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**Associations of LGBTQ+ Identities with Acceptability and Efficacy of Online Single-Session Youth Mental Health Interventions**

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### **Abstract**

Barriers such as stigma, financial costs, and provider shortages prevent large portions of youth with depression and related difficulties from accessing treatment; LGBTQ+ youth are burdened with additional barriers related to minority stress. Single session interventions (SSIs) have been found to benefit youth and help reduce depression symptoms, and since many SSIs are brief, cost-free, and accessible online, they may circumvent several access barriers. However, prior to recommending non-community-tailored SSIs as a useful resource for minoritized youths, we first assessed whether LGBTQ+ youth respond as positively to SSIs as do cisgender heterosexual youth. In a subsample of youths recruited via online advertisements from 9/2019-8/2020 ( $N=258$ , 81.4% female assigned sex at birth, 60.5% LGBTQ+, 47.3% youth of color), we investigated whether changes in helplessness, agency, and self-hate from before to after completing online self-directed SSIs differed as a function of LGBTQ+ identity. We also quantitatively and qualitatively compared intervention acceptability ratings and feedback across LGBTQ+ and cisgender heterosexual youths. Analyses revealed no significant differences between cisgender LGBTQ+, trans and gender diverse, and cisgender heterosexual youths for any intervention outcomes. Likewise, no group differences emerged in intervention acceptability ratings or written program feedback. Self-selection bias and underrepresentation of certain populations, such as American Indian and Alaskan Native youths, may limit generalizability of results. Results suggest that online mental health SSIs are equally acceptable and useful to LGBTQ+ and cisgender heterosexual youth alike, even prior to culturally specific tailoring.

*Keywords:* LGBTQ+, SSIs, mental health, youth

### **Associations of LGBTQ+ Identities with Acceptability and Response to Online Single-Session Youth Mental Health Interventions**

Relative to cisgender and heterosexual people, LGBTQ+ (lesbian, gay, bisexual, transgender, queer/questioning, or other non-cisgender or non-heterosexual identity) youths are at higher risk for psychopathology, including depression, anxiety, traumatic distress, obsessive-compulsivity, substance use, psychoticism, suicidal thoughts and behaviors, and non-suicidal self-injury (D'augelli, 2002; Goldbach et al., 2014; Hatzenbuehler et al., 2008; Marshal et al., 2011; Shearer et al., 2016). Additionally, psychopathology risk appears to be higher for LGBTQ+ people in youth compared to middle adulthood (Semlyen et al., 2016). A number of identity-related minority stressors (Brooks, 1981)—such as heterosexism, discrimination, and stigmatization (Meyer, 2003)—predict increased psychopathology in LGBTQ+ youth (Kelleher, 2009) and potentially mediate the relationship between LGBTQ+ identity and increased risk (Almeida et al., 2009). LGBTQ+ youths therefore deserve mental health supports that are accessible, acceptable, and efficacious. The current study explores the potential of one such resource, online single-session interventions (SSIs), for LGBTQ+ youths.

#### *LGBTQ+ Access to and Acceptability of Therapeutic Support Services.*

Likely related to high rates of minority stressors and psychopathology, LGBTQ+ youths report increased likelihood of seeking psychological support relative to their cisgender heterosexual peers (Williams & Chapman, 2011). Despite increased treatment-seeking, LGBTQ+ youths report lower rates of accessing care than their cisgender heterosexual peers (Williams & Chapman, 2011). Minority stressors, such as stigma and discrimination, occur day-to-day (Burton et al., 2013) and across mental healthcare contexts (Graham et al., 2011; James et al., 2016), limiting acceptability of and access to many mental healthcare services. LGBTQ+ youths

in need of mental health treatment also frequently identify parental permission as a key obstacle in accessing therapeutic support (Acevedo-Polakovich et al., 2013; Williams & Chapman, 2011). For young people whose caregivers are unaware, unsupportive, or invalidating of their sexual orientation, gender identity, or both, parent permission for treatment may be impossible to obtain. LGBTQ+ youths therefore face substantial difficulty in accessing mental healthcare, despite relatively high rates of psychopathology in this group compared to their cisgender heterosexual peers.

Even when LGBTQ+ youths are able to access care, its quality can vary. Mental healthcare professionals consistently reported receiving inadequate training for working with LGBTQ+ populations (White & Fontenot, 2019). Interventions that challenge LGBTQ+ identity, such as those involving conversion therapy, are seriously harmful and ineffective for LGBTQ+ youths (SAMHSA, 2015). Even among other interventions, discrimination related to LGBTQ+ identity is unfortunately prominent in mental healthcare (Graham et al., 2011; James et al., 2016). Transgender youths, for example, report being misgendered by healthcare professionals and receiving care that is inconsistent with transgender health-related practices (Gridley et al., 2016). Sexual minority youth similarly report experiences of heteronormativity and forced self-disclosure in mental healthcare contexts (Rees et al., 2020; Williams & Chapman, 2011). As such, there is a need to explicitly test the acceptability of all psychosocial interventions among LGBTQ+ youths, in particular—including those that show overall effectiveness and acceptability in their cisgender, heterosexual peers.

#### *Single-Session Interventions.*

Brief, evidence-based, and freely available digital mental health supports called single-session interventions (SSIs) for mental health needs have the potential to be highly accessible for

youths (Schleider et al., 2020a). Though they produce slightly smaller effect sizes than do traditional, weekly therapies (Schleider & Weisz, 2017), they are nevertheless effective and acceptable in reducing psychiatric symptoms such as depression (Miu & Yeager, 2015; Schleider & Weisz, 2018; Schleider et al., 2020b). Online SSIs are accessible through internet connection, which minimizes many physical access barriers; furthermore, they are often free, thereby minimizing financial access barriers (Schleider et al., 2020a). Additionally, computerized SSIs that do not require parent permission to participate minimize social access barriers for LGBTQ+ youths who may be unable to obtain parental support for traditional care, or who may fear being outed to or discriminated against by a healthcare provider. Though these openly available, online, free of cost SSIs have a strong access potential for LGBTQ+ youths, care should be taken to first assess whether these non-community tailored SSIs are an acceptable and useful resource for the LGBTQ+ youth community.

*Generalized and Tailored Mental Health Resources.*

Because LGBTQ+ individuals have qualitatively distinct experiences as compared to their cisgender heterosexual peers, many researchers have recommended adaptation of common psychosocial interventions to LGBTQ+-specific needs in hopes of increased efficacy (e.g., Austin & Craig, 2015; Pachankis, 2018). Emerging results for investigations into interventions adapted specifically for the LGBTQ+ population show positive effects for LGBTQ+ youths and adults, but knowledge regarding the incremental utility of such tailored interventions is unfortunately limited in light of the paucity of comparison groups in associated studies (Hobaica et al., 2018; Pachankis, 2018). Additionally, though tailored mental health resources are likely to offer benefits above and beyond that of generalized resources, myriad barriers unfortunately often limit access to such specialized supports. While generalized single-session interventions

may be more broadly accessible as compared to specialized supports (especially when accessed online, free of cost, and without parent permission), we must first determine whether they are acceptable and useful for LGBTQ+ youth prior to their widespread recommendation for this community.

Some evidence suggests that generalized (i.e., untailored) interventions may be less acceptable and efficacious for at least certain LGBTQ+ adult populations as compared to cisgender heterosexual adults (Beard et al., 2017; Rimes et al., 2018). Other findings specific to the youth population suggest that general psychosocial interventions may be similarly efficacious across youths with diverse gender identities, but also that gender minority youths may perceive these interventions as less acceptable or useful than cisgender youths do (Hollinsaid et al., 2020). However, these results were generated from primarily in-person, multi-session interventions with parental involvement, characteristics which may be associated with certain access barriers that could limit intervention acceptability in LGBTQ+ youths. It is therefore unknown whether online SSIs, which inherently remove many access barriers, are acceptable and useful for LGBTQ+ youths and cisgender heterosexual youths alike.

