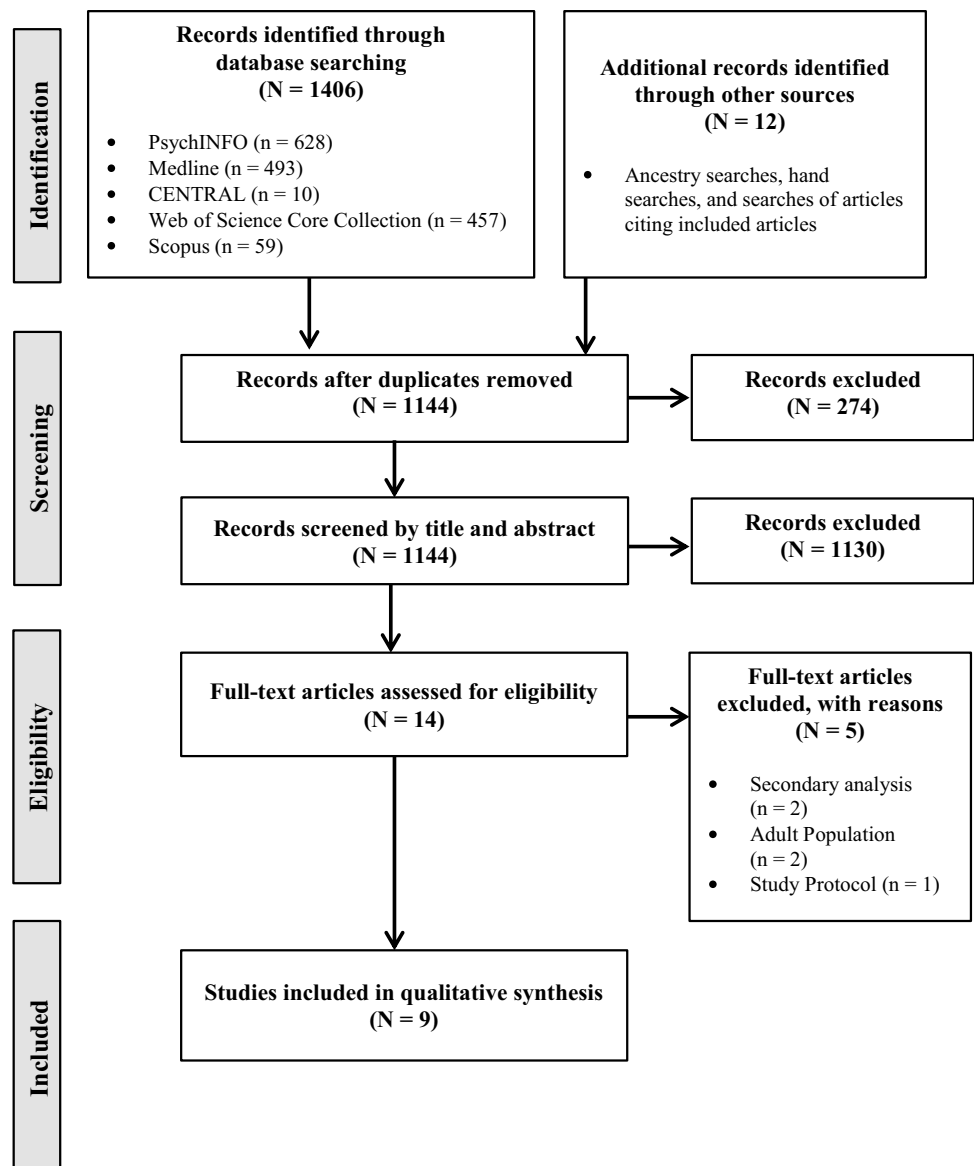


Table 2 Study characteristics of included studies

Study Author, Year, Country	Design, intervention, comparison	Setting, population, recruitment, inclusion measure	Sample size, demographics	Intervention details	Measure(s) of mental illness	Mental illness outcomes
Austin et al. (2018), Canada	Pre-post design AFFIRM (SGMY affirmative CBT coping skills group) No comparison	Setting: community Population: transgender, aged 16–18 Recruitment: advertised through community based organizations and online Inclusion MEASURE: nil	$N = 8$, $M_{age} 17.6^a$, age range 16–18, 25% female, 12.5% male, 25% transgender, 75% non-binary, 12.5% two-spirit, 62.5% queer, 12.5% gender independent, 12.5% other; 62.5% queer, 25% pansexual, 25% questioning, 12.5% asexual ^b	Model: CBT (AFFIRM) Mode of delivery: group therapy retreat Duration: 8 modules; 2 days	Sexual Minority Stress: coping skills (RCS); depression (BDI-II)	RCS $p = 0.786$ BDI-II $p = 0.001^*$
Craig et al. (2014), Canada and USA	Pre-post design ASSET (school-based LGBTQ affirmative group counselling) No comparison	Setting: school Population: LGBT high-school students Recruitment: school counsellor/social worker, or self-referral Inclusion measure: nil	$N = 263$, $M_{age} 16.7^a$, age range 13–20, 72% female, 26.8% male, 1.2% transgender; 37.9% lesbian, 22.2% gay, 32.6% bisexual, queer/pansexual 3.8%, other 3.4%	Model: Gay-affirmative group counselling (ASSET) Mode of delivery: peer support group Duration: 8–10 weekly sessions	Sexual minority stress: self-esteem (RSES), coping skills (PCI), social connectedness (SCS)	PCI $p = 0.005^*$ RSES $p = 0.001^*$ SCS $p = 0.261$
Craig and Austin (2016), Canada and USA	Pre-post design AFFIRM (SGMY affirmative CBT coping skills group) No comparison	Setting: community Population: LGBT, aged 14–18 Recruitment: advertised through community-based agencies and online Inclusion measure: nil	$N = 30$, $M_{age} 16.8^a$, age range 15–18, 57% female, 18% male, 10% transgender, 21% non-binary, 8% two-spirit; 25% lesbian, 11% gay, 18% bisexual, 21% queer, 29% pansexual, 11% unsure/questioning, 2% polysexual	Model: CBT (AFFIRM) Mode of delivery: group therapy retreat Duration: 8 modules, 2 days	Sexual minority stress: stress (SAMA), coping skills (RCS); depression (BDI-II)	SAMA appraisal ^c : threat $p < 0.05^*$, challenge $p < 0.001^*$, resource $p = 0.04^*$ BDI-II $p < 0.05^*$ RCS $p = 0.05^*$
Diamond et al. (2012), USA	Pre-post design ABFT-LGB No comparison	Setting: clinical Population: LGB youth admitted for suicidal ideation and/or attempts, and their families Recruitment: private psychiatric hospitals Inclusion measure: SIQ-JR score > 31 Exclusion: current psychosis or mental retardation	$N = 10$, $M_{age} 15.10$ ($SD = 1.37$), age range 14–18, 80% female, 20% male; 20% lesbian, 10% gay, 70% bisexual	Model: ABFT-LGB Mode of delivery: adolescent-only, parent-only, and family sessions Duration: 12–16 weekly, 60-min sessions	Suicidal ideation (SIQ-JR); depression (BDI-II); life-span attachments (RSQ)	SIQ-JR $p = 0.001^*$ BDI-II $p = 0.03^*$ RSQ: attachment anxiety $p = 0.005^*$, attachment avoidance $p = 0.05^*$

