Local Evaluation Report

Let's Connect

a Community-Defined Evidence Program (CDEP) for LGBTQ+ people, made possible through funding by the CA Department of Public Health - Office of Health Equity, through a California Reducing Disparities Project Phase 2 grant funded by the Mental Health Services Act (MHSA),
January 2018 – June 2021

San Francisco Community Health Center
August 8, 2021

Executive Summary

Introduction

People who are lesbian, gay, bisexual, transgender, queer, or similarly identified (LGBTQ+) often face unique stressors in life as a result of having a stigmatized sexual orientation or gender identity.[1,2] As a result, they are more likely than heterosexual and cisgender people to experience anxiety and depression[3] or other indicators of poor mental health.[4] These mental health disparities are even more pronounced for LGBTQ+ people of color,[5,6] youth,[7,8] and those who are trans and gender non-conforming.[9] San Francisco is home to the largest proportion of transgender individuals in the state, with roughly 23% of California's transgender population,[10] and the largest percentage of LGBTQ+ people per total population in the United States.[11] As part of the California Reducing Disparities Project, SFCHC therefore aimed to adapt and evaluate a locally-designed communications and mental health intervention known as Let's Connect, originally for the trans population of San Francisco but eventually expanding to virtually serve LGBTQ+ people throughout California.

The Intervention

The "Let's Connect" intervention is a prevention and early intervention program that aims to prevent and/or reduce a number of mental health disparities facing transgender people and LGBTQ youth. Our intervention impacts specific mental health-related problems at the individual level by improving community resilience by developing social support, empowering participants, and reducing stigma, isolation and barriers to care, through culturally and linguistically appropriate community outreach and engagement efforts; early identification and accurate assessment of mental health needs; and addressing the social and environmental determinants of health such as education, employment, and income through the provision of wraparound services.

The core of the program is a series of eight 2-hour sessions, with the following themes:

1. Let's Talk: Who Are You, Who Am I?
2. One Size Does Not Fit All: The Many Shades of Human Relationships
3. Talking Matters: The Power of Your Voice
4. Digging Deeper: What Are You Working With?
5. Same But Different: Taking Chances
6. A Better Way: Conflict Management
7. I'm Sorry: Why Are These Two Words So Hard To Say?
8. It Takes Work: Relationships as Living Beings

At the start of CDEP implementation, the first 5 of these sessions were offered for 2 hours per week for 5 consecutive weeks, with the remaining 3 offered as part of a 2-day retreat in the 6th week. However, during March 2020 all in-person activities were suspended as a result of the COVID-19 pandemic, and by May 2020 the CDEP moved to an all-virtual, 8-week format with 2-hour zoom sessions each week.

In addition to building connections, social support, and empowerment of participants through discussions of identity, communication skills, trusting others, and resolving conflict (see session themes, above), the curriculum incorporated discussions about the unique needs of the participants based on their other meaningful identities, for example, their age, ethnicity, immigrant status or culture more generally. Indigenous knowledge and a focus on intersectional identity was incorporated into the CDEP in a number of ways:

1. There is an entire section of the curricula devoted to consent; within that particular session there is a focus on the ways that power dynamics affect how one can meaningfully provide

consent. We discussed that power dynamics are present within multiple identifies (e.g. age, ethnicity, gender, etc.) including physical ability/disability and neurotypicality/neurodivergence and discuss ways to ensure or advocate for improved consent in varying situations.

2. Intersectionality is an underlying theme, as intersecting identities affect the way that any individual shows up to participate in this component or other intervention components overall. Discussions about these issues naturally differ from cohort to cohort, depending on the makeup of a particular cohort. Staff were experienced and committed to discussing topical issues and jointly determining the best ways to weave these issues throughout the curricula. During this period, race relations and power dynamics related to ethnicity played a prominent role in all sessions, woven into the theme of the week.
3. One of the main themes of Let's Connect is supporting clear and open communication, not shying away from (and in fact actively engaging in) difficult conversations. Participants are encouraged to think through and practice ways to engage in difficult conversations when issues related to intersecting identities and differing power structures cause different perspectives within the group.
4. Staff of the CDEP were 100% LGBTQ+-identified, and were able to use their own indigenous knowledge during development and implementation of the Let's Connect sessions and evaluation.

Enrollment and Implementation

Respondents were recruited to enroll and complete surveys from either the drop-in at SFCHC or the SF LGBT Center, or during COVID-19, via online recruitment via electronic flyers shared through social media and other professional and personal networks. Participants were asked to complete the pre (baseline) survey prior to or during the start of the first cohort session, then the mid survey on the last day of the intervention (at 6 weeks), then the post survey 6 weeks after Let's Connect ended (at 12 weeks). Any person with a California residence zip code who self-identified as LGBTQ and was willing to provide written informed consent and commit to the entire Let's Connect intervention was eligible to enroll.

There were 14 total cycles of Let's Connect. The first 6 cycles were conducted in-person between January 2018 and January 2020, and were restricted to transgender people at SFCHC, or LGBTQ TAY at the SF LGBT Center. However, enrollment was lower than expected and retention was very poor during those first cycles. Some reasons for high attrition rates included high transience in the transgender and LGBTQ populations, largely due to extremely high rates of housing instability; difficulty with stable communication (i.e., difficult to provide reminders of intervention components due to changing mobile phones or emails); and high rates of substance use or untreated mental health concerns, which sometimes served as a barrier to study retention. Starting in May 2020, cohorts were conducted fully online. Eligibility was expanded to include all LGBTQ people living in California. Enrollment increased and retention rates improved considerably; due to the stark differences between the first 6 cohorts and the 8 cohorts conducted from May 2020 through June 2021, only data from participants enrolled in the latter 8 cycles were included in the quantitative analysis.

Quantitative Analysis

For the quantitative analysis, we collected data to measure three outcomes: (1) a validated measure for psychological distress (the Kessler 6[12]), (2) a validated measure for functioning (the Sheehan Disability Scale[13]), which evaluates if an individual's emotions interfered with work performance, household chores, social life, or relationships with friends and family in the previous month, and (3) a composite of two survey questions related to societal isolation and exclusion (referred to as the "isolation" outcome

in our results), which were 5-point Likert scale responses from “None of the time” (0) to “All of the time” (5) for the following questions:

- About how often in the past 30 days were you made to feel unimportant, or like your thoughts, feelings, or opinions don't matter?
- About how often during the past 30 days were you feeling alone, separated from, cut off from the word or your family, school, and friends?

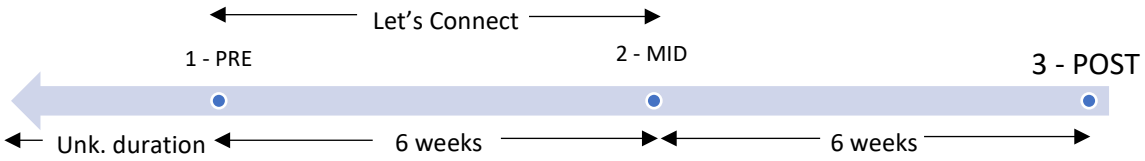
The outcome measures were assessed using the same questions at all three surveys.

Our quantitative analysis was designed to answer two research questions, with findings better understood through the supplemental qualitative research. The questions are:

1. **What is the association between participating in the Let’s Connect intervention and mental health outcomes for LGBTQ+ people in San Francisco, at both 6 weeks (from the beginning of the Let’s Connect intervention until the end of the program), and 12 weeks (from the beginning of the Let’s Connect intervention until six weeks of follow-up)?**
2. **What characteristics are associated with program attrition (loss to follow-up) for LGBTQ+ participants in the Let’s Connect intervention in San Francisco?**

The main mechanism for data collection in this study was a series of paper-and-pencil or online surveys administered to enrolled participants in English or in Spanish. Surveys were created using Questionnaire Development System (QDS™), by Nova Research Company, and were printed or available to be taken online by participants via a dedicated, secure web portal. The survey questions were based on the adult version of the CRDP Statewide Evaluator’s Core Measures Survey; the “pre” survey contained questions about demographics, healthcare access history, and mental health status (built upon the validated CHIS measures[14]). The “mid” and “post” surveys were identical, and included all “pre” survey items in addition to a series of service satisfaction items measuring client perceptions of service quality. These second two surveys also included a series of questions that asks respondents to document the types of supplemental services that were accessed at SFCHC (if any).

Below is a timeline of possible participation, with survey data collected at each of the numbered timepoints.



In the end, during the 8 cycles from May 2020 – June 2021 that were included in the quantitative analysis, we had a final quantitative sample size of 116 people involved in the analysis of Research Question 2, 71 (61%) of whom completed the survey series with sufficient completeness in the outcome measures and were therefore used to answer Research Question 1.

For Research Question 1, we estimated unadjusted differences in outcome measures from pre to mid and post timepoints among the sample of people with complete series (N = 71), using paired t-tests. As shown in the table on the next page, the average value of all three outcome measures decreased substantially between the pre and mid surveys; all of these differences were highly statistically significant ($p < 0.01$). Those same decreases were maintained – and in fact *further decreased* – between the end of the Let’s Connect intervention at 6 weeks and the 12-week follow-up post survey (again $p < 0.01$). However, the decreases in mean outcome scores from mid to post survey were not statistically significant (though the Kessler 6 and Isolation scores had a mean decrease in score with $p < 0.1$).