#### *The Current Study.*

There is a clear and prominent need to identify whether existing mental health supports are acceptable and effective for LGBTQ+ youths. Examining the acceptability and effects of interventions that are *already* easily accessible by LGBTQ+ youths may be especially fruitful, as they may be disseminated rapidly and at low cost to youths who may have few alternative means of accessing support. Therefore, the current investigation assessed whether short-term intervention effects and acceptability ratings of brief, online, self-directed mental health interventions for youths differed by LGBTQ+ identity. The three interventions assessed in the

following study are Project Personality, Project CARE, and Project ABC. Project Personality focuses on the malleability of traits and symptoms in an effort to strengthen adolescents' perceived control and reduce hopelessness, Project CARE focuses on acting with self-compassion in order to systematically reduce self-hate, and Project ABC focuses on behavioral activation principles to demonstrate that engaging in valued activities can powerfully shape one's mood. These self-directed SSIs are free, designed for youth depression and anxiety, and accessible without need for parental consent (Schleider et al., 2020c). A full description of each intervention is beyond the scope of this manuscript; however, additional details can be found here (Schleider et al., 2020c) and all interventions are freely available to view online (<https://osf.io/jv92c/>). These three online SSIs have demonstrated efficacy (e.g., reducing hopelessness, anxiety symptoms, and depression symptoms across 3-9 months in randomized trials; Schleider & Weisz, 2018; Schleider et al., 2021) and acceptability (in both randomized trials and open trials; Schleider et al., 2020c; Schleider et al., 2021) in large, diverse samples. However, these SSIs have not been designed or adapted for LGBTQ+ youths specifically (Schleider et al., 2020c), and results obtained from diverse samples do not necessarily generalize to specific subgroups of the population (Tiokhin et al., 2019). Accordingly, the current investigation explored the potential of online, single-session, untailored mental health interventions to serve as acceptable and helpful supports for LGBTQ+ youths specifically.

## **Materials and Methods**

### *Participants*

This investigation utilized national data from 258 U.S.-based individuals who participated in the “Project Youth Empowerment and Support” (Project YES) program: an online, anonymous program evaluation project wherein youths may choose to complete one of

three online single-session interventions, per their preference. After choosing to take part in Project YES and selecting one of three self-directed SSIs, youths completed a brief series of pre-SSI questionnaires, their selected SSI, and post-SSI questionnaires to gauge intervention acceptability and short-term effects on clinically relevant outcomes.

A report of the preliminary acceptability and utility of Project YES interventions, across all youth users who completed an intervention between September 2019 and March 2020 (regardless of LGBTQ+ identity), has been published previously (Schleider et al., 2020c); results indicated acceptability and positive effects on hopelessness and perceived agency for all three of Project YES's single-session, online interventions. Here, we used all Project YES user data available (i.e., all data collected from September 2019 through August 2020) from youths who selected '11-17 years old' as their age range; youths outside this age range could still use the program, but their data were not stored. During this time, 1,091 youths accessed Project YES, 844 began an intervention, 285 completed the intervention, and 258 provided responses needed for the current analysis. Of these 258 youths, 105 completed Project Personality, 46 completed Project CARE, and 107 completed Project ABC. The preliminary report found no differences in outcomes across SSI selection (Schleider et al., 2020c); thus, all data were collapsed across the three conditions in the current study.

Youths self-reported their racial/ethnic identity, their assigned sex at birth, their gender, and their sexual orientation. White youths comprised 52.7% of the sample used in the current analyses, Asian youths, 8.5%, Black youths, 3.5%, multiracial youths, 8.1%, and youths who self-reported another race, 18.6%. Additionally, 8.5% of youths reported identifying as Hispanic. Youths assigned female sex at birth comprised 81.4% of the sample. LGBTQ+ youths comprised 60.5% of the sample, including 28.7% who identified with a transgender/gender diverse identity



(TGD) and 52.3% who identified with a lesbian, gay, bisexual, queer/questioning, or other non-heterosexual identity (LGBQ+). Among youth who self-identified as TGD, 71.6% also self-identified as LGBQ+. Among youth who self-identified as LGBQ+, 39.3% also self-identified as TGD.

### *Procedure*

Because no identifying information was collected from youths who accessed Project YES, the University IRB reviewed the project protocol and determined it to meet “Not Human Subjects Research” status. All youths provided online assent prior to beginning Project YES (see Schleider et al., 2020c, for original procedures). Youths learned about Project YES through social media posts, Instagram advertisements, and a *Vox* article (Resnick, 2019). The posts described the interventions as a way that “teens can learn new ways of dealing with stress and help others do the same,” and invited all youths to participate. No inclusion or exclusion criteria were used. Youths completed Project YES anonymously and without parent permission, which was waived by the IRB to maximize anonymity and minimize access barriers. Youths who choose to take part in Project YES first select one of three SSIs to complete. They are then invited to complete a pre-SSI questionnaire battery, followed by their selected SSI, and then a post-SSI survey, all within one sitting (questionnaires detailed in Schleider et al., 2020c).

### *Measures*

*Demographics.* Youths self-reported their race, ethnicity, age, sex assigned at birth, gender, and sexual orientation. Of particular interest to the current investigation was LGBTQ+ identity. For gender identity, youths first indicated whether their gender identity differs from their assigned sex at birth, and then were asked to select all gender identities that applied to them among the following list: male, female, transgender, FTM transgender, MTF transgender, trans

male, trans female, genderqueer, gender expansive, intersex, androgynous, nonbinary, two-spirited, third gender, agender, not sure, or other. Multiple selections for sexual orientation were not permitted in the current study due to difficulties in previous investigations related to youths selecting both heterosexual and LGBTQ+ identities. Accordingly, to help reduce noise, youths selected only one of the following options to best represent their sexual orientation: heterosexual, gay, lesbian, bisexual, queer, homosexual, pansexual, asexual, unsure/questioning, other, or “I do not want to respond.” Youths were excluded from the current analyses if they did not provide their self-reported gender and/or sexual orientation. Youths selecting “heterosexual” were classified as heterosexual, while youths selecting any of the remaining options were classified as LGBTQ+. Youths who indicated that their gender identity did not differ from their assigned sex at birth were classified as cisgender, while the remaining youths were classified as TGD (transgender and gender diverse). Youths who were classified as both LGBTQ+ and TGD were categorized as TGD for the purposes of the current investigation (due to a low rate of identifying as TGD without also identifying as LGBTQ+). Therefore, the TGD group in the sample represents all trans and gender diverse youths, regardless of their sexual orientation, whereas the LGBTQ+ group represents youths who identified as cisgender and non-heterosexual.

*State Hope Scale.* The SHS (Snyder et al., 1996) is a reliable 6-item scale designed to evaluate hope, consisting of a three-item “pathways” subscale and a three-item “agency” subscale. Adolescents completed the SHS both at baseline and post-intervention using an 8-point Likert scale ranging from 1 = “definitely false” to 8 = “definitely true.” Because youths would not have had opportunities to pursue goals in new ways from pre- to immediately post-SSI, we did not expect the intervention to change pathways scores; instead, we used the composite “agency” subscale in our analyses (Schleider et al., 2020c). Example items include “If I were to

face a big problem, I could think of many ways to get out of it” and “There are lots of ways around any problem that I am facing now.” Internal consistency was  $\alpha = 0.74$  and  $\alpha = 0.82$  at pre- and post-SSI, respectively. Youths were included in the current quantitative analyses if they completed at least two out of three of the agency items in both the baseline and the post-intervention scale.

*Beck Hopelessness Scale—4.* The BHS–4 (Forintos et al., 2013) is a reliable, shortened version of the original 20-item scale designed to evaluate hopelessness. Adolescents completed the self-report 4-item BHS–4 both at baseline and post-intervention using a 4-point Likert scale ranging from 1 = “absolutely disagree” to 4 = “absolutely agree.” Example items include “I feel that the future is hopeless and that things cannot improve” and “My future seems dark to me.” Internal consistency was  $\alpha = 0.85$  and  $\alpha = 0.89$  at pre- and post-SSI, respectively. Adolescents were included in the current quantitative analyses if they completed at least three out of four items in both the baseline and the post-intervention scale; those who missed more than one item were excluded.

*Self-Hate Scale.* The SHS (Turnell et al., 2019) is a reliable 7-item scale designed to evaluate feelings of self-hatred. Adolescents completed a shortened 3-item version of this scale that was derived from a confirmatory factor analysis (Schleider et al., 2020c). Youths completed this scale both at baseline and post-intervention using a 6-point Likert scale ranging from 1 = “not at all true for me” to 6 = “very true for me” (Schleider et al., 2020c). Example items include “I hate myself” and “I am a failure.” Internal consistency was  $\alpha = 0.92$  and  $\alpha = 0.94$  at pre- and post-SSI, respectively. Youths were included in the current quantitative analyses if they completed at least two out of three items in both the baseline and the post-intervention scale; those who missed more than one item were excluded.