Table 2 (continued)

Study Author, Year, Country	Design, intervention, comparison	Setting, population, recruitment, inclusion measure	Sample size, demographics	Intervention details	Measure(s) of mental illness	Mental illness outcomes
Grafsky et al. (2011), USA	RCT (two arms): ACRA TAU ^c	Setting: community Population: homeless youth with substance use disorder Recruitment: homeless drop-in centres Inclusion measure: met criteria for DSM-IV-TR alcohol or other psychoactive substance use disorders	$N = 268$, $M_{age} 18.7$ ($SD = 2.2$), age range 14–22, 36.4% female, 63.6% male; 19.4% LGB, 76.5% heterosexual, 4.1% sexuality data missing ACRA $n = 144$ TAU $n = 124$	Model: ACRA Mode of delivery: group and individual therapy Duration: 12 ACRA sessions, 4 HIV education/skills practice sessions; over 12–14 weeks	AOD use (DSM-IV-TR alcohol or other psychoactive substance use disorder; Form 90); depression (BDI-II); behavioural problems (CBCL; YSR)	BDI-II $p < 0.001$ * Form 90 $p < 0.001$ * YSR: internalizing $p < 0.001$ *; externalizing $p < 0.05$ *
Heck et al. (2011), USA	Retrospective Gay-Straight Alliance GSA+ GSA–	Setting: community Population: LGBT, aged 18–20, ≥ 12 years' education Recruitment: advertised through university LGBT student organizations Inclusion measure: nil	$N = 145$, $M_{age} 19.17$ ($SD = 0.76$), age range 18–20, 60% female, 33.1% male, 6.9% transgender/other; 57.2% lesbian/gay, 37.2% bisexual, 5.6% other GSA+ $n = 79$, $M_{age} 19.06$ ($SD 0.75$), 65.8% female, 26.6% male, 7.6% transgender/other; 50.6% lesbian/gay, 46.8% bisexual, 2.5% other GSA– $n = 66$, $M_{age} 19.3$ ($SD 0.74$), 53% female, 40.9% male, 6.1% transgender/other; 65.1% lesbian/gay, 25.8% bisexual; 9.1% other	Model: gay-straight alliance Mode of delivery: peer support groups Duration: flexible ^d	Depression (BDI-II); alcohol use disorder (AUDIT); general psychopathology (BSI); sexual minority stress (OI)	BDI $p = 0.03$ * AUDIT: overall $p < 0.001$ *; dependence $p = 0.001$ *; consumption $p = 0.002$ * BSI $p = 0.017$ *

Table 2 (continued)

Study Author, Year, Country	Design, intervention, comparison	Setting, population, recruitment, inclusion measure	Sample size, demographics	Intervention details	Measure(s) of mental illness	Mental illness outcomes
Ioverno et al. (2016), USA	Longitudinal, prospective Gay-straight alliance GSA+, GSA-, participation in GSA	Setting: community/school Population: LGBTQ, aged 15–21, in school, college or university Recruitment: advertised through LGBTQ community organizations or outreach to other agencies	$N = 327$, $M_{age} = 18.02$ ($SD = 1.75$), age range 15–21, 56.3% female, 43.7% male; 48.9% lesbian/gay, 45% bisexual, 6.1% questioning GSA+ non-participants 38.4% GSA+ participants 37.4% GSA- 24.2%	Model: Gay-straight alliance Mode of delivery: peer support groups Duration: 9–13 months (across 2 school years)	Sexual minority stress (RCS); depression (BDI-Y)	RCS $p = 0.111$ BDI-Y $p = 0.66$
Lucassen et al. (2015), New Zealand	Pre-post design Rainbow SPARX No comparison	Setting: community Population: LGB, aged 13–19 Recruitment: advertised in high schools and sexual minority media Inclusion measures: CDRS-R score ≥ 30	$N = 21$, $M_{age} = 16.5$ ($SD = 1.6$), age range 13–19, 47.6% female, 52.4% male	Model: CCBT Mode of delivery: online; individual Duration: 7 30-min modules	Depression (CDRS-R, HPLS, RADS-2, MFQ); anxiety (SCAS); quality of life (PQ-LES-Q)	CDRS-R $p < 0.0001$ * HPLS $p = 0.008$ * RADS-2 $p = 0.001$ * MFQ $p = 0.02$ * SCAS $p < 0.0001$ * PQ-LES-Q $p = 0.016$
Pachankis and Goldfried (2010), USA	RCT (three arms): stress-inducing writing, stress-inducing writing + reading, neutral writing	Setting: community Population: gay male college undergraduate students Recruitment: advertised through university LGBT student organizations Inclusion measure: nil	$N = 77$, $M_{age} = 20.19$ ($SD = 1.99$) ^a , 100% male; 100% gay Writing only $n = 27$ Reading + Writing $n = 25$ Control $n = 25$	Model: psychotherapy; expressive writing Mode of delivery: individual Duration: 20 min daily, 3 days	Depression (CES-D, PANAS); general psychopathology (SCL-90); sexual minority stress; self-esteem (RSES), social support (MSPSS)	CES-D $p = 0.52$ PANAS $p < 0.001$ * SCL-90 $p = 0.66$ RSES $p = 0.22$ MSPSS $p < 0.05$ *