Unadjusted differences in outcome measures for all observations with non-missing outcome values at relevant timepoints.

Outcome measure	Change from Pre to Mid		Change from Mid to Post		Change from Pre to Post	
	Estimate (95% CI)	p-value	Estimate (95% CI)	p-value	Estimate (95% CI)	p-value
Kessler 6	-2.37 (-3.35, -1.39)	<0.01	-0.72 (-1.54, 0.10)	0.08	-3.08 (-4.06, -2.11)	<0.01
Sheehan Disability Scale	-1.57 (-2.08, -1.07)	<0.01	-0.1 (-0.62, 0.41)	0.69	-1.70 (-2.28, -1.12)	<0.01
Isolation	-0.85 (-1.40, -0.29)	<0.01	-0.38 (-0.82, 0.06)	0.09	-1.23 (-1.77, -0.69)	<0.01

Finally, we conducted an adjusted analysis of differences in outcome scores for participants with complete survey series (N = 71) using generalized estimating equations (GEE) and an independent working correlation structure, adjusting for time as well as race/ethnicity, housing status, gender affirmation by others, gender conformity, sexual orientation, and age.

For Research Question 2, we used t-tests and chi-square tests to evaluate whether there were significant differences in covariates between the group lost to follow up (n=45) and the group who completed the survey series (n=71). Ultimately, there were no significant differences with respect to race/ethnicity, housing status, gender identity, gender conformity, gender affirmation by others, insurance status, health-seeking behavior, location (living in the Bay Area), reported experiences of stigma or discrimination, Kessler 6 score, Sheehan Disability Scale, or isolation score at the baseline survey. However, there *were* significant differences with respect to sexual orientation between the two groups (p = 0.02), with a greater number of people who completed the survey series having bisexual or "other" sexual orientation (as opposed to gay/lesbian or heterosexual orientation) than those lost to follow-up. Similarly, there were statistically significant differences for age (p = 0.003), with those who completed the survey series being considerably younger, on average, than those who were lost to follow-up.

Qualitative Analysis

During the qualitative data collection (limited to a single focus group of 6 participants in January 2020), participants generally recounted that Let's Connect was very helpful as a communications intervention, but most were surprised that it was an intervention designed to improve mental health, instead believing it to be an intervention focused on communication and interpersonal relationships. Participants did have specific suggestions for improvement, including a desire for more frequent sessions, longer cycles, and a generally slower pace, with more time to delve deeply into content.

Conclusions

Ultimately, whether participants in Let's Connect realized they were participating in an intervention focused on communication or mental health, participants in our quantitative analysis did experience substantial improvements in mental health outcomes, on average, between the start and end of this intervention – and those improvements in psychological distress, function, and isolation continued and even deepened in the 6 weeks following the end of the intervention cycle. While our study design does not allow us to be sure that Let's Connect caused these improvements, the fact remains that such mental health improvements were seen during a time when California was experiencing a global pandemic, the worst fire season on record, and an extremely stressful Presidential election. Further study of this intervention – with a proper control group and ideally a randomized design to reduce potential for selection bias in the intervention population – is warranted, given the considerable mental health stress placed on the LGBTQ+ community every day in this country and around the world.

Introduction

People who are lesbian, gay, bisexual, transgender, queer, or similarly identified (LGBTQ+) often face unique stressors in life as a result of having a stigmatized sexual orientation or gender identity.[1,2] As a result, they are more likely than heterosexual and cisgender people to experience anxiety and depression[3] or other indicators of poor mental health.[4] These mental health disparities are even more pronounced for LGBTQ+ people of color,[5,6] youth,[7,8] and those who are trans and gender non-conforming.[9]

Nationally, LGB youth are between two and four times as likely to have attempted suicide as their heterosexual peers and 25% of transgender youth report suicide attempts.[15] LGBTQ+ youth are more than twice as likely as their heterosexual and gender conforming peers to experiment with drugs and alcohol and almost 50% fewer LGBTQ+ youth report being happy (37%) than non-LGBT youth (67%).[16] LGBTQ+ youth are also more likely to have run away and/or live on the street alone than heterosexual, cisgender youth,[17] resulting in disproportionately high rates of HIV risk behaviors, physical victimization, and substance use disorders.[18,19]

Poverty, homelessness, substance use, sex work and isolation are major risk factors contributing to unmet mental health needs and negative mental health outcomes among trans people.[9] In a major survey of LGBTQ people in California, respondents who identified as being on the trans spectrum reported higher rates of emotional difficulties such as stress, anxiety or depression (89% among trans respondents versus 75% overall), higher rates of seriously considering suicide within the past five years (43% among trans respondents versus 23% overall), lower rates of social support (32% of the trans respondents felt “strongly” supported versus 41% of the LGBQ respondents), and lower rates of satisfaction with mental health service providers (31% among trans respondents versus 40% overall).[10]

San Francisco is home to the largest proportion of transgender individuals in the state, with roughly 23% of California’s transgender population,[10] and the largest percentage of LGBTQ+ people per total population in the United States.[11] For these reasons, SFCHC aimed to adapt and evaluate a locally-designed communications and mental health intervention, once it had been adapted and tailored specifically for the transgender and LGBTQ TAY communities of San Francisco. The original intervention, known as “Chai Chats,” was developed by Asian Women’s Shelter, a domestic violence agency in San Francisco, focusing on communication skill development for queer and trans women impacted by intimate partner violence. Based on the positive results from the original curriculum, SFCHC conducted an informal adaptation to broaden the scope of the target population (to encompass all LGBTQ folks) and expand the types of relationships targeted (supportive network versus intimate partnerships).This adapted version of *Let’s Connect* was facilitated with four cohorts with 60 total transgender women, before being proposed as a Community-Defined Evidence Program (CDEP) as part of Phase 2 of the California Reducing Disparities Project (CRDP).

CDEP Purpose, Description, and Implementation

The "Let’s Connect" intervention is a prevention and early intervention program that aims to prevent and/or reduce a number of mental health disparities facing transgender people and LGBTQ youth. Our intervention impacts specific mental health-related problems at the individual level by improving community resilience by developing social support, empowering participants, and reducing stigma, isolation and barriers to care, through:

- Culturally and linguistically appropriate community outreach and engagement efforts;
- Early identification and accurate assessment of mental health needs; and
- Addressing the social and environmental determinants of health such as education, employment, and income through the provision of wraparound services.

The core of the program is a series of eight 2-hour sessions, with the following themes:

1. Let's Talk: Who Are You, Who Am I?
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8. It Takes Work: Relationships as Living Beings

At the start of CDEP implementation, the first 5 of these sessions were offered for 2 hours per week for 5 consecutive weeks, with the remaining 3 offered as part of a 2-day retreat in the 6th week. However, during March 2020 all in-person activities were suspended as a result of the COVID-19 pandemic, and by May 2020 the CDEP moved to an all-virtual, 8-week format with 2-hour zoom sessions each week. The curriculum is led by two facilitators, one of whom is a mental health provider. The inclusion of a mental health provider in the facilitation team allowed for early identification of participants with mental health risk factors or unmet mental health needs. During in-person services prior to COVID-19, the mental health provider/facilitator was able to seamlessly link participants to support services onsite, in an already known, safe, and culturally appropriate environment. However, during COVID-19 eligibility was expanded to people throughout California, and when needs for linkage to more advanced care were identified, the facilitators attempted to research and link participants to suitable providers in their local area. If participants had an immediate crisis response to something in the session, the mental health provider was able to move aside with them (or move into a breakout room, in the virtual format) to discuss and counsel privately in the moment. He was able to then schedule follow-up visits as needed, or do a warm handoff with other mental health staff at SFCHC or in the participant's local area as appropriate.

In addition to building connections, social support, and empowerment of participants through discussions of identity, communication skills, trusting others, and resolving conflict (see session themes, above), the curriculum incorporated discussions about the unique needs of the participants based on their other meaningful identities, for example, their age, ethnicity, immigrant status or culture more generally. Indigenous knowledge and a focus on intersectional identity was incorporated into the CDEP in a number of ways:

5. There is an entire section of the curricula devoted to consent; within that particular session there is a focus on the ways that power dynamics affect how one can meaningfully provide consent. We discussed that power dynamics are present within multiple identifies (e.g. age, ethnicity, gender, etc.) including physical ability/disability and neurotypicality/neurodivergence and discuss ways to ensure or advocate for improved consent in varying situations.
6. Intersectionality is an underlying theme, as intersecting identities affect the way that any individual shows up to participate in this component or other intervention components overall. Discussions about these issues naturally differ from cohort to cohort, depending on the makeup of a particular cohort. Staff were experienced and committed to discussing topical issues and jointly determining the best ways to weave these issues throughout the curricula. During this

period, race relations and power dynamics related to ethnicity played a prominent role in all sessions, woven into the theme of the week.