*Program Feedback Scale.* The PFS is a 7-item measure designed to evaluate the acceptability and feasibility of SSIs. The PFS was modified to be applicable to Project YES (Schleider et al., 2020c). Adolescents completed the PFS post-intervention using a 5-point Likert scale ranging from 1 = “really disagree” to 5 = “totally agree.” Youths were included in the current quantitative analyses if they completed at least five out of seven items in the post-intervention scale; those who missed more than two items were excluded. Example items included “I enjoyed the activity” and “I would recommend this activity to a friend going through a hard time.” Internal consistency across PFS items was  $\alpha = 0.88$ . Adolescents were also provided with three open-ended questions for program feedback, consisting of what they liked about the program, what they would change about the program, and anything else they would like to share. Adolescents were included in qualitative analysis of each question if they responded to the associated prompt. While the quantitative part of the PFS has been analyzed and reported on in the main outcomes paper (Schleider et al., 2020c), responses to the open-ended questions have not been investigated or reported on prior to the current analyses.

### *Quantitative analyses*

*Preregistered analytic plan.* Prior to conducting any analyses, the analytic plan was preregistered on OSF (<https://osf.io/jk3wr>). This analytic plan included both omnibus tests and pairwise contrasts, such that overall differences across all groups as well as differences between each specific pair of groups could be investigated. Additionally, both the de-identified data used in the current study and the R syntax used to generate results are openly accessible via OSF (<https://osf.io/mzhjk/>). All analyses conducted were planned unless otherwise indicated. As all planned analyses were approached in an exploratory manner, there were no specific hypotheses in the current study.

*Descriptive statistics.* Youths were excluded from current analyses if they did not provide their gender and/or sexual orientation, if they did not respond to more than one of the hopelessness items, more than one of the agency items, or more than one of the self-hate items at baseline or post-intervention, and/or if they did not respond to more than two of the program feedback scale items. These missingness rates are reported in Table 1. The final sample size for the quantitative analyses was 258 (30.6% of youths who began a YES intervention). The final sample size for the TGD group was  $N=74$ ; for LGBQ+ youth,  $N=82$ ; and for cisgender heterosexual youth,  $N=102$ . Using data from this sample, we calculated mean scores and standard deviations of each of the pre- and post-SSI scales assessing hopelessness, agency, and self-hate, as well as of pre-to-post change in each of these scales. The mean score and standard deviation for the post-intervention Program Feedback Scale were also calculated; a mean overall score of  $>3$  reflects overall perceived SSI acceptability (i.e, positive feedback/adequate acceptability). Missingness rates for gender, sexual orientation, and responses to the four scales of interest were calculated.

*Multivariate analysis of variance.* We conducted a multivariate analysis of variance (MANOVA) using LGBTQ+ identity as the categorical independent variable and using the four outcome scales (State Hope Scale, Beck Hopelessness Scale, Self-Hate Scale, and Program Feedback Scale) as continuous dependent variables. Because most reliable and valid measures of depression and anxiety assess symptomatology over a two-week period and our data collection period only spanned pre- to immediately post-SSI, we instead chose to select the more proximally modifiable outcome variables of hope, hopelessness, and self-hate. The values for each outcome measure were residuals derived for each individual participant by regressing their post-intervention score on their pre-intervention score. The LGBTQ+ identity independent

variable included three levels: LGBQ+ (lesbian, gay, bisexual, queer/questioning, and other non-heterosexual orientation), TGD (transgender and gender diverse; i.e., non-cisgender), and neither. To ensure adequate sample sizes in all groups, youths who reported both an LGBQ+ and a TGD identity were included in the TGD category. Average scores on the Program Feedback Scale and average residualized gain scores (residuals from post-intervention scores regressed onto pre-intervention scores) from the State Hope Scale, Beck Hopelessness Scale, and Self-Hate Scale were used as the dependent variables in the MANOVA.

*Follow-up tests.* Based on MANOVA results, we calculated the size of the effect of LGBTQ+ group membership on the post-SSI outcome variables using partial eta-squared  $\eta^2$ . We also conducted two different contrasts on each of the four dependent variables to determine if the LGBTQ+ and cisgender heterosexual identity groups differed from each other on any specific dependent measure(s).<sup>1</sup> The first contrast compared mean outcome variable scores of the combined LGBQ+ and TGD groups (to create a group representing endorsement of any LGBTQ+ identity) versus those for the cisgender/heterosexual group. The second contrast compared mean outcome variable scores for the LGBQ+ group versus those for the TGD group. These tests were orthogonal to each other. For both contrasts, we applied Bonferroni confidence intervals for each of the four dependent variables. As a sensitivity analysis for non-normality, we also conducted Kruskal Wallis H tests alongside the pre-registered MANOVA for comparison purposes.

### *Qualitative analyses*

*Pre-registered analytic plan.* To complement our quantitative assessment of acceptability and effects of Project YES SSIs in LGBTQ+ and cisgender heterosexual youths, we also

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<sup>1</sup> In our preregistration, we had planned to conduct multivariate contrasts on a linear combination of the four variables. However, because analyses revealed no possible linear combination of the four variables, contrasts were formed for each dependent variable sequentially.

conducted a preregistered qualitative analysis on the three open-ended questions included in the Program Feedback Scale: (1) “What are some things you liked about the activity?” (2) “What are some things you would change about the activity?” And (3) “Is there anything else you want to share about your experience with the activity?” After finalizing the thematic approach and corresponding codes, we used standard t-tests to assess whether LGBTQ+ and cisgender heterosexual youth differed in how frequently their responses incorporated each identified theme.

*Theme-generating and decision-making process.* We used a thematic analysis approach to generate, test, and modify thematic categorizations of the qualitative data. To start, we generated a random subsample of 30 youths who responded to the PFS open-ended questions; this subsample was comprised of 10 responses for each question, with each response written by one randomly-selected youth. Each question’s subsample of  $N=10$  was drawn at random from all responses to that question, with responses spread across all three conditions. The two lead investigators (RM & AR) independently identified three sets of themes (one set for each question) based on the 10 randomly selected responses for each question. Next, each investigator implemented these coding schemes on another randomly selected sample of the dataset of the same size as the first ( $N=30$  across three questions), whereby each response was given a zero or one in each category to reflect the presence or absence of that particular element. The first and second authors then discussed the coverage of each person’s individually-generated coding schemes, which were then consolidated to yield one unified coding scheme per question. These investigators applied these unified codebooks to a third randomly selected subsample of the responses ( $N=30$ ), followed by a discussion of findings and a last-round modification in thematic categories. These categories were then applied to the entire dataset of available responses.

*Coding categories.* Based on the thematic analysis process described above, we created binary, non-mutually exclusive coding categories for the first two open-ended questions on the Program Feedback Scale, and binary, mutually exclusive coding categories for the third open-ended question. Category definitions and example responses are provided in supplement B. Coding categories for responses to the first PFS open-ended question, “What are some things you liked about the activity?” included “positivity” (the intervention improved mood), “utility” (the intervention provided applicable skills or insight), “accessibility” (the intervention was easy to use for everyone), “sense of connection” (the intervention made youths feel less isolated or alone), and “content” (the intervention provided information and messaging that youths enjoyed). A score of 1 was assigned to a given coding category when the youth’s response alluded to the corresponding theme; scores were then averaged across groups to ascertain frequency of these themes in the responses. Coding categories for responses to the second PFS open-ended question, “What are some things you would change about the activity?” included “length” (the intervention was too long or short), “interactivity” (the intervention did not provide enough of an active role for youths), “age range” (the intervention is applicable to only a certain age range), “format” (the intervention setup was difficult to navigate), and “content” (the intervention provided information and messaging that youths did not enjoy). Coding categories for responses to the third PFS open-ended question, “Anything else you would like to share about your experience of the activity?” included “positive response,” “critical response,” and “mixed response.”