ACRA Adolescent Community Reinforcement Approach (Godley et al. 2001; Meyers and Smith 1995), *ABFT-LGB* attachment-based family therapy-lesbian gay bisexual, *ASSET* affirmative supportive safe and empowering talk, *AUDIT* alcohol use disorders identification test (Saunders et al. 1993), *BDI-II* Beck-Depression Inventory-II (Beck et al. 1996), *BDI-Y* Beck Depression Inventory-Youth (Beck et al. 2005), *BSI* Brief Symptom Inventory (Derogatis and Spencer 1993), *CBCL* child behaviour checklist (Achenbach 1991), *CBT* cognitive behavioural therapy, *CCBT* computerised cognitive behavioural therapy, *CDRS-R* Child Depression Rating Scale-Revised (Poznanski and Mokros 1996), *CES-D* Centre for Epidemiological Studies Depression Scale (Roffloff 1977), *DSM-IV-TR* diagnostic and statistical manual of mental disorders—fourth edition (APA2000), *GSA* – participants who attended a school without a gay-straight alliance, *GSA* + participants who attended a school with a gay-straight alliance, *HPLS* Kazdin Hopelessness Scale for Children (Kazdin et al. 1983), *LGBT/Q* lesbian gay bisexual/transgender/queer, *MFQ* Mood and Feelings Questionnaire (Kent et al. 1997), *MSPSS* multidimensional scale of perceived social support (Zimet et al. 1988), *OI* The Outness Inventory (Mohr and Fassinger 2000), *PANAS* positive and negative affect schedule (Watson et al. 1988), *PCI* Proactive Coping Inventory (Greenglass et al. 1999), *PQ-LES-Q* Paediatric Quality of Life Enjoyment and Satisfaction Questionnaire (Endicott et al. 2006), *RADS-2* = Reynolds Adolescent Depression Scale 2nd Edition (Reynolds 2002), *RCS* reflective coping subscale (Greenglass et al. 2008), *RSES* Rosenberg Self-Esteem Scale (Rosenberg 1965), *RSQ* Relationship Structures Questionnaire (Fraleigh et al. 2011), *SAMA* stress appraisal measure for adolescents (Rowley et al. 2005), *SCAS* Spence Children's Anxiety Scale (Spence 1998), *SCL-90* Symptom Checklist-90 (Derogatis et al. 1973), *SCS* Social Connectedness Scale (Lee and Robbins 1995), *SGMY* sexual and gender minority youth, *SIQ-JR* Suicidal Ideation Questionnaire-Junior (Reynolds 1987), *SPARX* smart, positive, active, realistic, X-factor thoughts, *TAU* treatment as usual; the Form 90 (Miller and Del Boca 1994), *USA* United States of America, *YSR* youth self report (Achenbach 1991)

*Statistically significant

Table 2 (continued)

^bPost-test figures listed, at 3-month follow up threat appraisal $p=0.05^*$, challenge appraisal $p=0.168$, resource appraisal 0.44

^aSD Age not reported in Craig et al. (2014) or Craig and Austin (2016), age range not reported in Pachankis and Goldfried (2010), authors contacted unsuccessfully

^bParticipants could select more than one option, hence figures do not sum to 100%

^cTAU involved referral to the drop-in centre which offered case management, community resources, and access to showers/computers/food etc.

^dPrecise length of intervention not specified, but program available throughout high school

age of participants included in this review was 17.6 years ($SD = 1.61$), the age range was 13–22 years. The majority of examined studies recruited their participants from the community ($n = 8$), by means of advertisement ($n = 6$), referral from school counselors ($n = 1$), or approaching adolescents outside of community centers ($n = 1$), with one study recruiting from a clinical sample ($n = 1$). Additionally, studies were conducted across three different countries: Canada and the USA ($n = 2$), the USA ($n = 5$), Canada ($n = 1$) and New Zealand ($n = 1$). The psychological disorders and psychosocial issues targeted by the interventions were depression ($n = 7$), sexual minority stress ($n = 5$), alcohol use disorder ($n = 2$), suicidal ideation ($n = 1$), anxiety ($n = 1$), and behavioral problems ($n = 1$).

Inclusion and Exclusion Criteria

Eight studies required participants to identify as LGBTQIA, one required youth to be homeless, within which a subset identified as LGB. Three studies had specific age limits for inclusion, three required participants to be students (high school $n = 1$, college $n = 1$; high school, college, or university $n = 1$), and one study required participants to have completed 12 or more years of education. Three studies required participants met clinical symptomatology on standardized instruments (suicidal ideation $n = 1$, alcohol use disorder $n = 1$, depression $n = 1$). One study excluded participants with active psychosis or mental retardation.