7. One of the main themes of Let's Connect is supporting clear and open communication, not shying away from (and in fact actively engaging in) difficult conversations. Participants are encouraged to think through and practice ways to engage in difficult conversations when issues related to intersecting identities and differing power structures cause different perspectives within the group.
8. Staff of the CDEP were 100% LGBTQ+-identified, and were able to use their own indigenous knowledge during development and implementation of the Let's Connect sessions and evaluation.

At the start of the intervention, there were other services available to participants as additional components of the CDEP; however, these additional components were discontinued as of March 2020. These components included:

- Access to the TRANS:THRIVE drop-in center at SFCHC and the YouthSpace drop-in center at the SF LGBT Center, both of which offered open access to services and support in a friendly physical space with a reception area, lounge, computer lab, clothing closet, access to a kitchen/food, and a hygiene facility for individuals who do not have access to showers and toilets. These drop-in centers were fully staffed by experienced teams that provided support and linkage to a variety of other wrap-around services. Before COVID-19, more than 600 transgender individuals crossing all ethnic and cultural groups were served each year in the TRANS:THRIVE drop-in space. TRANS:THRIVE is currently the largest program of its kind in the nation, providing wrap-around transgender-specific services through a drop-in center which operates five days per week (over 20 hours per week), with services available in English, French, Spanish, Tagalog, Mandarin, Cantonese, Vietnamese, Khmer, Hawaiian, and Hindi.
- Medical services, available on-site at scheduled times (not always available during all drop-in services). Medical services included HIV & HCV testing, syringe exchange services, primary medical care, HIV care/treatment, and hormone replacement therapy/referrals for sex reassignment surgery.
- Mental health services, available on-site, both through project staff who have training in mental health support and through linkage to more advanced mental health services through SFCHC. Mental health services included one-on-one counseling by licensed mental health professionals and psychiatric services (i.e., medication prescriptions) by licensed prescribers.
- Social support/case management interventions, including formal case management, home visits, risk reduction and substance abuse counseling, employment counseling and educational workshops, and other support for risk reduction and linkage to needed services. Housing support was also offered, though many individuals accessing drop-in struggle with marginal housing and are unable to access affordable housing due to the simple lack of available housing in San Francisco. In these cases, case managers were able to help with shelter referrals and emergency housing arrangements as necessary.
- Peer outreach and peer navigation support, support groups, and skills-building workshops. At TRANS:THRIVE, 12 different groups were held at least once per month until the COVID-19 pandemic. These included:
    1. The Asian & Pacific Islander Transgender Empowerment Group, which is a support group that caters specifically to the needs of the A&PI trans community.
    2. Folks who Feast, where anyone is able to join and enjoy community and a homemade meal, cooked by SFCHC staff.
    3. What the Fun! is a group where participants share a meal and participate in a fun activity, which changes each week.

4. Healthy You is a group for all trans & gender non-conforming folks to share ways to take care of themselves, focusing on a different health topic each week.
5. Neurodivergent group is a social group for all neurodivergent trans and gender non-conforming folks.
6. Seeking Safety is a psychoeducation group that provides mental health information for clients with a history of trauma and substance abuse, focusing on coping skills with safety as the overarching goal. T
7. Trans Empowerment is a structured employment drop-in group facilitated by the Trans Employment Program (TEEI).
8. tm4m is a group for trans men who play with me and the guys who play with them. This group held events regularly at Eros, and advertised as appropriate.
9. Trans feminine group is an after-hours discussion and support group for trans women, primarily geared toward those women who can't make it during daytime drop-in hours.
10. Trans masculine group is an after-hours discussion group focusing on different issues that trans masculine communities face.
11. 50 & Fabulous is a social and support group for all trans and gender non-conforming folks over age 50.
12. Tranzotica is a group for transgender people of color, with a focus on transgender culture. This group was restricted to people of color unless otherwise announced.

Table 1 provides detailed information about the 14 CDEP cycles conducted during the 3.5 year data collection period. Note that the first 6 cycles were conducted in-person and were restricted to transgender people at SFCHC, or LGBTQ TAY at the SF LGBT Center. However, enrollment was lower than expected and retention was very poor during those first cycles. Some reasons for high attrition rates included high transience in the transgender and LGBTQ populations, largely due to extremely high rates of housing instability; difficulty with stable communication (i.e., difficult to provide reminders of intervention components due to changing mobile phones or emails); and high rates of substance use or untreated mental health concerns, which sometimes served as a barrier to study retention. Starting in May 2020, cohorts were conducted fully online. Eligibility was expanded to include all LGBTQ people living in California. Enrollment increased and retention rates improved considerably; due to the stark differences between the first 6 cohorts and the 8 cohorts conducted from May 2020 through June 2021, only data from participants enrolled in the latter 8 cycles were included in the quantitative analysis.

Table 1. Let's Connect cohort cycles, with details of cycle start date, site location, and participation.

Cohort start date	Site	# took pre survey	# continued in cohort	# completed mid	# completed post	% retention from pre	% retention of those who continued in cohort
Jan 2018*	SFCHC	7	5	5	5	71%	100%
April 2018*	LGBT Center	9	6	5	4	44%	67%
Sept 2018*	SFCHC	6	4	4	3	50%	75%
April 2019*	LGBT Center	7	3	3	1	14%	33%
July 2019*	SFCHC	4	2	2	0	0%	0%
Jan 2020*	SFCHC	6	3	0	4[†]	0%	0%
May 2020	SFCHC	8	5	5	5	63%	100%
Sept 2020	SFCHC	17	13	13	13	76%	100%
Oct 2020	SFCHC	17	13	11	10[†]	59%	77%

Dec 2020	SFCHC	17	12	12	12	71%	100%
Feb 2021 (#1)	SFCHC	23	18	18	18	78%	100%
Feb 2021 (#2)	SFCHC	16	7	6	7[†]	44%	100%
Apr 2021 (#2)	SFCHC	23	8	7	6	26%	75%
Apr 2021 (#2)	SFCHC	4	2	1	2[†]	50%	100%
	TOTAL*	**164**	**101**	**92**	**84[†]**	**51%**	**83%**
	TOTAL INCLUDED IN QUANTITATIVE ANALYSIS	**116**	**116**	**71**	**71**	**61%**	**61%**

*Due to struggles with recruitment, poor retention rates, and a different method of intervention delivery than was used beginning May 2020, the 39 individuals enrolled (9 with completed survey series) prior to May 2020 were excluded from the quantitative analysis reported here. An additional 9 individuals who took the pre survey were excluded from the quantitative analysis due to substantially incomplete survey responses, or a missing "mid" (n = 3) or "post" (n = 3) survey, despite the other follow-up survey being completed.

[†]Note that some of the people who completed "post" surveys did not complete "mid" surveys, and therefore were not considered to have completed the series.

More details of the demographics of the people ultimately served by the CDEP and included in the quantitative analysis are included in Table 3, on page 16.

Local Evaluation Questions

Our quantitative analysis was designed to answer two research questions, with findings better understood through the supplemental qualitative research. The questions are:

1. **What is the association between participating in the Let's Connect intervention and mental health outcomes for LGBTQ+ people in San Francisco, at both 6 weeks (from the beginning of the Let's Connect intervention until the end of the program), and 12 weeks (from the beginning of the Let's Connect intervention until six weeks of follow-up)?**

2. **What characteristics are associated with program attrition (loss to follow-up) for LGBTQ+ participants in the Let's Connect intervention in San Francisco?**

There were a number of changes made to our local evaluation questions or our analysis plan over the course of this study. First, in the original study design, we planned to enroll people into an intervention group (which was retained in the revised design), and a comparison group (which was dropped in the first year of implementation). People in the comparison group would have been recruited from the drop-in centers at SFCHC and the SF LGBT Center at the same time Let's Connect participants were being recruited for a new cycle, and would take a pre survey at baseline and a post survey 12 weeks later (when Let's Connect participants were taking their "post" survey and completing the survey series). However, during early cycles this proved extremely challenging: there were challenges with low enrollment across the study overall, and potential participants indicated they were only interested in participating in the intervention group (even if it meant waiting for future cycles) rather than participating in the control group, which ultimately carried lower incentives as a result of substantially less time involvement. Trying to recruit participants simultaneously into both intervention and control groups was also logistically challenging for project staff, who were already feeling overwhelmed by

regular program responsibilities in addition to CDEP evaluation activities. Therefore, within the first year of enrollment the choice was made to abandon the comparison group and disregard study data from those who were comparison group participants only. This meant we were unable to answer 3 initial research questions:

- *What is the effect that 12 weeks of drop-in services have on mental health outcomes for trans people and LGBT TAY in San Francisco?*
- *What is the effect that drop-in for 12+ weeks has on mental health outcomes for trans people and LGBT TAY in San Francisco?*
- *How do participants who self-select into the "drop-in only", "drop-in plus", "Let's Connect and drop-in only" and "Let's Connect and drop-in plus" groups differ?*

An additional change to our research questions involved our inability to collect "dose response" data regarding frequency of participation in drop-in services and other SFCHC wraparound interventions in addition to Let's Connect, once services converted to virtual only due to the COVID-19 pandemic. Our original research question #1 above planned to estimate the association between mental health outcomes and frequency of drop-in utilization as well as type of wraparound services accessed, for those who participated in the Let's Connect intervention. Once these services became unavailable, we were forced to drop the subquestions to Research Question 1.