*Inter-rater reliability.* For the first of the open-ended questions (“What are some things you liked about the activity?”), absolute agreement across the five categories ranged from 90% to 100%. For the second (“What are some things you would change about the activity?”),



absolute agreement ranged from 90% to 100%. For the third (“Anything else you would like to share about your experience of the activity?”), absolute agreement was 100%.<sup>2</sup> Having met the preregistered reliability cutoffs, the researchers proceeded to independently code the rest of the data. Upon disagreement in some categories, the researchers met, redefined and clarified categories as needed, and recoded independently again. A third investigator (JLS) resolved remaining discrepancies. The final codebook is available on OSF (<https://osf.io/mzhjk/>). Additionally, the finalized coding categories, their descriptions, and some examples are included in supplement B.

*Group comparisons.* Due to relatively small subgroup sample sizes for different LGBTQ+ identities within the qualitative responses, we compared thematic endorsement rates only between LGBTQ+ youth responses and cisgender heterosexual youth responses. To compare endorsement frequencies, we conducted one t-test for each of the thirteen thematic categories to assess for any differences in qualitative feedback between LGBTQ+ youths and cisgender heterosexual youths.

## Results

### *Descriptive statistics.*

Among the 258 youths included in the quantitative analyses, 59.7% were between 14 and 16 years old, 18.2% were 17 or older, and 22.1% were 13 or younger. The age distribution was relatively similar across LGBTQ+ identity groups, though more TGD youths were between 14 and 16 years old (71.6%) than were LGBQ youths (54.9%) or cisgender heterosexual youths (54.9%). The proportion of youth of color was also relatively similar across LGBTQ+ identity groups (53.7% of LGBQ+ youths, 40.5% of TGD youths, and 47.1% of cisgender heterosexual

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<sup>2</sup> In our preregistration, we also planned to evaluate kappa levels; however, low endorsement in these small subsamples resulted in the inability to calculate many of the kappa values.

youths). Endorsement of Hispanic identity occurred among 9.8% of LGBTQ+ youths, 14.9% of TGD youths, and 13.7% of cisgender heterosexual youths. The portion of racial, ethnic, gender identity, and sexual orientation identities in the final sample that was used for quantitative analyses did not differ from those of the youths who began an intervention (Table 2). For the overall sample and separately for LGBTQ+, TGD, and cisgender heterosexual youths, we calculated mean scores and standard deviations of each of the pre- and post-SSI scales assessing hopelessness, agency, and self-hate, as well as of pre-to-post change in each of these scales per within-subjects *t* tests (Table 3). Overall and for each subgroup (LGBTQ+, TGD, cisgender heterosexual), youths who completed an SSI and all post-SSI surveys reported significant pre-to-post-program reductions in hopelessness and self-hate, increases in agency, and values of  $>3$  on the program feedback scale implied acceptability and short-term utility of all three SSIs, consistent with the previous report on preliminary Project YES outcomes (Table 3; Schleider et al., 2020c).

*Assumption checks and baseline analyses.*

Univariate and multivariate Shapiro tests indicated non-normality of the data, but because of the large sample size of the present investigation and the robustness of MANOVA analyses to nonnormality, the non-normal distribution of the data is unlikely to bias results. Tests for linearity, multicollinearity, homogeneity of variance, and homogeneity of covariance revealed no violations. A MANOVA with baseline levels of hopelessness, agency, and self-hate as the dependent variables and LGBTQ+ identity as the independent variable revealed trend-level significance in the overall difference in these outcomes across groups (Pillais' Trace of 0.0429,  $F(6, 506) = 1.857$ ,  $p = 0.086$ ). Follow-up ANOVAs on each individual outcome revealed a

significant difference in hopelessness ( $p = 0.048$ ) and self-hate ( $p = 0.006$ ), but not in agency ( $p = 0.441$ ).

*Multivariate analysis of variance.*

Next, we conducted a MANOVA using residualized gain scores for each outcome to assess pre- to post-intervention change. This MANOVA revealed a Pillais' Trace of 0.036,  $F(8, 506) = 1.1555$ ,  $p = 0.325$ , indicating no significant difference across LGBTQ+ and cisgender heterosexual identity groups (LGBQ+, TGD, and neither) for the combination of the dependent variables relating to program effectiveness and acceptability (residualized gain scores in hopelessness, agency, and self-hate, and post-SSI program feedback scale ratings). Means for each of these variables are plotted by group in Figure 1. Kruskal Wallis H tests similarly showed no significant differences on the basis of LGBTQ+ status.

*Follow-up tests on group differences for each of the individual outcome variables.*

Because MANOVAs can only indicate whether LGBTQ+ identity significantly impacts the *combination* of all four outcome variables, we conducted follow-up tests to examine any impact of LGBTQ+ identity on each individual outcome. The partial effect size  $\eta^2 = 0.018$  indicated a small effect; just 1.8% of the variance in SSI acceptability and pre-to-post-SSI changes in hopelessness, agency, and self-hate was accounted for by youths' LGBTQ+ or cisgender heterosexual identity. Additionally, follow-up one-way ANOVAs examining LGBTQ+ identity on each pre-to-post SSI outcome independently yielded the same set of results: no differences by LGBTQ+ identity emerged in pre-to-post-SSI changes in hopelessness  $F(2, 255) = 2.09$ ,  $p = 0.126$ , agency  $F(2, 255) = 0.381$ ,  $p = 0.683$ , self-hate  $F(2, 255) = 0.306$ ,  $p = 0.736$ , or in post-intervention acceptability ratings  $F(2, 255) = 0.729$ ,  $p = 0.483$  (supplement A; these one-way ANOVAs were not preregistered but added post-hoc for additional context). Follow-up

contrasts revealed that none of the SSI acceptability or utility outcomes significantly differed between LGBTQ+ and cisgender heterosexual individuals, or between TGD and LGBQ+ individuals, when assessed individually ( $p$ -values ranging from 0.195-0.887; see Table 4).

Results of post-hoc Kruskal Wallis H tests, which were conducted due to non-normality of the data converged with results of the pre-registered MANOVA, supporting no significant differences in SSI acceptability or utility differences across LGBTQ+ identity groups ( $p$ -values ranging from 0.301-0.885; see supplement A).

#### *Qualitative analyses.*

For the open-ended program feedback questions, 245 youths responded to question one, 244 youths responded to question two, and 120 youths responded to question three; all of these responses were included in the qualitative analyses (Table 1). Among youths who responded to at least one of the three qualitative questions, 40.9% had selected the ABC Project, 40.5% selected Project Personality, and 18.5% selected Project CARE. For each question, response rates were comparable across LGBTQ+ and cisgender heterosexual youths, with 25.1% of LGBTQ+ and 25.8% of cisgender heterosexual youths responding to the first open-ended question, 24.7% of LGBTQ+ and 26.1% of cisgender heterosexual youths responding to the second open-ended question, and 12.4% of LGBTQ+ and 12.5% of cisgender heterosexual youths responding to the third open-ended question. Common themes identified within responses to the “What are some things you liked about the activity” question included Positivity, Utility, Accessibility, Sense of connection, and Content. Common themes identified within responses to the “What are some things you would change about the activity” question included Length, Interactivity, Age range, Format, and Content. For responses to the “Is there anything else you want to share about your experience with the activity” question, mutually-exclusive categories

indicated whether the response was mostly Positive, mostly Critical, or Mixed. Inter-rater reliabilities for the finalized qualitative categories are presented in Table 5. A series of t-tests revealed no significant differences between LGBTQ+ and cisgender heterosexual youths in frequency of endorsement across any of the 13 qualitative coding categories; these results are presented in Table 5.

Overall, the most frequently endorsed theme for the “like” question was content; the least was sense of connection. The most frequently endorsed theme for the “change” question was content; the least was length. Responses to the “anything else” question were most frequently positive. Intervention content appears to be a highly important factor among youths who responded to qualitative questions; content was both the most frequently endorsed positive aspect of the interventions and the most frequently endorsed area requiring change. For the question asking what youths would change about the intervention, no youth mentioned a desire for the intervention to be adapted to their unique needs as an LGBTQ+ individual. For the question asking what youth liked most about the intervention, three youth mentioned the intervention’s inclusivity (e.g., “very inclusive about genders and sexuality” and “I liked how inclusive it was to everybody.”)