Study Design and Intervention Characteristics

The majority of studies ($n = 5$) used a pre-post research design without a comparison group, two studies used an RCT design with comparison groups ($n = 1$ TAU, $n = 1$ control), one used a longitudinal design, and one used a retrospective research design. Interventions were based on CBT ($n = 3$), Attachment-Based Family Therapy ($n = 1$), group counseling/peer support ($n = 3$), expressive writing ($n = 1$), or an Adolescent Community Reinforcement Approach ($n = 1$). One intervention was delivered online, and eight in person. Participants had between 2 days and 16 weeks to complete the treatment (2 days: $n = 2$, 3 days: $n = 1$, 7 weeks: $n = 1$, 8–10 weeks: $n = 1$, 12–14 weeks: $n = 1$, 12–16 weeks: $n = 1$, unspecified $n = 1$). Seven major treatment components were identified within studies, these being incorporating problem solving and/or coping skills training ($n = 6$), creating safe, supportive spaces ($n = 4$), discussion of shared experiences of bullying, rejection, harassment etc. ($n = 5$), drug counseling ($n = 1$), social skills training or family components (e.g. communication skills, assertiveness; $n = 4$), and expressive writing ($n = 1$).

Mental Health Measurement

There was a high degree of variability in which mental health was measured, according to the mental health disorders and psychosocial issues being addressed. Depression was measured using the Beck Depression Inventory-II [BDI-II, Beck et al. (1996); $n=3$], Beck Depression Inventory-Youth [BDI-Y, Beck et al. (2005); $n=1$], Child Depression Rating Scale-Revised [CDRS-R, Poznanski and Mokros (1996); $n=1$], Kazdin Hopelessness Scale for Children [HPLS, Kazdin et al. (1983); $n=1$], Reynolds Adolescent Depression Scale 2nd Edition [RADRS-2, Reynolds (2002); $n=1$], Mood and Feelings Questionnaire [MFQ, Kent et al. (1997); $n=1$], Centre for Epidemiological Studies Depression Scale [CES-D, Radloff (1977); $n=1$], and the positive and negative affect schedule [PANAS, Watson et al. (1988); $n=1$]. Sexual minority stress was measured with the Rosenberg Self-Esteem Scale [RSES, Rosenberg (1965); $n=2$], Proactive Coping Inventory [PCI, Greenglass et al. (1999); $n=1$], Social Connectedness Scale [SCS, Lee and Robbins (1995); $n=1$], Stress Appraisal Measure for Adolescents [SAMA, Rowley et al. (2005); $n=1$], reflective coping subscale [RCS, Greenglass et al. (2008); $n=1$], and the Outness Inventory [OI, Mohr and Fassinger (2000); $n=1$]. Alcohol and other substance use was measured with the DSM IV-TR criteria for [Alcohol and other Psychoactive Substance Use Disorder (APA2000); $n=1$], The National Institute on Alcohol Abuse and Alcoholism's Form 90 [Miller and Del Boca (1994); $n=1$], and the Alcohol Use Disorders Identification Test [AUDIT, Saunders et al. (1993); $n=1$]. Suicidal ideation was measured using the Suicidal Ideation Questionnaire-Junior [SIQ-JR, Reynolds (1987); $n=1$]. Anxiety was measured with the Spence Children's Anxiety Scale [SCAS, Spence (1998); $n=1$]. Behavioural problems were measured using the Child Behaviour Checklist and the Youth Self Report [CBCL, YSR, Achenbach (1991); $n=1$]. General psychological symptomology was measured with the Brief Symptom Inventory [BSI, Derogatis and Spencer (1993); $n=1$], Paediatric Quality of Life Enjoyment and Satisfaction Questionnaire Life [PQ-LES-Q, Endicott et al. (2006); $n=1$] and the Symptom Checklist-90 [SCL-90, Derogatis and Spencer (1993); $n=1$].

Mental Health Outcomes

Overall, impacts on mental health varied considerably among the included studies and with measures used. When mental health was measured in terms of depression ($n=8$), effects of interventions ranged from $p < 0.0001$ to $p = 0.66$. Alternatively, when mental health was measured in terms of sexual minority stress ($n=5$), effects of interventions ranged from $p < 0.001$ to $p = 0.786$. When measured in regard to AOD use ($n=2$), improvements were less variable,

and significant across studies ranging from $p < 0.001$ to $p = 0.002$. Mental health was measured in relation to suicidal ideation in one study ($n=1$), and intervention effects were significant at $p = 0.001$. Anxiety was used as a measure of mental wellbeing in another study ($n=1$), with significant effects $p < 0.0001$. One study ($n=1$) used behavioral problems as a measure of mental health, with effects ranging from $p < 0.05$ to $p < 0.001$. When general psychological symptomology and quality of life were used to measure mental wellbeing ($n=3$), effects of interventions ranged from $p = 0.66$ to $p = 0.017$.

Quality Assessment Within- and Across-Studies

The methodological quality of the chosen papers varied, all but two studies rated as high risk on at least one domain on the Cochrane Collaboration Risk of Bias tool for randomized controlled trials (Higgins and Green 2011), or as moderate on the ROBINS-I assessment tool for non-randomized trials (Sterne et al. 2016). Overall, risk of bias across most studies was rated as low, however two studies were assessed to have moderate to high risk of bias, such that bias was judged as being sufficient to affect interpretation of results. See Table 3 for a summary of these results.