Finally, we had originally planned a mixed methods design with substantial qualitative components and a fidelity analysis; however, three issues: 1) an underestimate of the time and effort that would be required to recruit and enroll the minimally required number of participants, 2) very frequent turnover among staff at the SF LGBT Center, requiring delays to cycle starts while facilitators were replaced and retrained, and 3) the COVID-19 pandemic with its associated restrictions on in-person activities, led to a focus on implementing the intervention and analyzing the copious amounts of survey data quantitatively, with one focus group conducted to better contextualize quantitative findings. The fidelity analysis, in particular, was considered to be low priority given the number of changes made to the intervention at various times throughout implementation, as detailed here and below in the report.

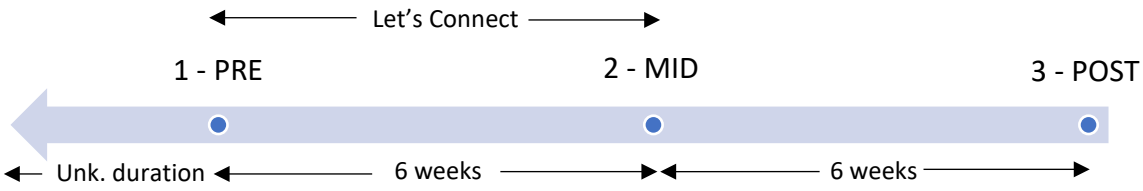
Evaluation Design and Methods

On October 20, 2017, our project (Project #2017=012) was officially found to be Exempt from the State of California's Community for the Protection of Human Subjects (CPHS). This decision was issued under CPHS' Federalwide Assurance #00000681 with the Office of Human Research Protections (OHRP).

Quantitative Design

The main mechanism for data collection in this study was a series of paper-and-pencil or online surveys administered to enrolled participants in English or in Spanish. Surveys were created using Questionnaire Development System (QDS™), by Nova Research Company, and were printed or available to be taken online by participants via a dedicated, secure web portal. The survey questions were based on the adult version of the CRDP Statewide Evaluator's Core Measures Survey; the "pre" survey contained questions about demographics, healthcare access history, and mental health status (built upon the validated CHIS measures[14]). The "mid" and "post" surveys were identical, and included all "pre" survey items in addition to a series of service satisfaction items measuring client perceptions of service quality. These second two surveys also included a series of questions that asks respondents to document the types of supplemental services that were accessed at SFCHC (if any).

Below is a timeline of possible participation, with survey data collected at each of the numbered timepoints.



Research Question 1 was measured by comparing mental health outcome scores from data collection point 1 through data collection point 2, as well as data collection point 1 through data collection point 3.

Research Question 2 was measured by comparing covariates of participants at data collection point 1 who did not complete any further surveys with those who a) complete data collection at point 2 but not point 3, and b) do not complete data collection at any of the "post" timepoints (2 or 3).

Qualitative Design

As stated earlier, we originally planned to conduct a mixed-methods study, with a series of in-depth interviews (5-10 per year) and focus groups (2 per year) to better understand the impact of culture and intersection identities on public health, as well as the effect modification of these factors on the interventions' impact on mental health outcomes. However, as already described, due to the overall time burden of implementing the quantative portion of the study as well as safety restrictions during the COVID-19 pandemic (when the majority of participants were recruited and retained), the qualitative components of this study were eventually dropped with the exception of a single focus group.

Instead of the full qualitative plan, in January of 2020 (by which point 39 total participants had been enrolled, and 9 had been retained for 12 weeks of enrollment), the local evaluator held a single 90-minute focus group with 6 participants, who spoke about their experience within Let's Connect. The focus of this focus group was to incorporate indigenous knowledge into our study analysis and findings, including the role of intersectionality and effect on mental health outcomes and intervention satisfaction, as well as LGBTQ-specific issues such as degree of outness, minority stress, or internalized stigma. To better understand the impact of culture and intersecting identities on mental health, the interview guide began with questions to better understand each interviewee's cultures and identities, as well as questions about the ways they thought these cultures/identities were incorporated and honored during the intervention components (or not). The focus group was facilitated by the local facilitator, who then summarized findings in a document that was shared with participants, CDEP program staff, and CDPH, with the primary goal of improving quality in the CDEP design and delivery, to best meet participant needs. The same methods were used with this single focus group as were intended for the larger qualitative components of the study: thematic analysis was used by the local evaluator to develop a summary of key findings and recommendations for changes to implementation, which were shared with program staff at SFCHC to enable changes to enhance the experience of future participants.

Sampling Methods and Size

Respondents were recruited to enroll and complete surveys from either the drop-in at SFCHC or the SF LGBT Center, or during COVID-19, using convenience sampling via online recruitment via electronic flyers shared through social media and other professional and personal networks. Participants were asked to complete the pre (baseline) survey prior to or during the start of the first cohort session, then the mid

survey on the last day of the intervention (at 6 weeks), then the post survey 6 weeks after Let's Connect ended (at 12 weeks). Purposive sampling was used for the focus group, to ensure a wide variety of former intervention participants who could speak to intersectionality issues and the effect of different cultures on mental health and the impact of Let's Connect.

In the initial design and first four cycles of the CDEP, eligibility for enrollment in cohorts hosted at the SF LGBT Center was defined as an LGBTQ transitional aged youth (TAY), and eligibility for enrollment in cohorts hosted in SFCHC was a trans-identified person of any age. After the fourth cycle, cohorts at the SF LGBT Center were discontinued entirely, and eligibility at SFCHC was expanded to include any person who was LGBTQ, age 18 or older, and able to attend all sessions of the cycle in-person at SFCHC, in alignment with the overall client demographics of SFCHC (which are not exclusively but almost entirely LGBTQ). Starting with cycle 7, the COVID-19 pandemic led to a prohibition on in-person activities, and as the intervention moved online, enrollment eligibility was expanded to any person age 18 or older with a California residence zip code, who self-identified as LGBTQ, was willing to provide written informed consent, and was willing to commit to the entire Let's Connect intervention. From cycles 7 forward, the demographics of the program were similar to those in cycles 5 and 6 (when the eligibility included anyone who was LGBTQ) but fewer older participants enrolled in the virtual sessions (25% age 50+ vs. 11% age 50+) and retention rates were superior with the virtual sessions (57% retained vs. 69% retained).

We did not randomize participants to the Let's Connect intervention for ethical reasons during any of the cycles - in many cases the services available as part of these intervention components are the only culturally competent options within San Francisco. Therefore, we did not restrict access to any intervention components. If we were randomizing participants into the Let's Connect intervention and a comparison group, the difference in the proportion of participants responding to the intervention (as defined in terms of improvement in mental health indicators) could be directly attributed to the Let's Connect intervention. However, since no randomization took place, our statistical models controlled for covariates, including baseline health and demographic characteristics.

For our original power analysis, we assumed 10 Let's Connect participants would be enrolled and complete the baseline survey, per cycle, across 12 cycles (initial n = 120). Assuming that 80% would complete the 6 weeks of the Let's Connect intervention, that will give us a sample size of 96 (data collection timepoint 2); assuming that 80% of the participants who completed the first 6 weeks of the Let's Connect intervention also complete the post-assessment at 12 weeks (data collection timepoint 3), that will give us a sample size of 77 people in the Let's Connect group with a completed survey series, to fully answer Research Question 1.

For our two outcome measures, we estimated that the standard deviation of differences between pre and post Kessler 6-Item scores is 6.1, and the standard deviation of pre and post differences in functioning (Sheehan Disability Scale) is 2.5, with an estimated standard deviation of 2.2 of differences between pre and post isolation/exclusion scores. We used simulations to estimate the minimum detectable changes in Kessler 6, Sheehan Disability Scale, and isolation scores after participation in the Let's Connect intervention, under the assumption that 96 participants will have completed a baseline assessment and a post-assessment at 6 weeks and 77 participants will have completed a baseline assessment and post-assessments at 6 and 12 weeks. All power calculations for the Let's Connect intervention used a significance level of 0.05 for a population average model estimated by generalized estimating equations (GEE). We estimated that the grand mean for the Kessler 6-Item scores is 12.8, the between-cluster variance is 38.1, and the within-cluster variance is 20.3; based on these parameter estimates and estimated sample size, our study would have 80% power to detect a 1.85 difference in mean Kessler 6 score between baseline and 6 week follow-up and a 2.15 difference in mean Kessler 6 score between baseline and 12 week follow-up. Based on an estimated grand mean of 4.8, between-

cluster variance of 5, and within-cluster variance of 3.7 for the Sheehan Disability Scale, the study would have 80% power to detect a 0.78 point difference in mean functioning score between baseline and 6 week follow-up and a 0.89 point difference in mean functioning score between baseline and 12 week follow-up at a significance level of 0.05 using a population average model. Additionally, using an estimated grand mean of 4.5, between-cluster variance of 5.3, and within-cluster variance of 3.4 for the isolation index, this study would have 80% power to detect a 0.76 point difference in mean isolation score between baseline and 6 week follow-up and a 0.88 point difference in mean isolation between baseline and 12 week follow-up.