### **Discussion**

Because myriad barriers limit access to many mental health interventions, generalized single-session interventions that were designed to be highly accessible may help reach populations that have disproportionate difficulty in accessing mental healthcare, such as LGBTQ+ youth. However, prior to widespread recommendation of these untailored SSIs to this specific population, we first aimed to assess whether they are equally effective and acceptable for LGBTQ+ youth as they are for cisgender heterosexual youths. Both quantitative comparisons

of acceptability and utility and qualitative examinations of intervention feedback indicated that LGBTQ+ youths found a set of online single-session interventions (SSIs) to be just as effective and acceptable as did cisgender heterosexual youths. These results suggest the potential utility of these SSIs as an accessible, subjectively helpful mental health resource for LGBTQ+ youths, who may not otherwise be able to access psychological support.

Youths who completed an SSI within the Project YES platform reported significant improvements from pre-to-post-intervention in clinically relevant constructs (hopelessness, self-hate, perceived agency), and the magnitude of these improvements did not differ by LGBTQ+ identity, despite significant baseline differences in hopelessness and self-hate. Likewise, acceptability ratings of SSIs were statistically indistinguishable across LGBTQ+ identity groups, as was the valence (positive versus negative) and content of open-ended intervention feedback. Furthermore, the portion of the intervention completers that identified as LGBTQ+ did not differ from the portion of those who started but did not complete the intervention, suggesting that LGBTQ+ youth did not drop out at a higher rate than did cisgender heterosexual youth. These results contrast with previous work suggesting lower psychotherapy satisfaction for TGD youths as compared to their cisgender peers (Hollinsaid et al., 2020), but they are consistent with other evidence suggesting equivalent psychotherapy satisfaction across LGBTQ+ identity groups (Bakker et al., 2006; Simeonov et al., 2015). A number of possibilities exist for the high levels of intervention acceptability in LGBTQ+ youths: for one, several youths noted in their qualitative responses that they appreciated the program's inclusivity (presumably indicated by the representative response options for demographic identity questions). Additionally, because the online SSIs within Project YES are anonymous and self-directed, there was no possibility for clinician-driven discrimination or stigmatization. Participation in Project YES was also entirely

anonymous, which may have strengthened feelings of safety. Lastly, results may have differed for a longer-term or clinician-delivered intervention. However, we cannot currently empirically evaluate these possibilities. Ultimately, results suggest that the online SSIs within Project YES are feasible, accessible, and effective mental health resources for LGBTQ+ youths—just as they are for cisgender heterosexual youths—even without culturally-specific tailoring.

The number of youths self-selecting into the project who identified as LGBTQ+ was notable, with over half of the sample identifying as LGBQ+ and nearly a third of the sample identifying as TGD. In contrast, the estimated portion of high school students identifying as LGBQ+ is 15.6% (Centers for Disease Control and Prevention, 2020), and the percent identifying as transgender is 1.8% (Johns et al., 2019). However, these statistics do not take into account rates of other gender diverse youth. Still, the sample had notable rates of sexual and gender diversity. We cannot know with certainty why rates of LGBTQ+ identity were high in the sample, but associations of LGBTQ+ identity with desire for support and with access barriers may be relevant. LGBTQ+ youths seek mental health support more often than cisgender heterosexual youth, yet LGBTQ+ youths are more likely to face access barriers than their heterosexual, cisgender peers, including difficulty gaining parental permission for care. Thus, it follows that LGBTQ+ youths might be drawn to an anonymous, online mental health resource which they can access at no cost.

#### *Limitations and future directions*

Because the sample was recruited largely from social media, the intervention was only available to those with an internet connection, and users self-selected into Project YES, results may not generalize to all youths with mental health needs. Although an estimated 94% of youths have internet access and 81% use social media (U.S. Department of Commerce, 2018; Rideout &

Robb, 2018), this may disproportionately exclude youth often underrepresented in research (e.g., American Indian and Alaska Native youth; KewalRamani et al., 2018). Additionally, due to relatively low sample sizes for most of the specific gender and sexual minority identity groups in both the qualitative and quantitative responses, we were unable to identify any reliable differences in acceptability and response across more nuanced gender identity and sexual orientation groups (such as between transgender and nonbinary individuals, or between monosexual and polysexual individuals). Furthermore, while the single select option for sexual orientation reduces noise in the data, it also prohibits investigation into multiple types of concurrent sexual orientations. Because of the complexity that often accompanies LGBTQ+ identity, the classifications formed in the current study based on self-reported gender identity and sexual orientation are only approximations. Stigma and developmental stage may affect disclosure rates for LGBTQ+ identities, and especially without other information on sexual and romantic attraction and behavior, some youths in the current study may not be accurately classified. Furthermore, there was an insufficient number of transgender and gender diverse heterosexual youth to separate the TGD youths into two heterosexual and LGBQ+ categories; accordingly, there is likely substantial overlap across the TGD and LGBQ+ groups, as many TGD individuals also identified as LGBQ+. However, because of the qualitative differences in lived experience across gender minority youth, sexual minority youth, and youth who identify with both marginalized groups, we determined that an investigation between TGD, LGBQ+, and cisgender heterosexual youth would still be worthwhile.

Future research may clarify whether access barriers relate to differential likelihood of SSI access on the basis of LGBTQ+ identity. Additionally, future work comparing response to and acceptability of a non-tailored SSI against an SSI specifically tailored to LGBTQ+ populations



may clarify the degree to which community-specific tailoring offers incremental utility above and beyond untailored interventions for marginalized youths. Similarly, analyses of the relationship between minority stress and SSI response would be informative, particularly because some marginalized communities and individuals face more frequent or severe minority stressors than others do. Lastly, it is notable that Project YES is an open-access, anonymous program evaluation project; as such, users included in present analyses were youths who were motivated to complete a self-guided, online mental health intervention, introducing selection bias. Certainly, some youths may require additional support to engage with interventions; thus, it is unclear whether results generalize to youths who did not choose to take part in Project YES. However, demographic characteristics of youths who began but did not complete a single-session intervention did not differ from those of youths who completed the intervention, offering some evidence for cross-group generalizability.

### *Conclusion*

Ultimately, results suggest that the Project YES SSIs are useful and acceptable for youths regardless of gender identity or sexual orientation. These anonymous SSIs are freely accessible online, which may increase their appeal as a resource for youths facing barriers to mental health care. Though community-tailored mental health resources remain an ideal option for LGBTQ+ youth when available, generalized and freely-accessible SSIs appear to have the potential to support LGBTQ+ youths who may not otherwise have access to mental healthcare. Strengths of the current investigation include the high portion of the sample identifying as LGBTQ+; indeed, the majority of youth-focused intervention research fails to even assess sexual orientation or gender identity apart from biological sex (Mullarkey & Schleider, 2021). Additionally, the lack of exclusion criteria suggests that the results may apply broadly among youths with internet

access who are interested in online mental health support. Lastly, the combined quantitative and qualitative analyses provide complementary, nuanced information regarding SSI response across LGBTQ+ and cisgender heterosexual youths. Although multi-level supports are needed to fully address mental health needs among LGBTQ+ youths, the online SSIs assessed here may help address longstanding needs for accessible, acceptable, and effective interventions for this underserved population.

### References

- Acevedo-Polakovich, I. D., Bell, B., Gamache, P., & Christian, A. S. (2013). Service accessibility for lesbian, gay, bisexual, transgender, and questioning youth. *Youth & Society, 45*(1), 75-97.
- Almeida, J., Johnson, R. M., Corliss, H. L., Molnar, B. E., & Azrael, D. (2009). Emotional distress among LGBT youth: The influence of perceived discrimination based on sexual orientation. *Journal of Youth and Adolescence, 38*(7), 1001-1014.
- Austin, A., & Craig, S. L. (2015). Empirically supported interventions for sexual and gender minority youth. *Journal of Evidence-Informed Social Work, 12*(6), 567-578.
- Bakker, F. C., Sandfort, T. G., Vanwesenbeeck, I., van Lindert, H., & Westert, G. P. (2006). Do homosexual persons use health care services more frequently than heterosexual persons: Findings from a Dutch population survey. *Social Science & Medicine, 63*(8), 2022-2030.
- Beard, C., Kirakosian, N., Silverman, A. L., Winer, J. P., Wadsworth, L. P., & Björgvinsson, T. (2017). Comparing treatment response between LGBQ and heterosexual individuals attending a CBT-and DBT-skills-based partial hospital. *Journal of Consulting and Clinical Psychology, 85*(12), 1171.
- Brooks, V. R. (1981). *Minority stress and lesbian women*. Free Press.
- Burton, C. M., Marshal, M. P., Chisolm, D. J., Sucato, G. S., & Friedman, M. S. (2013). Sexual minority-related victimization as a mediator of mental health disparities in sexual minority youth: A longitudinal analysis. *Journal of Youth and Adolescence, 42*(3), 394-402.
- Centers for Disease Control and Prevention. (2020). Youth risk behavior survey data. Available at: [www.cdc.gov/YRBSS](http://www.cdc.gov/YRBSS). Accessed on 4.26.21.