Outcomes

Primary Outcome: Effect on Mental Health Due to the Treatment Components

Affirmative-Based Intervention Craig et al. (2014) explored the effect of a gay-affirmative school peer group-counseling program on minority stress in LGBTQ high school students. Participants ($N=263$) completed an 8–10 week Affirmative Supportive Safe and Empowering Talk [ASSET; Craig (2013)] program focused on creating a safe, supportive environment, enhancing coping in family, school, general and mental health domains, discussion of shared experiences (e.g. bullying, familial rejection, coming out), developing problem solving and coping skills, and exploring familial and social relationships as sources of support. The study found that the ASSET program increased proactive coping and self-esteem. No significant increases in social connectedness were observed. Qualitative results indicate that participants found the intervention helpful. Craig and Austin (2016) and Austin et al. (2018) explored the effects of a gay-affirmative CBT coping skills retreat on minority stress and depression. Participants ($N=30$, and $N=8$, respectively) completed a 2-day retreat incorporating a manualised CBT intervention, AFFIRM, which focused on core CBT skills (e.g. psychoeducation, identifying and challenging cognitive distortions, assertiveness, coping skills and goal setting), enhancing peer support, and discussing impacts of homo-

Table 3 Summary of methodological quality within studies

Study (Author, Date)	Selection bias		Performance bias		Attrition bias		Reporting bias		Other bias		Overall bias	
	Random sequence allocation	Allocation concealment	Participation selection	Blinding of participants and personnel ^a	Blinding of outcome assessment ^a	Outcome measures	Missing data	Deviation from intended intervention	Selective reporting	Intervention classification		Confounding/other bias
Austin et al. (2018)	-	-	Low risk	-	-	Low risk	Moderate risk ^b	Low risk	Low risk	Low risk	Low risk	Low risk
Craig et al. (2014)	-	-	Moderate risk ^c	-	-	Low risk	Moderate risk ^c	Low risk	Low risk	Low risk	Low risk	Low risk
Craig and Austin (2016)	-	-	Moderate risk ^d	-	-	Low risk	Moderate risk ^d	Low risk	Low risk	Low risk	Low risk	Low risk
Diamond et al. (2012)	-	-	Low risk	-	-	Low risk	Moderate risk ^e	Low risk	Low risk	Low risk	Low risk	Low risk
Grafsky et al. (2011)	Low risk	Unclear risk ^f	-	High risk	High risk	-	Low risk	-	Low risk	-	High risk ^{g,h}	High risk
Heck et al. (2011)	-	-	Low risk	-	-	Low risk	Moderate risk ⁱ	Low risk	Moderate risk	Low risk	Moderate risk	Moderate risk
Ioverno et al. (2016)	-	-	Low risk	-	-	Low risk	Low risk	Low risk	Low risk	Low risk	Low risk	Low risk
Lucassen et al. (2015)	-	-	Low risk	-	-	Low risk	Low risk	Low risk	Low risk	Low risk	Low risk	Low risk
Pachankis and Goldfried (2010)	Low risk	Unclear risk ^f	-	High risk	Low risk	-	Low risk	-	Low risk	-	Low risk	Low risk

Ratings of randomised studies were conducted according to the Cochrane Collaborator's tool for assessing risk of bias in RCTs (Higgins and Green 2011) and the Risk of Bias in Non-Randomized Studies-of Interventions (ROBINS-I) assessment tool for non-randomised studies (Sterne et al. 2016)

^aDue to the nature of psychological treatments, ability to adequately blind participants, study personnel, and outcome assessment is restricted

^b3-month follow-up data only available for 6/8 participants, however no apparent differences between respondents and non-respondents reported

^c'Social Connectedness' data missing at follow-up was 27%; analyses conducted on subsample of participants without stating reason

^d44% of 3-month follow up missing, no significant differences at baseline in demographics/psychosocial variables

^eRSQ data only available for 7/10 participants as this measure was introduced into the study pathway through recruitment

^fDid not provide any/enough detail on allocation concealment to establish low risk of selection bias during allocation stage

^gBaseline differences between GLB and non-GLB and study groups in drug use, depression scores and internalising symptom

^hNo data on proportion of participants receiving the additional treatment modules

ⁱ'Outness Inventory' data not reported

^jStudy retrospectively explored the predictive value of high school GSA on adulthood psychosocial outcomes, however other variables may have influenced these outcomes and/or interacted with the influence of a GSA

phobia and discrimination. Results of the first study found that the AFFIRM program yielded significant decreases in depression (decreased from moderate to borderline clinical depression) and threat appraisal, and increased reflective coping from baseline to 3-month follow up. Challenge appraisal and resource appraisal increased significantly over the intervention period but these gains were not maintained at follow-up. The second AFFIRM study recruited only transgender youth, and found significant decreases in depression from baseline to 3-month follow up, although depression scores remained within the severe range. No significant increases in reflective coping were found. Qualitative results of both AFFIRM studies indicate that participants felt they benefited from the intervention.

Attachment-Based Family Therapy Diamond et al. (2012) explored the effects of LGB-tailored attachment-based family therapy (ABFT-LGB) on suicidality, depression and attachment in LGB youth. Participants ($N=10$) completed a 12–16-week family-based therapy focused on strengthening relationships, reducing parental criticism, hostility and distress, enhancing communication, problem solving, affect regulation skills, promoting self-esteem and autonomy, and helping parents explore their feelings of disappointment, shame, anger and fear about sexuality. Up to five sessions were necessary for parents to explore these feelings. The study found that the intervention led to significant decreases in suicidal ideation, depressive symptoms, and attachment anxiety and avoidance (the latter two variables significant after removing participants for whom only partial data were available due to attrition).

Computerized CBT Lucassen et al. (2015) explored the effects of a computerized CBT fantasy computer game tailored for sexual minority youth on depression, anxiety and quality of life. Participants ($N=21$) completed the 7 part Rainbow SPARX intervention (i.e., tailored version of the SPARX program—Smart, Positive, Active, Realistic, X-factor thoughts) focusing on core CBT skills (e.g. psychoeducation, behavioral activation, identifying and challenging cognitive distortions, cognitive restructuring, communication skills, relaxation and mindfulness training, problem solving, and social skills training), and addressing challenges of bullying, homophobia, ‘coming out’ and societal assumptions of sexuality. The study found that the intervention led to significant decreases in depressive symptoms, anxiety and hopelessness. No significant changes in quality of life were found. Qualitative results indicate the participants found the intervention useful.