In the end, during the 8 cycles from May 2020 – June 2021 that were included in the quantitative analysis, we had a final quantitative sample size of 116 people involved in the analysis of Research Question 2, 71 (61%) of whom completed the survey series with sufficient completeness in the outcome measures and were therefore used to answer Research Question 1.

Details on the demographics of individuals retained in the final sample is available in Table 3 on page 16. As is shown in the Results section, there were no statistically significant differences between the demographics of the group retained in the survey and the group lost to follow-up. However, without demographic data on people who saw advertisements for study enrollment but declined to enroll, we are unable to say with certainty whether the evaluation sample is representative of the large population of eligible LGBTQ+ Californians.

Measures and Data Collection Procedures

For the quantitative analysis, we collected data to measure three outcomes: (1) a validated measure for psychological distress (the Kessler 6[12]), (2) a validated measure for functioning (the Sheehan Disability Scale[13]), which evaluates if an individual's emotions interfered with work performance, household chores, social life, or relationships with friends and family in the previous month, and (3) a composite of two survey questions related to societal isolation and exclusion (referred to as the "isolation" outcome in our results), which were 5-point Likert scale responses from "None of the time" (0) to "All of the time" (4) for the following questions:

- About how often in the past 30 days were you made to feel unimportant, or like your thoughts, feelings, or opinions don't matter?
- About how often during the past 30 days were you feeling alone, separated from, cut off from the word or your family, school, and friends?

The outcome measures were assessed using the same questions at all three surveys.

The Kessler 6 score measured an individual's psychological distress (e.g., feelings of nervousness and hopelessness) over the previous 30-day period; this score ranges from 0 to 24. To calculate a participant's Kessler 6-Item distress score, six survey questions were coded from 0 ("none of the time") to 4 ("all of the time"), and the sum was taken over all six items. For individuals missing no more than half of the distress-related survey questions, missing values to one or more questions were imputed using the individual's mean, which is calculated by taking the mean over the non-missing items for each individual.[20] Participants missing more than half of the Kessler 6 items were excluded from the analysis.

The Sheehan Disability Scale measure ranges from 0 to 8. Each of the four survey questions that constituted this index were coded from 0 ("not at all") to 2 ("a lot"), and the sum was taken over the four items. Responses of "N/A," "don't know," or "refused" to these four questions were coded as missing; for individuals missing responses to no more than half of the four functioning questions, missing values were imputed using the individual mean.

To measure isolation, responses to the two survey questions described above were coded from 0 ("none of the time") to 4 ("all of the time") and summed. If participants only responded to one of these two questions, the response from the completed question was used to impute the missing value. Participants missing responses to both questions were excluded from this portion of the analysis.

Additional demographic and behavioral information used as covariates in our models to answer our Research Questions, were collected on the baseline survey. Table 2 on the following page outlines each of the covariates captured during the baseline survey, and how they were measured or summarized in our analysis.

Table 2. Baseline covariates and method of summary.

Covariate	Method of classification
Age	Count (age rounded to nearest whole number)
Race/ethnicity	White (self-reported white ethnicity with no other race/ethnic categories selected); BIPOC (self-reported monorace of Black, Latinx, Asian, Other); Multiracial (self-selection of more than one racial/ethnic category).
Housing status	Stably housed (rent/own); Unstably housed/Unhoused (e.g., shelter, couch surfing, living on the streets or in a park). Unstably housed and unhoused were collapsed into one category for analysis due to very small numbers of unhoused people after the intervention became virtual starting May of 2020.
Sexual orientation	Gay/lesbian; bisexual; other. For purposes of analysis, people who identified as heterosexual were grouped into the "other" category due to small numbers, as this was an LGBTQ-focused intervention. People who identified as "queer" were categorized according to other choices (i.e., "gay" and "queer" would result in a categorization as "gay"); if no other options were picked they were categorized as "other."
Gender identity	Cisgender (man only, or woman only, and gender aligned with sex at birth); or Transgender/Other (all other gender/sex combinations). Small sample size prevented further breakdown of the transgender/other gender category in our statistical models.
Gender conformity	Gender normative (if gender = man and both self-perception and others' perception of appearance, style and mannerisms is "somewhat" to "very" masculine; alternatively, if gender = woman and both self-perception and others' perception of appearance, style and mannerisms is "somewhat" to "very" feminine); gender non-conforming (all other combinations).
Gender affirmation	Mean score of 11 questions related to level of gender affirmation (from 0 = totally invalidating to 4 = totally affirming) for various relationships, including parents/guardians, siblings, extended family, children, friends, partner(s), coworkers, neighbors, medical providers, mental health providers, and an additional "Other" group that individuals could specify themselves.
Experience of stigma/discrimination	Mean score on 9 questions asking whether subject has experienced different forms of stigma or discrimination, on a scale of 0 (never) to 5 (almost every day).
Health insurance status	Currently insured with mental health coverage; currently insured but without mental health coverage; insured within the past 12 months but not currently insured; or uninsured now and for the past 12 months.

Health-seeking behavior	Did not seek help but did not think they needed any; thought they needed help but did not seek any; sought help. Participants were classified based on their responses to a series of questions regarding if they felt they needed to seek help from professionals (including but not limited to culturally-based healers, religious/spiritual leaders, health workers, promoters, peer counselors, case managers, physicians or general practitioners, and/or mental health professionals) and whether or not the individuals met with any of these types of professionals in the past 12 months.
Location	In Bay Area (zip code corresponding to San Francisco, Alameda, Contra Costa, Marin, San Mateo, or Santa Clara counties); Outside of Bay Area (zip code corresponding to another California county).

Fidelity and Flexibility

Due to the COVID-19 pandemic, no formal assessment of CDEP implementation fidelity was conducted, as had been originally planned. However, findings from the focus group conducted in January 2020 were helpful to understand whether the CDEP was working as well as possible, and whether changes to intervention design or implementation could have been made to better meet the needs of participants. No major changes to intervention design or implementation were warranted per the focus group.

Data Analysis

Our first research question assesses changes in mental health outcomes before and after participation in the Let's Connect intervention with varying periods of follow-up. Therefore, associations were estimated with population average models using generalized estimating equations (GEE) for differences in mental health outcome scores from baseline to each follow-up survey, with time as an independent categorical variable. The parameter estimates from this model represent the mean change in mental health outcome scores between the beginning and end of the Let's Connect intervention, and the mean change in the mental health outcome scores between the beginning of the intervention and the end of the 6-week follow-up period. We used an independent working correlation model with robust standard errors, and performed a sensitivity analyses using a first-order autoregressive working correlation structure.

Qualitative data (the focus group) were analyzed by the local evaluator using thematic analysis, and a written summary was produced following the focus group and shared with CDEP program staff for use.

Results

Quantitative Data Findings

The table below outlines the demographic and behavioral breakdown of participants in the final quantitative sample, distinguishing between those who completed the survey series and those who took the baseline survey but were then lost to follow-up. Note that for this table and for analyses related to Research Question 2, we excluded 6 people who took a pre and post survey but skipped the mid survey, and 3 who took a pre and mid survey but were lost to follow-up before the post survey.

Table 3. Descriptive statistics of key demographics in the final quantitative sample.

	Took pre, mid, and post surveys (N=71)	Lost to follow-up (no mid or post) (N=45)	Overall (N=116)
Race/Ethnicity			
American Indian	0 (0%)	0 (0%)	0 (0%)
Black	1 (1.4%)	1 (2.2%)	2 (1.7%)
Latinx	8 (11.3%)	6 (13.3%)	14 (12.1%)
Asian	21 (29.6%)	4 (8.9%)	25 (21.6%)
Native Hawaiian	0 (0%)	0 (0%)	0 (0%)
White	13 (18.3%)	15 (33.3%)	28 (24.1%)
Other	0 (0%)	0 (0%)	0 (0%)
Multiracial	25 (35.2%)	18 (40.0%)	43 (37.1%)
Missing	3 (4.2%)	1 (2.2%)	4 (3.4%)
Gender Identity			
Cisgender	19 (26.8%)	10 (22.2%)	29 (25.0%)
Transgender/Other	52 (73.2%)	34 (75.6%)	86 (74.1%)
Missing	0 (0%)	1 (2.2%)	1 (0.9%)
Gender Conformity			
Normative	16 (22.5%)	11 (24.4%)	27 (23.3%)
Nonconforming	54 (76.1%)	33 (73.3%)	87 (75.0%)
Missing	1 (1.4%)	1 (2.2%)	2 (1.7%)
Gender affirmation by others			
Mean (SD)	2.94 (0.821)	2.98 (0.797)	2.95 (0.809)
Median [Min, Max]	3.00 [1.17, 4.00]	3.00 [0.70, 4.00]	3.00 [0.70, 4.00]
Age (years)			
Mean (SD)	28.9 (8.67)	36.3 (14.2)	31.8 (11.7)
Median [Min, Max]	26.3 [19.4, 61.6]	31.5 [18.4, 70.6]	28.3 [18.4, 70.6]
Housing Status			
Stably housed	56 (78.9%)	35 (77.8%)	91 (78.4%)
Unstably housed/Unhoused	15 (21.1%)	8 (17.8%)	23 (19.8%)
Missing	0 (0%)	2 (4.4%)	2 (1.7%)
Insurance Status			
Insured with mental health coverage	47 (66.2%)	24 (53.3%)	71 (61.2%)
Insured but no mental health coverage	14 (19.7%)	11 (24.4%)	25 (21.6%)
Insured in past 12 mos but not currently	6 (8.5%)	5 (11.1%)	11 (9.5%)
Uninsured now and for past 12 mos	4 (5.6%)	1 (2.2%)	5 (4.3%)
Health Seeking Behavior			
Did not need or use services	3 (4.2%)	3 (6.7%)	6 (5.2%)
Needed services but did not go	7 (9.9%)	8 (17.8%)	15 (12.9%)
Used services	60 (84.5%)	30 (66.7%)	90 (77.6%)
Missing	1 (1.4%)	4 (8.9%)	5 (4.3%)
Sexual Orientation			
Heterosexual	1 (1.4%)	2 (4.4%)	3 (2.6%)