- D'augelli, A. R. (2002). Mental health problems among lesbian, gay, and bisexual youths ages 14 to 21. *Clinical Child Psychology and Psychiatry*, 7(3), 433-456.
- Forintos, D. P., Rózsa, S., Pilling, J., & Kopp, M. (2013). Proposal for a short version of the Beck Hopelessness Scale based on a national representative survey in Hungary. *Community Mental Health Journal*, 49(6), 822-830.
- Goldbach, J. T., Tanner-Smith, E. E., Bagwell, M., & Dunlap, S. (2014). Minority stress and substance use in sexual minority adolescents: A meta-analysis. *Prevention Science*, 15(3), 350-363.
- Graham, R., Berkowitz, B., Blum, R., Bockting, W., Bradford, J., de Vries, B., & Makadon, H. (2011). The health of lesbian, gay, bisexual, and transgender people: Building a foundation for better understanding. *Washington, DC: Institute of Medicine*, 10, 13128.
- Gridley, S. J., Crouch, J. M., Evans, Y., Eng, W., Antoon, E., Lyapustina, M., Schimmel-Bristow, A., Woodward, J., Dundon, K., Schaff, R., McCarty, C., Ahrens, K., & Breland, D. J. (2016). Youth and caregiver perspectives on barriers to gender-affirming health care for transgender youth. *Journal of Adolescent Health*, 59(3), 254-261.
- Hatzenbuehler, M. L., McLaughlin, K. A., & 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(12), 1270-1278.
- Hobaica, S., Alman, A., Jackowich, S., & Kwon, P. (2018). Empirically based psychological interventions with sexual minority youth: a systematic review. *Psychology of Sexual Orientation and Gender Diversity*, 5(3), 313.
- Hollinsaid, N. L., Weisz, J. R., Chorpita, B. F., Skov, H. E., Price, M. A., & Research Network on Youth Mental Health. (2020). The effectiveness and acceptability of empirically

- supported treatments in gender minority youth across four randomized controlled trials. *Journal of Consulting and Clinical Psychology*, 88(12), 1053.
- James, S., Herman, J., Rankin, S., Keisling, M., Mottet, L., & Anafi, M. A. (2016). *The report of the 2015 US transgender survey*. Washington, DC: National Center for Transgender Equality. <https://transequality.org/sites/default/files/docs/usts/USTS-Full-Report-Dec17.pdf>
- Johns, M. M., Lowry, R., Andrzejewski, J., Barrios, L. C., Demissie, Z., McManus, T., Rasberry, C. N., Robin, L., & Underwood, J. M. (2019). Transgender identity and experiences of violence victimization, substance use, suicide risk, and sexual risk behaviors among high school students—19 states and large urban school districts, 2017. *Morbidity and Mortality Weekly Report*, 68(3), 67.
- Kelleher, C. (2009). Minority stress and health: Implications for lesbian, gay, bisexual, transgender, and questioning (LGBTQ) young people. *Counselling Psychology Quarterly*, 22(4), 373-379.
- KewalRamani, A., Zhang, J., Wang, X., Rathbun, A., Corcoran, L., Diliberti, M., & Zhang, J. (2018). Student access to digital learning resources outside of the classroom. *NCES 2017-098. National Center for Education Statistics*.
- Marshal, M. P., Dietz, L. J., Friedman, M. S., Stall, R., Smith, H. A., McGinley, J., Thoma, B. C., Murray, P. J., D'Augelli, A. R., & Brent, D. A. (2011). Suicidality and depression disparities between sexual minority and heterosexual youth: A meta-analytic review. *Journal of Adolescent Health*, 49(2), 115-123.

- Meyer, I. H. (2003). Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: conceptual issues and research evidence. *Psychological Bulletin*, 129(5), 674.
- Miu, A. S., & Yeager, D. S. (2015). Preventing symptoms of depression by teaching adolescents that people can change: Effects of a brief incremental theory of personality intervention at 9-month follow-up. *Clinical Psychological Science*, 3(5), 726-743.
- Mullarkey, M. C., & Schleider, J. L. (2021). Embracing scientific humility and complexity: Learning “what works for whom” in youth psychotherapy research. *Journal of Clinical Child & Adolescent Psychology*, 1-7.
- Pachankis, J. E. (2018). The scientific pursuit of sexual and gender minority mental health treatments: Toward evidence-based affirmative practice. *American Psychologist*, 73(9), 1207.
- Rees, S. N., Crowe, M., & Harris, S. (2020). The lesbian, gay, bisexual and transgender communities' mental health care needs and experiences of mental health services: An integrative review of qualitative studies. *Journal of Psychiatric and Mental Health Nursing*, 28(4), 578-589.
- Resnick, B. (2019). These scientists want to make psychotherapy sessions much, much shorter. Internet. *Vox*. <https://www.vox.com/science-and-health/2019/9/17/20827011/teen-depression-anxiety-treatment-single-session>.
- Rideout, V., & Robb, M. B. (2018). *Social media, social life: Teens reveal their experiences*. San Francisco, CA: Common Sense Media.
- [https://www.common Sense Media.org/sites/default/files/uploads/research/2018\\_cs\\_socialmediasociallife\\_executivesummary-final-release\\_3\\_lowres.pdf](https://www.common Sense Media.org/sites/default/files/uploads/research/2018_cs_socialmediasociallife_executivesummary-final-release_3_lowres.pdf)

- Rimes, K. A., Broadbent, M., Holden, R., Rahman, Q., Hambrook, D., Hatch, S. L., & Wingrove, J. (2018). Comparison of treatment outcomes between lesbian, gay, bisexual and heterosexual individuals receiving a primary care psychological intervention. *Behavioural and Cognitive Psychotherapy*, 46(3), 332-349.
- Schleider, J. L., Burnette, J. L., Widman, L., Hoyt, C., & Prinstein, M. J. (2020a). Randomized trial of a single-session growth mind-set intervention for rural adolescents' internalizing and externalizing problems. *Journal of Clinical Child & Adolescent Psychology*, 49(5), 660-672.
- Schleider, J. L., Dobias, M. L., Sung, J. Y., & Mullarkey, M. C. (2020b). Future directions in single-session youth mental health interventions. *Journal of Clinical Child & Adolescent Psychology*, 49(2), 264-278.
- Schleider, J. L., Dobias, M. L., Sung, J. Y., Mumper, E., & Mullarkey, M. C. (2020c). Acceptability and utility of an open-access, online single-session intervention platform for adolescent mental health. *JMIR Mental Health*, 7(6), e20513.
- Schleider, J. L., Mullarkey, M. C., Fox, K., Dobias, M. L., Shroff, A., Hart, E., & Roulston, C. A. (accepted pending minor revisions). A nationwide RCT of single-session interventions for adolescent depression during COVID-19.
- Schleider, J. L., & Weisz, J. R. (2017). Little treatments, promising effects? Meta-analysis of single-session interventions for youth psychiatric problems. *Journal of the American Academy of Child & Adolescent Psychiatry*, 56(2), 107-115.
- Schleider, J. L., & Weisz, J. R. (2018). A single-session growth mindset intervention for adolescent anxiety and depression: 9-month outcomes of a randomized trial. *Journal of Child Psychology and Psychiatry*, 59(2), 160-170.