Gay-Straight Alliances Heck et al. (2011) retrospectively explored the effects of attending a high school with a Gay-Straight Alliance (GSA) on depression and alcohol use

disorders at college-age. Participants ($N=145$) had either attended a school with a GSA ($n=79$), or one without ($n=66$). GSAs are student-led peer support groups that focus on creating safe, accepting school spaces for LGBT youth. The study found that participants who had attended schools with GSAs had significantly lower levels of depressive symptoms, alcohol use problems, dependence and consumption, and overall psychological symptomatology. Ioverno et al. (2016) prospectively explored the effects of attending a high school, university or college with a GSA, and whether or not individuals participated in these groups. Participants ($N=327$) were tracked over two schooling years, with 24.2% attending a school without a GSA, 38.4% attending schools with GSAs but were not members, and 37.4% participated in their schools’ GSAs. The study found that the presence of a GSA was associated with fewer experiences of homophobic bullying the following year, regardless of participation; and GSA presence and participation improved perceived safety. No changes over time were observed in depression or self esteem.

Adolescent Community Reinforcement Grafsky et al. (2011) explored the effects of an adolescent community reinforcement approach (ACRA) on alcohol and substance use, depression and behavioral problems in a community sample of homeless youth, both LGB and non-LGB. Participants ($N=268$) were randomly assigned to one of two groups: a 12–14-week intervention ($n=144$), or treatment as usual ($n=124$). The ACRA intervention involved group and individual therapy focusing on problem solving, assertiveness and communication skills, decision making, functional analysis of drug-use behaviors and prosocial behaviors, relapse prevention, and HIV/AIDS education. Optional treatment included modules on affect regulation, assertiveness and relaxation training. The study found significant reductions in depression, illicit drug use, and internalizing symptoms across groups.

Expressive Writing Pachankis and Goldfried (2010) explored the effects of expressive writing about sexual minority stress on depression, self-esteem, and general psychopathology. Participants ($N=77$) were randomly allocated to one of three groups: writing over 3 days about their most stressful or traumatic gay-related event ($n=27$), writing about such an event and reading their writing from the previous day ($n=25$), or writing about a neutral topic ($n=25$). The study found no significant differences between the two experimental groups. Participants in the experimental groups experienced significantly higher positive affect than the control group the day following the intervention, and were more open about their sexuality at 3-month follow up. No significant effects of depression, self-esteem or general psychopathology were found.

Secondary Outcome: Individual Characteristics Associated with Treatment Efficacy

Sexuality, Gender Identity, Age, Race and Ethnicity Craig et al. (2014) reported no differences between participants of varied gender, sexual orientation, race or ethnicity in changes in proactive coping, self-esteem or social connectedness. Grafsky et al. (2011) found that LGB participants had significantly greater improvements in depression, illicit drug use, and internalizing symptoms than non-LGB participants. Ioverno et al. (2016) found that overall, young women and black youth reported lower levels of depression and higher levels of self esteem, and older participants reported higher self esteem. Craig and Austin (2016), Austin et al. (2018), Diamond et al. (2012), Heck et al. (2011), Lucassen et al. (2015), and Pachankis and Goldfried (2010) did not analyze differences in outcomes across demographic variables.

Baseline Symptom Severity Craig et al. (2014) reported poorer baseline levels of proactive coping for Hispanic lesbians than other minority groups. Grafsky et al. (2011) found that LGB youth had significantly greater depressive symptoms and internalizing symptoms than non-LGB youth. Pachankis and Goldfried (2010) found that participants assigned to the intervention group with lower baseline social support reported greater improvements in depression, psychological symptoms, and higher proportions of gay friends at 3-month follow-up. Interventions that required clinically significant baseline symptomatology for inclusion resulted in mental health improvements of a greater magnitude than studies conducted with participants who did not necessarily have poor baseline mental health (Diamond et al. 2012; Lucassen et al. 2015).

Discussion

LGBTQIA individuals in adolescence and emerging adulthood have higher rates of mental illness, suicidal ideation and suicide attempts than their non-LGBTQIA peers. Specific risk factors such as harassment and abuse, low self-esteem, and challenges in peer- and parental-acceptance, have been identified as particularly relevant to sexual minority youth. Despite evidence for the impact of these risk factors on negative psychological and physical outcomes, there is no research pooling evidence on how treatments can effectively target these unique risk factors. The current systematic review explored how treatments can be tailored to these needs.

Summary of Main Findings

The primary aim of the current study was to systematically review existing literature on psychological and psychosocial interventions for LGBTQIA youth aged 12–25, in order to ascertain whether certain treatment components consistently show greater efficacy/effectiveness over others. A secondary aim was to review individual characteristics related to treatment outcomes. Nine studies [two randomized controlled trials (RCTs), five pre-post designs, one retrospective study, one longitudinal study] were identified with a total of 814 participants; across three countries; addressing depression, suicidality, sexual minority stress, anxiety, alcohol and substance use disorders, behavioral problems, general psychopathology and quality of life.