Gay/Lesbian	4 (5.6%)	10 (22.2%)	14 (12.1%)
Bisexual	19 (26.8%)	12 (26.7%)	31 (26.7%)
Other	47 (66.2%)	20 (44.4%)	67 (57.8%)
Missing	0 (0%)	1 (2.2%)	1 (0.9%)
Reported experience of stigma/discrimination			
Mean (SD)	1.99 (1.06)	2.23 (1.24)	2.08 (1.14)
Median [Min, Max]	1.89 [0, 4.78]	1.89 [0, 5.00]	1.89 [0, 5.00]
Location			
Outside of Bay Area (in CA)	25 (35.2%)	11 (24.4%)	36 (31.0%)
In Bay Area	45 (63.4%)	31 (68.9%)	76 (65.5%)
Missing	1 (1.4%)	3 (6.7%)	4 (3.4%)

The table below summarizes the mean and standard deviation of each outcome measure at baseline, stratifying by those who completed the survey series (N = 71) and those who were lost to follow-up after completing the pre survey (N = 45), along with the total number of participants who provided sufficient responses to that particular outcome measure to be included in the analyses of that outcome.

Table 4. Mean of outcome measures at baseline.

	Overall (N=116)			Observations in pre, mid, and post surveys (N=71)			Observations in pre survey only (lost to follow-up) (N=45)		
	n	Mean	SD	n	Mean	SD	n	Mean	SD
Kessler 6	115	13.78	5.63	71	13.48	5.65	44	14.27	5.62
Sheehan Disability Scale	111	6.41	1.96	70	6.41	2	41	6.41	1.9
Isolation	113	4.87	2.02	71	4.83	1.99	42	4.93	2.08

We then used a t-test to assess whether there was a statistically significant difference between the mean scores at baseline on the three outcome measures, as well as for age, gender affirmation by others, and feelings of discrimination at baseline (three continuous covariates) for those who completed the survey series and those who were lost to follow-up after completing the pre survey.

Table 5. Mean differences in continuous baseline values between those who completed only a pre survey and those with pre, mid, and post surveys.

Outcome measure	Mean difference (Pre only vs. pre, mid, and post)	95% CI	p-value
Kessler 6	0.79	(-1.35, 2.94)	0.46
Sheehan Disability Scale	0	(-0.76, 0.76)	<0.01
Isolation	0.1	(-0.69, 0.89)	0.81
Age	7.4	(2.69, 12.1)	0.003
Gender affirmation by others	0.04	(-0.27, 0.35)	0.28
Reported stigma/discrimination	0.25	(-0.20, 0.7)	0.28

Similarly, we conducted a chi-square test for independence to assess differences in baseline values for categorical covariates, between those who completed the survey series and those who were lost to follow-up after completing the pre survey.

Table 6. Chi-square statistics to assess differences in categorical baseline values between those who completed only a pre survey and those with pre, mid, and post surveys.

Covariate	Chi-square statistic	p-value	Degrees of freedom
Race/ethnicity	5.18	0.07	2
Housing status	0.01	0.93	1
Insurance status	1.79	0.62	3
Health-seeking behavior	2.67	0.26	2
Sexual orientation	7.91	0.02	2
Gender identity	0.07	0.79	1
Gender conformity	0	0.97	1
Living in the Bay Area	0.7	0.4	1

Ultimately, there were no significant differences between the group lost to follow up (n=45) and the group who completed the survey series (n=71) with respect to race/ethnicity, housing status, gender identity, gender conformity, gender affirmation by others, insurance status, health-seeking behavior, location (living in the Bay Area), reported experiences of stigma or discrimination, Kessler 6 score, Sheehan Disability Scale, or isolation score at the baseline survey. However, there *were* significant differences with respect to sexual orientation between the two groups ($p = 0.02$), with a greater number of people who completed the survey series having bisexual or "other" sexual orientation (as opposed to gay/lesbian or heterosexual orientation) than those lost to follow-up. Similarly, there were statistically significant differences for age ($p = 0.003$), with those who completed the survey series being considerably younger, on average, than those who were lost to follow-up.

For those who completed the survey series, we also wanted to look at the means of outcome measures at the mid survey (immediately following the close of the Let's Connect intervention) and the post survey (6 weeks after the intervention had ended), to assess durability of effect. Table 7 shows the means of the outcome measures at each survey timepoint.

Table 7. Means of outcome measures at mid and post surveys for those with complete series (N=71).

	Mid survey			Post survey		
	n	**Mean**	**SD**	**n**	**Mean**	**SD**
Kessler 6	71	11.11	5.8	71	10.39	5.7
Sheehan Disability Scale	70	4.76	2.36	71	4.65	2.36
Isolation	71	3.99	2.15	71	3.61	2.22

To further explore durability of effect, we calculated the Pearson correlation coefficient for each of the participants with complete survey series for each outcome score. As can be seen in Table 8, the correlation of baseline and mid outcome measures ranged from relatively low (0.37) for isolation scores to strong (0.74) for the Kessler 6. The correlation of mid and post outcome measures ranged from moderate (0.58 and 0.63 for the Sheehan Disability Scale and isolation score, respectively) to strong (0.82) for the Kessler 6. Finally, the correlation of pre and post outcome measures ranged from relatively low (0.36 and 0.42 for the Sheehan Disability Scale and isolation score, respectively) to strong (0.74) for the Kessler 6.

Table 8. Correlation of pre-, mid-, and post-survey outcome measures, matched by participant

	Pre and Mid		Mid and Post		Pre and Post	
	n	Pearson Correlation Coefficient (N=71)	n	Pearson Correlation Coefficient (N=71)	n	Pearson Correlation Coefficient (N=71)
Kessler 6	71	0.74	71	0.82	71	0.74
Sheehan Disability Scale	69	0.53	70	0.58	70	0.36
Isolation	71	0.37	71	0.63	71	0.42

Once we had assessed for potential selection bias in our sample, evaluated the mean outcome scores at each timepoint, and estimated the correlation between baseline and follow-up outcome scores matched by participant, we proceeded to estimate unadjusted differences in outcome measures from pre to mid and post timepoints among the sample of people with complete series (N = 71), using paired t-tests.

Table 9. Unadjusted differences in outcome measures for all observations with non-missing outcome values at relevant timepoints.

	Change from Pre to Mid		Change from Mid to Post		Change from Pre to Post	
Outcome measure	Estimate (95% CI)	p-value	Estimate (95% CI)	p-value	Estimate (95% CI)	p-value
Kessler 6	-2.37 (-3.35, -1.39)	<0.01	-0.72 (-1.54, 0.10)	0.08	-3.08 (-4.06, -2.11)	<0.01
Sheehan Disability Scale	-1.57 (-2.08, -1.07)	<0.01	-0.1 (-0.62, 0.41)	0.69	-1.70 (-2.28, -1.12)	<0.01
Isolation	-0.85 (-1.40, -0.29)	<0.01	-0.38 (-0.82, 0.06)	0.09	-1.23 (-1.77, -0.69)	<0.01

As can be seen from Table 9, the average value of all three outcome measures decreased between the pre and mid surveys; all of these differences were highly statistically significant ($p < 0.01$). Those same decreases were maintained – and in fact *further decreased* – between the end of the Let's Connect intervention at 6 weeks and the 12-week follow-up post survey (again $p < 0.01$). However, the decreases in mean outcome scores from mid to post survey were not statistically significant (though the Kessler 6 and Isolation scores had a mean decrease in score with $p < 0.1$).