- Semlyen, J., King, M., Varney, J., & Hagger-Johnson, G. (2016). Sexual orientation and symptoms of common mental disorder or low wellbeing: combined meta-analysis of 12 UK population health surveys. *BMC Psychiatry, 16*(1), 1-9.
- Shearer, A., Herres, J., Kodish, T., Squitieri, H., James, K., Russon, J., Atte, T., & Diamond, G. S. (2016). Differences in mental health symptoms across lesbian, gay, bisexual, and questioning youth in primary care settings. *Journal of Adolescent Health, 59*(1), 38-43.
- Simeonov, D., Steele, L. S., Anderson, S., & Ross, L. E. (2015). Perceived satisfaction with mental health services in the lesbian, gay, bisexual, transgender, and transsexual communities in Ontario, Canada: An Internet-based survey. *Canadian Journal of Community Mental Health, 34*(1), 31-44.
- Snyder, C. R., Simpson, S. C., Ybasco, F. C., Borders, T. F., Babyak, M. A., & Higgins, R. L. (1996). Development and validation of the State Hope Scale. *Journal of Personality and Social Psychology, 70*(2), 321.
- Substance Abuse and Mental Health Services Administration. (2015, October). *Ending conversion therapy: Supporting and affirming LGBTQ youth*. Substance Abuse and Mental Health Services Administration.  
<https://store.samhsa.gov/sites/default/files/d7/priv/sma15-4928.pdf>
- Tiokhin, L., Hackman, J., Munira, S., Jesmin, K., & Hruschka, D. (2019). Generalizability is not optional: insights from a cross-cultural study of social discounting. *Royal Society Open Science, 6*(2), 181386.
- Turnell, A. I., Fassnacht, D. B., Batterham, P. J., Calex, A. L., & Kyrios, M. (2019). The Self-Hate Scale: Development and validation of a brief measure and its relationship to suicidal ideation. *Journal of Affective Disorders, 245*, 779-787.



U.S. Department of Commerce, Census Bureau. (2016-2018). *American Community Survey (ACS)*. See Digest of Education Statistics 2019, table 702.12.

White, B. P., & Fontenot, H. B. (2019). Transgender and non-conforming persons' mental healthcare experiences: An integrative review. *Archives of Psychiatric Nursing*, 33(2), 203-210.

Williams, K. A., & Chapman, M. V. (2011). Comparing health and mental health needs, service use, and barriers to services among sexual minority youths and their peers. *Health & Social Work*, 36(3), 197-206.

**Table 1**

<b>Table 1. Missingness Rates for Youth Who Began a YES Intervention</b>			
Assessment timepoint	Measure	Youth with missing data	
		<i>N</i> (out of 844)	%
Baseline	Gender (multi-select self-report)	4	0.47%
	Sexuality (single-select self-report)	90	10.66%
	Hopelessness (Beck Hopelessness Scale)	0	0.00%
	Agency (State Hope Scale)	0	0.00%
	Self-hate (Self-Hate Scale)	0	0.00%
Post-intervention	Hopelessness (Beck Hopelessness Scale)	559	66.23%
	Agency (State Hope Scale)	564	66.82%
	Self-hate (Self-Hate Scale)	566	67.06%
	Program feedback scale (quantitative)	543	64.34%
	Open-ended feedback (question 1): What are some things you liked about the activity?	599	70.97%
	Open-ended feedback (question 2): What are some things you would change about the activity?	600	71.09%
	Open-ended feedback (question 3): Anything else you would like to share about your experience of the activity?	724	85.78%

**Table 2**

<b>Table 2. Prevalence of Racial, Ethnic, Gender, and Sexual Orientation Identities in the Sample</b>				
Identity	% began an intervention (out of 844)	% in current sample (out of 258)	<i>t</i> -val	<i>p</i> -val
White	49.9%	52.7%	0.745	0.457
Asian	10.1%	8.5%	-0.779	0.437
Black	3.8%	3.5%	-0.240	0.811
Multiracial	8.4%	8.1%	-0.155	0.877
Other race	19.7%	18.6%	-0.407	0.685
Hispanic	7.8%	8.5%	0.635	0.526
TGD	28.7%	28.7%	0.003	0.998
LGBTQ+	56.8%	52.3%	-1.247	0.213

Group	Identity	% in current sample
Sexual orientation (mutually exclusive options)	Asexual	5.8%
	Bisexual	17.1%
	Gay	1.6%
	Heterosexual	46.5%
	Homosexual	0.4%
	Lesbian	5.8%
	Pansexual	6.2%
	Queer	1.9%
	Unsure/questioning	10.9%
	Other	3.9%
Gender identity (multiple selections allowed)	Cisgender female	72.5%
	Cisgender male	20.5%
	Transgender	0.8%
	Male to female transgender	0.4%
	Female to male transgender	1.9%
	Transgender female/feminine	0.4%
	Transgender male/masculine	0.8%
	Nonbinary	4.3%
	Agender	1.2%
	Genderqueer	2.3%
	Androgynous	1.6%
	Gender expansive	1.2%
	Not sure	5.3%
	Other	1.2%

Note: Gender identity groups (TGD and cisgender) were classified based on the question “Do you identify with a gender that is different from your sex assigned at birth?”

**Table 3**

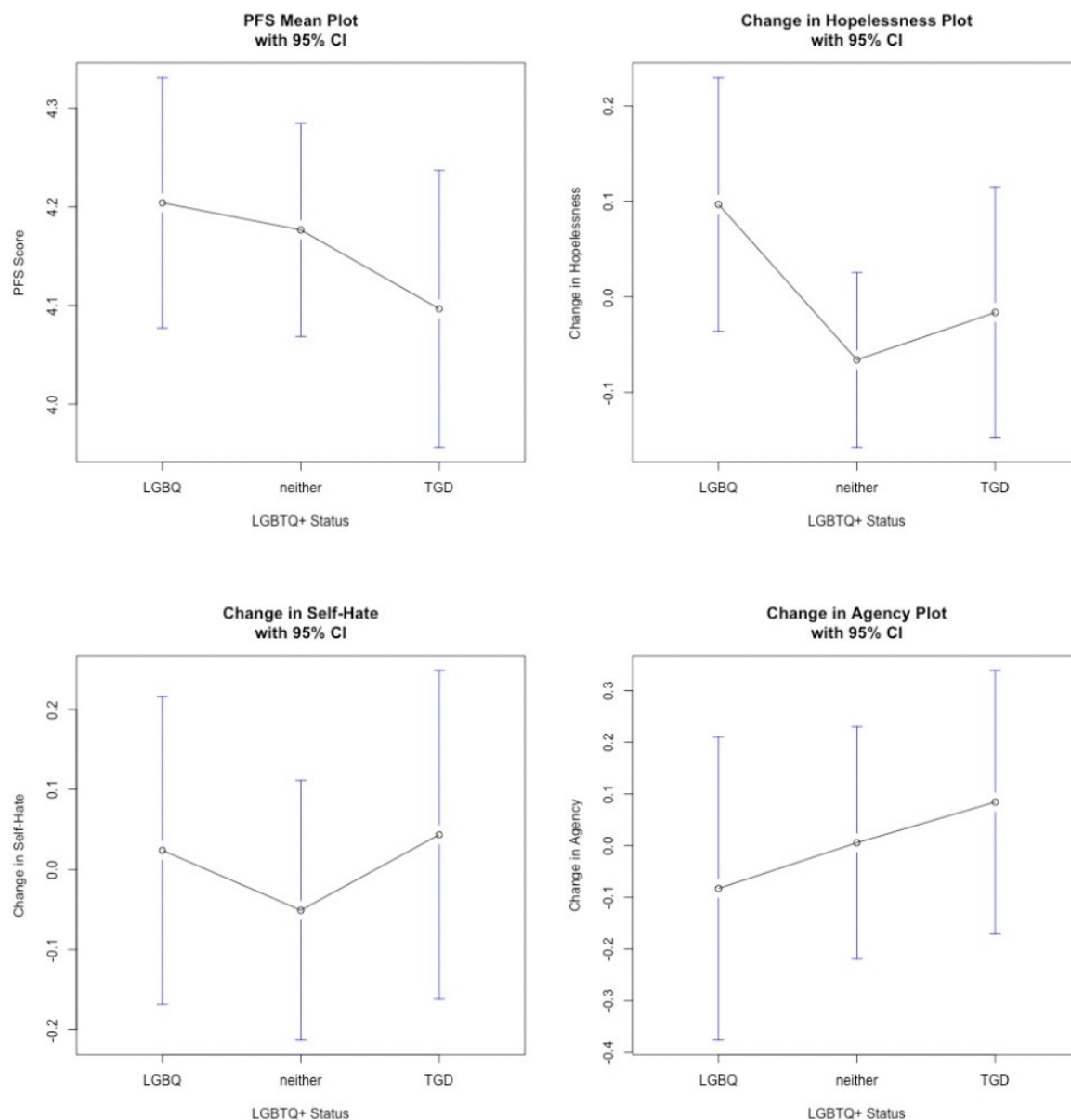
<b>Table 3.</b> Means and Standard Deviations for Quantitative Outcome Measures				
Group	Measure	Mean (SD)		<i>t</i> -val
		Baseline	Post-intervention	
Full sample ( <i>N</i> =258)	Beck Hopelessness Scale	2.56 (0.82)	2.12 (0.79)	<0.001
	State Hope Scale	4.76 (1.60)	5.49 (1.63)	<0.001
	Self-Hate Scale	3.64 (1.66)	3.05 (1.69)	<0.001
	Program Feedback Scale	--	4.16 (0.57)	--
LGBQ+ ( <i>N</i> =82)	Beck Hopelessness Scale	2.62 (0.80)	2.26 (0.88)	<0.001
	State Hope Scale	4.72 (1.71)	5.38 (1.89)	<0.001
	Self-Hate Scale	3.92 (1.58)	3.31 (1.74)	0.001
	Program Feedback Scale	--	4.20 (0.58)	--
TGD ( <i>N</i> =74)	Beck Hopelessness Scale	2.69 (0.76)	2.20 (0.75)	<0.001
	State Hope Scale	4.60 (1.41)	5.46 (1.50)	<0.001
	Self-Hate Scale	3.91 (1.56)	3.32 (1.59)	<0.001
	Program Feedback Scale	--	4.10 (0.61)	--
Cisgender heterosexual ( <i>N</i> =102)	Beck Hopelessness Scale	2.41 (0.85)	1.95 (0.70)	<0.001
	State Hope Scale	4.90 (1.64)	5.60 (1.50)	<0.001
	Self-Hate Scale	3.24 (1.74)	2.64 (1.67)	0.001
	Program Feedback Scale	--	4.18 (0.55)	--