Results were interpreted in regard to delivery mode, participants, theoretical orientation, and program components. Outcomes were similar across both individual and group delivery modes, and with participants being individuals or families. Employing cognitive behavioral therapy (CBT) as the main theoretical orientation was successful in reducing depressive and anxious symptoms within community groups, while attachment-based family therapy (ABFT) and adolescent community reinforcement approach (ACRA) orientations successfully did this within clinical and vulnerable community (i.e., homeless) populations, respectively (Austin et al. 2018; Craig and Austin 2016; Diamond et al. 2012; Grafsky et al. 2011; Lucassen et al. 2015). Specifically, the three studies employing CBT produced outcomes of decreased depression, hopelessness, anxiety, sexual minority stress, coping skills, and were found to be helpful (Austin et al. 2018; Craig and Austin 2016; Lucassen et al. 2015). Interestingly, the AFFIRM study with LGBTQ youth generally yielded improvements in coping skills that were not replicated with a transgender youth population. This may be reflective of the increased stressors experienced by transgender youth, and of the overall higher depressive scores post-intervention in the transgender group (Austin et al. 2018; Craig and Austin 2016). When gay-affirmative practice was the orientation, improvements in coping, self-esteem and depressive symptoms were observed (Craig et al. 2014; Heck et al. 2011). A psychotherapy approach returned the least change with no effects reported on depression or self-esteem (Pachankis and Goldfried 2010). Results show that program components of creating safe, supportive spaces as part of the therapeutic process were generally associated with improvements in depression, sexual minority stress, alcohol and other drug (AOD) use, general psychopathology and participant reports of interventions being helpful (Craig et al. 2014; Heck et al. 2011). Perhaps the positive effects of GSAs on depression and psychological wellbeing found in Heck et al. (2011)'s retrospective study but not confirmed in Ioverno et al. (2016)'s prospective study could be attributed

to confounding factors in the former study. It is important to consider however, that improvements in experiences of bullying and safety would likely yield positive longer term effects on wellbeing. This supports the idea that targeting the unique needs of LGBTQIA youth, such as improving self-esteem, in-group and family acceptance, and reducing risk behaviors, can lead to positive outcomes. Similarly, incorporating discussion of shared experiences was associated with improvements in depression, anxiety, AOD use, behavioral problems, sexual minority stress, general psychopathology and participant helpfulness ratings (Craig and Austin 2016; Craig et al. 2014; Heck et al. 2011; Lucassen et al. 2015). Incorporating social, coping skills and/or decision making skills training (either independently or within the context of CBT) was associated with improved sexual minority stress (i.e., proactive and reflective coping, improved appraisal skills, increased self-esteem), decreased depressive symptoms, hopelessness, anxiety, suicidality, attachment anxiety and avoidance, drug use, psychological symptomatology, and internalizing and externalizing symptoms, and was found to be helpful by participants (Craig and Austin 2016; Craig et al. 2014; Diamond et al. 2012; Grafsky et al. 2011; Lucassen et al. 2015). The one study that employed drug-specific counseling tools was associated with significantly decreased drug use (Grafsky et al. 2011). While GSAs were associated with decreased alcohol use problems without directly targeting this, this result should be interpreted with caution due to retrospective nature of this study and thus the likely presence of other confounding factors (Heck et al. 2011). Of approaches explored, expressive writing was perhaps the least effective, with no significant changes reported in depression, self-esteem or general psychopathology, and an initially increased positive affect not maintained at follow up. Importantly, greater openness about sexuality was reported at follow up (Pachankis and Goldfried 2010).

Results related to the secondary aim indicated that LGBTQIA youth often had poorer mental health at baseline and experienced greater improvements than non-LGBTQIA youth. For example, one study found that lesbian, gay and bisexual (LGB) youth had greater levels of depressive symptoms and internalizing behaviors at baseline than non-LGB youth, and experienced greater improvements such that symptom severity was more equivalent post-intervention. LGB participants also experienced greater decreases in illicit drug use (Grafsky et al. 2011). Another study found that Hispanic participants identifying as lesbian had significantly poorer proactive coping skills at baseline than other minority groups, which particularly highlights the relevance of minority stress theory when applied to youth belonging to multiple minority groups (Craig et al. 2014). One further study found that gay males with lower baseline social support experienced greater improvements in depressive symptoms, social support and overall psychopathology when allocated to the experimental rather than the

control group (Pachankis and Goldfried 2010). This may suggest that these symptoms can improve without being targeted directly, however this should be interpreted with caution, as improvements were not significant overall.

Experimental Manipulations of Treatment-Related Variables Associated with Improved Mental Health

Considering the critical impact that parental acceptance and attachment plays on suicidality, mental and physical health, and healthy adult relationships, it is likely that including family therapy components such as in Diamond et al. (2012) could vastly improve treatment outcomes for youth still in the care of their parents (Katz-Wise et al. 2016; Ryan et al. 2009; Yadegarfar et al. 2014). It is interesting that despite previous findings that parental support is more protective than social support (McConnell et al. 2016; Watson et al. 2016), every intervention reviewed that included social skills training or a social component resulted in significant decreases in depressive symptoms (Craig et al. 2014; Grafsky et al. 2011; Lucassen et al. 2015).

It is unsurprising that treatments conducted in accordance with minority stress theory were effective in reducing depressive and stress symptoms and enhancing coping and appraisal skills. Interestingly, the studies that did not use empirically based treatment still yielded improvements via the use of gay-affirmative counseling, creating safe spaces, open discussion of unique experiences, coping, social, and cognitive appraisal skills training. Further, it was found that even studies that did not explicitly target depressive symptoms, were found to have positive influences on these symptoms (Grafsky et al. 2011; Heck et al. 2011). This supports previous evidence of these as being critical in targeting minority stress, and the concept of using social supports to re-appraise threat and self-efficacy (Alessi 2014; Kertzner 2001; Meyer 2003).

Findings of the current review are in accordance with findings from the ESTEEM gay-affirmative CBT program that incorporating coping skills, cognitive restructuring, and promoting self-efficacy were able to reduce depression, alcohol abuse, and sexual compulsivity in gay and bisexual male participants (Pachankis et al. 2015). This is a useful finding as it suggests that treatments designed for use in adult populations are likely generalizable to younger people. Similarly, in support of previous findings with adults, LGBTQIA youth also found the teaching of coping and communication skills helpful (Israel et al. 2008).