Finally, we conducted an adjusted analysis of differences in outcome scores for participants with complete survey series (N = 71) using generalized estimating equations (GEE) and an independent working correlation structure, adjusting for time as well as race/ethnicity, housing status, gender affirmation by others, gender conformity, sexual orientation, and age.

Table 10. Adjusted estimates for differences in outcomes for individuals with complete survey series.

	Kessler 6 Estimate (95% CI)	Sheehan Disability Scale Estimate (95% CI)	Isolation Estimate (95% CI)
Mid	-2.40*** (-3.38, -1.42)	-1.74*** (-2.23, -1.25)	-0.94*** (-1.49, -0.40)
Post	-3.03*** (-4.03, -2.03)	-1.88*** (-2.45, -1.30)	-1.24*** (-1.78, -0.70)
Race/ethnicity			
BIPOC	1.28 (-1.63, 4.19)	-0.29 (-1.42, 0.84)	0.64 (-0.29, 1.57)
Multiracial	0.88 (-2.35, 4.10)	-0.25 (-1.47, 0.97)	0.74 (-0.18, 1.66)
White	*ref*	*ref*	*ref*

Housing status			
Unstably housed/Unhoused	5.49*** (3.01, 7.96)	0.94** (0.07, 1.80)	1.45*** (0.66, 2.24)
Stably housed	*ref*	*ref*	*ref*
Gender affirmation	-1.44* (-3.02, 0.15)	-0.42 (-0.99, 0.15)	-0.62*** (-1.09, -0.16)
Gender conformity			
Gender nonconforming	-1.2 (-4.29, 1.89)	0.12 (-1.02, 1.26)	-0.53 (-1.42, 0.36)
Gender normative	*ref*	*ref*	*ref*
Sexual orientation			
Bisexual	3.77* (-0.23, 7.76)	2.53*** (1.42, 3.64)	1.99*** (0.97, 3.02)
Other orientation	2.15 (-1.46, 5.76)	2.26*** (1.21, 3.31)	1.30*** (0.42, 2.18)
Gay/lesbian	ref	ref	ref
Age	-0.11 (-0.25, 0.03)	-0.04 (-0.11, 0.03)	0.01 (-0.02, 0.05)
Observations	204†	202§	204†

Notes:

*p<0.1; **p<0.05; ***p<0.01

† For these measures, there were 71 unique people with 1 observation at each of the three timepoints

§ For this measure, there were 69 unique people with 1 observation at each of 3 timepoints, and 2 people with 1 observation at 2 of the 3 timepoints

Between the baseline and mid surveys, the mean Kessler 6 score decreased by an estimated 2.4 points on the scale of 0 – 24, when adjusting for race/ethnicity, housing status, gender affirmation, gender conformity, sexual orientation, and age, and this decrease was statistically significant ($p < 0.01$). Similarly, between the baseline and post surveys, the mean Kessler 6 score decreased by an estimated 3.03 points, adjusting for race/ethnicity, housing status, gender affirmation, gender conformity, sexual orientation, and age, and again this decrease was statistically significant ($p < 0.01$). Throughout the study, the mean Kessler 6 score was 5.49 points higher (on a scale of 0 – 24) among those who were unstably housed or unhoused as compared to those living in stable housing after adjusting for time, race/ethnicity, gender affirmation, gender conformity, sexual orientation, and age, and this difference was statistically significant ($p < 0.01$). None of the other covariates showed statistically significant differences related to the Kessler 6 scores during the study.

For the Sheehan Disability Scale, the score between the baseline and mid surveys decreased by an estimated 1.74 points on the scale of 0 – 8, when adjusting for race/ethnicity, housing status, gender affirmation, gender conformity, sexual orientation, and age, and this decrease was statistically significant ($p < 0.01$). Similarly, between the baseline and post surveys, the mean Sheehan Disability Scale score decreased by an estimated 1.88 points, adjusting for race/ethnicity, housing status, gender affirmation, gender conformity, sexual orientation, and age, and this decrease was again statistically significant ($p < 0.01$). Like with the Kessler 6, throughout the study the mean Sheehan Disability Scale score was 0.94 points higher among those who were unstably housed or unhoused as compared to those living in stable housing after adjusting for time, race/ethnicity, gender affirmation, gender conformity, sexual orientation, and age, and this difference was again statistically significant ($p < 0.05$). However, with the Sheehan Disability Scale, the mean scores throughout the study were 2.53 points higher among those who identified as bisexual ($p<0.01$) and 2.26 points higher among those who identified with another sexual orientation ($p<0.01$), when compared to those who identified as gay/lesbian, after adjusting for time, race/ethnicity, housing status, gender affirmation, gender conformity, and age. The Sheehan Disability Scale evaluates whether an individual's emotions are interfering with work performance, household chores, social life, or relationships with friends and family; this statistically significant difference in function by sexual orientation is a notable finding that

warrants further exploration. None of the other covariates showed statistically significant differences related to the Sheehan Disability Scale scores during the study.

Finally, between the baseline and mid surveys, the mean isolation score decreased by an estimated 0.94 points (on a scale of 0 – 8), adjusting for race/ethnicity, housing status, gender affirmation, gender conformity, sexual orientation, and age, and this decrease was statistically significant ($p < 0.01$). Between the baseline and post surveys, the mean isolation score decreased by an estimated 1.24 points, adjusting for race/ethnicity, housing status, gender affirmation, gender conformity, sexual orientation, and age, and this decrease was again statistically significant ($p < 0.01$). Like with the other outcome measures, throughout the study the mean isolation score was 1.45 points higher among those who were unstably housed or unhoused as compared to those living in stable housing, after adjusting for time, race/ethnicity, gender affirmation, gender conformity, sexual orientation, and age ($p < 0.01$). Like with the Sheehan Disability Scale, the mean isolation scores throughout the study were 1.99 points higher among those who identified as bisexual ($p<0.01$) and 1.30 points higher among those who identified with another sexual orientation ($p<0.01$), when compared to those who identified as gay/lesbian, after adjusting for time, race/ethnicity, housing status, gender affirmation, gender conformity, and age. Again, this indicates worse mental health outcomes overall for those who are bisexual or have another sexual orientation compared to those who identify as gay or lesbian. Finally, for every one-unit increase in the composite score for gender affirmation by others reported by participants (on a scale of 0 – 4), there was a statistically significant reduction in mean isolation score throughout the study (-0.62 points lower, 95% CI -1.09, -0.16). This makes sense, as being surrounded by friends, family, and coworkers who affirm one's gender could reasonably be expected to reduce one's sense of isolation and exclusion.

To test the robustness of these findings, we ran a series of sensitivity analyses, including (1) a GEE model that only included time (mid and post) as independent variables and omitted other covariates; (2) both the main and reduced GEE model using a first-order autoregressive working correlation structure instead of an independent working correlation structure; and (3) running a series of linear regression models for each outcome, instead of using a population averaged GEE model. The results for sensitivity analysis (1) and (2) were very similar to those presented here; the only meaningful difference was that the change in mean Sheehan Disability Score between unstably housed/unhoused participants compared to stably housed participants was no longer statistically significant (though the point estimate remained >0). With the regression models, bisexuals and those with other sexual orientations had significantly less reduction in Kessler 6 scores at mid, compared to gay/lesbian participants ($p<0.01$), and people who were unhoused/unstably housed had significantly less reduction in Kessler 6 scores at both mid and post survey, compared to those who were stably housed ($p<0.01$ at mid, and $p<0.05$ at post). People with other sexual orientations also had significant less reduction in Sheehan Disability Scale scores from pre to post compared to gay/lesbian participants ($p<0.05$), but no statistically significant difference was observed for bisexual participants at either the mid or post for that outcome measure. No other changes were observed between the main findings and those in the sensitivity analyses.

Qualitative Data Findings

As explained earlier, the qualitative data collection in this CDEP was unfortunately limited to a single focus group, conducted in January 2020 (before the timeframe for data collection of quantitative data included in the analysis presented here). However, some of the themes that arose from this focus group

were used to make improvements in the design and delivery of Let's Connect when it transferred to a virtual format as a result of the COVID-19 pandemic.

Let's Connect was very helpful as a communications intervention

Most of the participants were unaware that Let's Connect was actually an intervention designed to help LGBTQ+ people with their mental health, believing it to be an intervention focused on communication and interpersonal relationships. Nonetheless, most of the 6 participants were enthusiastic about the positive effect Let's Connect participation had on their communication. As one person explained, "It made me connect with people in new ways. It opened things up for me. Now I volunteer upstairs, where I didn't before. It helps me talk to people." Another noted, "I really like the fact that I can have more compassion for other people, instead of letting it…at first it was like, I knew where I was at, and it made me not worry about that, it was about connecting with them. Right away before I would say something nasty, and this time I would stop and think about what I was going to say."

When asked how many would have been willing to come to Let's Connect more than once a week if it were offered more frequently, all 6 focus group participants emphatically raised their hands.