Outcome	Contrast	Estimate	Std. Error	<i>t</i> -val	<i>p</i> -val	C.I. Lower	C.I. Upper
Program Feedback Scale	cisgender heterosexual vs. LGBTQ+	0.047	0.045	0.841	0.401	-0.063	0.156
	LGBQ+ vs. TGD	0.098	0.084	1.164	0.246	-0.068	0.263
Beck Hopelessness Scale	cisgender heterosexual vs. LGBTQ+	-0.040	0.052	-0.760	0.448	-0.143	0.063
	LGBQ+ vs. TGD	0.103	0.079	1.300	0.195	-0.053	0.258
Self-Hate Scale	cisgender heterosexual vs. LGBTQ+	-0.062	0.083	-0.743	0.458	-0.225	0.102
	LGBQ+ vs. TGD	-0.018	0.125	-0.142	0.887	-0.264	0.229
State Hope Scale	cisgender heterosexual vs. LGBTQ+	-0.042	0.116	-0.366	0.715	-0.270	0.186
	LGBQ+ vs. TGD	-0.152	0.174	-0.871	0.384	-0.495	0.191

Note: Hopelessness, self-hate, and agency are calculated using residualized gain scores; these change scores were created for each individual participant by regressing their post-intervention score on their pre-intervention score. For cisgender heterosexual youths, *N*=102; for LGBQ+ youths, *N*=82; for TGD youths, *N*=74; and for LGBTQ+ youths, *N*=156

**Table 5****Table 5. Qualitative Differences between LGBTQ+ and Cisgender Heterosexual Youth**

Question	Ns	Category	Reliability (2 raters)		Endorsement frequency	Mean (SD)		p-val
			Kappa	% Agree		LGBTQ+	cisgender heterosexual	
What are some things you liked about the activity?	LGBTQ+ N=144 Cisgender heterosexual N=101	Positivity	0.902	97.6%	14.69%	0.174 (0.38)	0.109 (0.31)	0.147
		Utility	0.910	95.9%	33.88%	0.333 (0.47)	0.347 (0.48)	0.831
		Accessibility	0.915	97.1%	21.22%	0.250 (0.43)	0.158 (0.37)	0.076
		Connection	0.924	98.8%	8.16%	0.063 (0.24)	0.109 (0.31)	0.213
		Content	0.910	95.5%	47.35%	0.472 (0.50)	0.475 (0.50)	0.963
What are some things you would change about the activity?	LGBTQ+ N=142 Cisgender heterosexual N=102	Length	0.696	98.0%	3.69%	0.021 (0.14)	0.059 (0.24)	0.155
		Interactivity	0.912	99.2%	4.92%	0.035 (0.18)	0.069 (0.25)	0.260
		Age range	0.838	98.4%	4.51%	0.042 (0.20)	0.049 (0.22)	0.805
		Format	0.875	96.7%	16.80%	0.162 (0.37)	0.176 (0.38)	0.768
		Content	0.965	98.4%	36.07%	0.373 (0.49)	0.343 (0.48)	0.630
Is there anything else you want to share about your experience with the activity?	LGBTQ+ N=71 Cisgender heterosexual N=49	Positive response	0.783	89.2%	45.83%	0.437 (0.50)	0.490 (0.51)	0.570
		Critical response	0.827	95.0%	18.33%	0.183 (0.39)	0.184 (0.39)	0.994
		Mixed response	0.599	92.5%	10.00%	0.113 (0.32)	0.082 (0.28)	0.571

**Figure 1****Figure 1. Mean Residualized Gain Scores for Outcome Measures across Groups**

Note: PFS = Program Feedback Scale; LGBQ = lesbian, gay, bisexual, or queer/questioning sexual orientation; TGD = transgender and gender diverse. Change scores were created for each individual participant by regressing their post-intervention score on their pre-intervention score.

**Supplement A****One-way ANOVAs and Kruskal Wallis H Tests**

ANOVA Source Table					
Outcome	Effect	df	MS	F	Sig. (p)
Program feedback	LGBTQ+ Status	2	0.241	0.736	0.483
Change in hopelessness	LGBTQ+ Status	2	0.615	2.090	0.126
Change in self-hate	LGBTQ+ Status	2	0.226	0.306	0.736
Change in agency	LGBTQ+ Status	2	0.545	0.381	0.683

Kruskal Wallis H Test				
Outcome	Effect	df	Chi Sq	Sig. (p)
Program feedback	LGBTQ+ Status	2	1.353	0.509
Change in hopelessness	LGBTQ+ Status	2	2.204	0.301
Change in self-hate	LGBTQ+ Status	2	0.245	0.885
Change in agency	LGBTQ+ Status	2	1.109	0.575



## Supplement B

### Qualitative Coding Categories, Definitions, and Example Responses

Qualitative Coding Categories, Definitions, and Example Responses			
Question	Category	Definition	Example
Liked most?	Positivity	Liked the induction of positive emotion or reduction in negative emotion from the intervention.	"The sense of hope"
	Utility	Liked the skills, tools, and/or perspective offered by the intervention, or found it overall helpful.	"It helps guide you through what to do in a tough time"
	Accessibility	Liked that the intervention was easily understood, easy to use, and applicable to all kinds of people.	"Easy to understand and use"
	Sense of connection	Liked that the intervention made them feel less alone, less misunderstood, or more connected to others.	"Made me feel like I wasn't alone in feeling lethargic"
	Content	Liked the content, the message, and/or the information presented in the intervention.	"How they said your neurons are like drawn with pencil not permanent marker"
Would change?	Length	Wished that the intervention were longer or shorter.	"Maybe make it longer if possible"
	Interactivity	Wished that the intervention were longer or shorter.	"Could be a bit more personalized to a certain person"
	Age range	Wished that the intervention were more tailored to younger or older participants.	"Make it more tuned to all ages maybe have it change a bit if you're older"
	Format	Wished that the intervention had improved or different formatting.	"I wouldn't give a limit on how long the subjects' responses could be"
	Content	Wished that the intervention had improved or different content, messaging, and/or information.	"I would give a different story, along with Kat's"
Anything else?	Positive response	Provided an overall positive response.	"It's refreshed my mood, mind, and made me feel a little joyful from inside"
	Critical response	Provided an overall critical response.	"I'd like to see more techniques of HOW we could improve our brain"
	Mixed response	Provided an overall mixed response.	"I'm not completely sure if this will work for me but I know this might help someone"