Individual Characteristics Associated with Treatment Efficacy/Effectiveness

The findings of the current review consolidate evidence that LGBTQIA adolescents have poorer mental health than

non-LGBTQIA adolescents. However the included studies did not explore within-group differences sufficiently to add to previous findings, for instance that bisexual females are at higher risk of self-harm or that lesbian females gain less benefit from parental support than females of other sexual orientations (Watson et al. 2016; Zaki et al. 2017), or that gender-minority men are more prone to depression and panic attacks, whereas females are more prone to GAD (Cochran et al. 2003).

Limitations of the Research

The research findings of studies included should be considered in the context of identified limitations. Of the nine studies reviewed, four were not necessarily psychological interventions, and another incorporated only one specific component of psychotherapy. While this is not necessarily a hindrance, as some produced positive findings, it is possible that more evidence-based treatments such as CBT would have yielded stronger positive outcomes. In terms of cost-efficiency, it is encouraging that four of the studies included were successfully able to yield positive changes within a group environment. In terms of clinical relevance and generalizability, only three of the included studies required a mental health diagnosis or significant impairment for inclusion, and thus while the other studies give interesting insight into intervention adaptations effective within community populations, it is important to explore the efficacy/effectiveness of these interventions when baseline symptoms are in the clinical range.

Limitations of the Current Review

The results of this review should be interpreted in the context of several limitations. Studies were only included if they were published in English; with unpublished studies, theses or other grey literature excluded. The results are all from first-world countries, thus the included samples may not be generalizable to global populations. The limited availability of research in the area and thus small sample of studies included may also impact generalizability of findings. Importantly, only two of the included studies were RCTs, and thus while interventions were found to be effective across many domains, this hasn't been established in comparison to other empirically supported interventions or control groups. Notably, the non-randomized trials have not yet been followed up with experimental designs to further test their findings, which would make interpretation of results more robust and reliable. Interestingly, while adolescents experience challenges and experiences unique to this particular life stage (e.g. puberty, periods of transitioning, the high school environment, identity development), perhaps including studies of mental health treatment for LGBTQIA

adults could have provided further insights into specific treatment components and individual characteristics important in the therapeutic process and outcome.

Future Research Directions

In light of the limited research available on psychological interventions for LGBTQIA youth experiencing mental health difficulties, it is recommended that future research trial the implementation of treatment components found to be effective. Thus, where appropriate, incorporating components such as safe spaces, discussion of shared experiences, decision making, coping and social skills, and AOD counseling into the treatment of LGBTQIA youth diagnosed with mental illnesses may return benefit. It is also suggested that treatment modalities may be adapted to the target population, as it was found that CBT was effective in work with individual youth and community groups, ACRA was beneficial in a community support setting, and ABFT was an effective family-based approach. Many of the interventions reviewed were not based on empirically supported modalities, however still found value in the creation of safe spaces and open discussion of shared challenges and supports. In the light of minority stress theory, it is suggested that future interventions be developed from evidence-based practices such as CBT or family-based therapies where indicated, with the critical incorporation of gay-affirmative practice such as creation of safe spaces and fostering discussion of shared experiences. This is especially important as adolescents have a high risk of suicide and treatments must be effective in targeting and preventing this (AIHW 2014). While certain treatment components such as expressive writing may be beneficial in certain aspects of minority stress, for example increasing openness about one's sexuality, treatments cannot ethically rely solely on these individual treatment components without empirical evidence that they significantly decrease mental ill-health and suicide risk. Ideally, amalgamating these therapeutic components and applying them in an RCT compared with standardized CBT, waitlist control, or TAU would yield helpful insight into the efficacy of these treatment adaptations.

Conclusion

There is significant evidence that LGBTQIA youth are more prone to mental illness and psychosocial stressors than the general population, with these factors generally not improving across the lifespan. This suggests that current treatment options are not adequately addressing unique characteristics of these youth. The current review has summarized available evidence on the unique needs

of LGBTQIA adolescents, and the factors that positively influence treatment outcomes. In relation to the unique risk and protective factors experienced by LGBTQIA youth, it is evident that treatments must target self-esteem, peer and parental acceptance, risk behaviors, and experiences of harassment and abuse both within school and home environments. It can be seen that these needs are particularly relevant to this developmental period wherein youth are strongly influenced by school peers, their parents, exploring risky behaviors, and developing self-identity and esteem. In accordance with these unique developmental needs, the review found that factors such as creating safe spaces, facilitating discussion of shared experiences of victimization, opening familial discussion around homosexuality, bullying, homophobia and coming out, teaching social, coping and decision making skills, and conducting AOD counseling where relevant, may influence the effectiveness of treatment. Findings relating to minimizing the impacts of victimization and harassment are especially relevant to the exploration of adolescent development as these variables have been strongly linked to attempted suicide (AIHW 2014). In regard to modalities, CBT and ABFT were found to be effective therapeutic frameworks with LGBTQIA youth. This is unsurprising looking at the enduring importance of family acceptance and connectedness during adolescent development on psychological and physical wellbeing (NLHA 2016). However, caution must be taken when generalizing these findings. As indicated by this review, these findings have not been replicated in further RCTs for LGBTQIA youth experiencing mental illness. Additionally, due to the limited number of available studies, the influence of individual-related variables such as age, sexual orientation, gender identity, or symptom severity, on treatment outcomes were not able to be rigorously explored. Nevertheless, preliminary evidence was found to explain some specific therapeutic components required to target the unique needs of LGBTQIA youth, and found that tailoring treatments can yield benefits in mental health despite poorer baseline mental health. Further research is strongly suggested to further explore these treatment components within clinical populations wherein intervention is most vital, and to further assess the association between individual characteristics and treatment outcome.

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