There was room for improvement in intervention design or implementation

While they certainly saw benefits to their Let's Connect participation, the focus group participants also did not hesitate to note the areas in which they thought the intervention could be improved. Multiple participants noted the poor retention rate (which improved notably in subsequent sessions but was extremely poor prior to January 2020). One person noted, "Most of our class didn't even finish it, they dropped out. Two people went almost all the way but didn't come to the last session. I don't know why. Maybe people have other things going on, they did it just to get money but then they lost interest. Some people didn't seem particularly interested in it from the get-go." This led to a group discussion about the importance of engaging people for the program who actually want to be there, as opposed to those who were agreeing to attend for the financial incentive. However, the focus group participants felt strongly that financial incentives were imperative for the sustainability of the program, particularly with the transgender community in San Francisco. One explained, "We are a really important resource for research. For them to think they can collect data on us for very little money, that's not OK. If this were a job, we would be getting paid, we deserve that kind of respect."

Some participants had very specific suggestions for changes in design of the curriculum. A few described a sense of being rushed, especially in sessions toward the end of the cycle. One went further, describing, "There were given times for certain things we talked about, and one of the things we skipped, because we were out of time. You've got to follow the flow of the group, and not have the facilitator working on a time limit. That limits how the information is presented and dealt with. It should be more open to the direction the group wants to take it. That was one thing that I found that was disturbing to me. Sure, you need a limit of an hour, but you shouldn't say 10 minutes on this topic, 20 minutes on the next topic. We need more of a flow and keep moving on because that's what the curriculum says." Another participant pointed out that particularly for people often mistreated by others (like is frequently true for trans women), the idea of desiring connection and more open communication with others should not be taken for granted: "I think the reason for connecting ought to be given, because connecting isn't always in our best interest. It's just a waste of time, or extremely dangerous. So having these instructions about how to connect or get along better, sometimes it's like, 'Yeah, right. Why?'"

Intersectionality is important

When asked about how their intersecting identities were recognized or overlooked during the Let's Connect intervention, focus group participants had mixed feelings. Some thought they had been able to "bring their whole selves," and participate fully, feeling valued for all their intersecting identities. Another pointed out that for some people, that was premature: "You're dealing with two major challenges here. If you don't know your identity, then you can't connect. There's a whole precursor to figuring out who you really are, the type of person you are, the level you're communicating. Depending on what level you're comfortable in communicating, that's the level you can hear and connect with people. Knowing all your identities is important."

One Black trans woman participating in the focus group recounted feeling difficulty relating to the content and fellow Let's Connect participants., "For me, it felt like because I'm Black, not a lot of people related to me in the group. There were a few other Black people, but I still feel like they didn't relate, because they didn't understand where I was coming from, so I didn't say much." When asked whether there was anything that could have been done differently to make it a better experience for her, she said, "Maybe they could have done one group for black people. Then everybody could feel more included. It would have been good to have one that was for Black trans folks. That would be good, if a Black trans person had helped plan it, not just other people designing it for them."

Impact on mental health

Finally, focus group participants were told that the main idea behind Let's Connect was to help (at that time) transgender participants with their mental health. Most were surprised by this. When asked whether they had felt an impact on their mental health as a result of participating in the intervention, most agreed with one participant who said, "For me, I got a lot about communication out of it, more than with mental health. I don't think it really helped with my mental health." This was an interesting finding, given the substantial improvements in mental health outcomes seen by participants in the quantitative analysis of the intervention.

Another participant responded, "Hell no [it didn't help my mental health]. It helped me communicate better with people, but it didn't make me feel any less anxious about having to do it, or any less depressed about the state of things in life. If anything, I feel less connected to this community now than I did before. People just come and go." Yet another countered, saying, "For me it did. I volunteer different places, and it made me think a bit more how I can help people, how I can make them better. Before I wasn't thinking about it. It made me think about how I could do something better. It made me feel better about myself. When you feel better, you try to serve others better."

Overall, participants were pleased with the impacts of their participation in Let's Connect, whether it improved their mental health or their communication skills. They were universally interested in participating again, and thought that in the future, sessions should be run more frequently and each cohort cycle should last longer. One participant closed with, "For me, the effects disappeared and I wish Let's Connect had kept continuing."

Conclusions

Mental health interventions specific to LGBTQ+ people – particularly for trans women or LGBTQ TAY – are sorely needed in California, like with the rest of the United States and world. In almost every measure of mental health in almost every survey conducted, LGBTQ people continue to have some of the worst mental health outcomes of anyone studied, and have persistent risk factors for suicide,[10] substance use,[21-23] and poor health outcomes including HIV,[24] cancer,[25,26] and hepatitis C.[27,28] This is especially true for those on the fringes of the LGBTQ community, particularly those with less mainstream identities (such as being bisexual or having another less-well-recognized sexual orientation, or being trans or gender non-conforming), and those who are homeless or unstably housed[21] – as we found in our quantitative evaluation, with participants who were unstably housed/unhoused and those who identified as bisexual or another sexual orientation regularly having poorer mental health outcomes than their stably housed or gay/lesbian-identified counterparts.

Our qualitative findings helped us to realize that most participants did not realize they were participating in a program designed specifically for mental health prevention / early intervention, which is an important finding. As mental health is highly stigmatized in most cases, some people who very much need mental health services (especially those already stigmatized for other issues, such as being LGBTQ+) may choose not to participate in a program clearly known as a "mental health program." However, Let's Connect demonstrated that when framed as provided support with non-stigmatized issues (like communication or relationship development), mental health outcomes can still be measurably improved.

The qualitative findings also helped underscore the importance of tailoring mental health interventions to subgroups of the larger LGBTQ population, providing a more relatable and impactful experience than is possible with a more generic, one-size-fits-all intervention. SFCHC saw substantial benefits to moving to a virtual model of Let's Connect as a result of COVID-19, including boosted enrollment, the opportunity to open eligibility to people throughout the state – some of whom may find Let's Connect to be the only available mental health intervention in their area – and substantially improved participant retention rates. However, it made it more difficult to actually "connect" and bond as a group, and limited participation to those who were able to regularly use a wifi-connected computer or smartphone and manage the virtual platform. More evaluation is needed in the future to determine whether in-person or virtual formats of Let's Connect (or a hybrid of both) are more advantageous for the LGBTQ+ Californians who have the greatest need for such a program.

Ultimately, Let's Connect participants did experience substantial improvements in mental health outcomes, on average, between the start and end of this intervention – and those improvements in psychological distress, function, and isolation continued and even deepened in the 6 weeks following the end of the intervention cycle. Throughout the study, the mean Kessler 6 score, Sheehan Disability score, and isolation score were *considerably* higher among those who were unstably housed or unhoused as compared to those living in stable housing after adjusting for time, race/ethnicity, gender affirmation, gender conformity, sexual orientation, and age, and this difference was statistically significant ($p < 0.01$) in all cases. It is unsurprising that people who are struggling to find or maintain stable housing would report substantially higher amounts of psychological distress, underscoring the importance of prioritizing this group for mental health interventions like Let's Connect. Similarly, with both the Sheehan Disability Scale and isolation score, the mean scores throughout the study were significantly higher among those who identified as bisexual or another sexual orientation ($p <0.01$ in

both cases), when compared to those who identified as gay/lesbian, after adjusting for time, race/ethnicity, housing status, gender affirmation, gender conformity, and age. This indicates worse mental health outcomes overall for those who are bisexual or have another sexual orientation compared to those who identify as gay or lesbian. Finally, for every one-unit increase in the composite score for gender affirmation by others reported by participants (on a scale of 0 – 4), there was a statistically significant reduction in mean isolation score throughout the study (-0.62 points lower, 95% CI -1.09, -0.16), which makes sense, as being surrounded by friends, family, and coworkers who affirm one's gender could reasonably be expected to reduce one's sense of isolation and exclusion. Finally, we found statistically significant differences for age ($p = 0.003$), with those who completed the survey series being considerably younger, on average, than those who were lost to follow-up; this raises questions about the changes that might be needed to an intervention like Let's Connect in order to better meet the needs of older LGBTQ+ people, who suffer disproportionately from isolation, loneliness, and other health disparities.[29,30]

This evaluation had a number of limitations. First, the lack of a control group (a group of people who did not participate in this CDEP) prevents us from determining the effectiveness of participating in this program for changing mental health-related risk and protective factors. However, our analysis does provide some indication of whether the program appeared to impact these factors from baseline to 6 weeks and 12 weeks post-enrollment. Further, as participation in Let's Connect was not randomized, we are limited in our ability to make causal claims about those specific components; those who chose to participate in Let's Connect are likely to be different from those who did not, according to factors we did not measure and control for in this analysis. Additionally, individuals with relatively low or high scores on any of the outcome measures at baseline may be less likely to have such extreme values at follow-up, which may not be indicative of a true change in outcomes but rather what is known as "regression to the mean" – this effect could not be accounted for with our pre-post analysis study design. Finally, we did not adjust for multiple comparisons in this analysis, increasing the chance that some of the statistically significant findings were significant by chance, and not representative of a true effect.

While our study design does not allow us to be sure that Let's Connect caused the improvements we saw in mental health outcomes for participants from pre to post surveys, the fact remains that such mental health improvements were seen during a time when California was experiencing a global pandemic, the worst fire season on record, and an extremely stressful Presidential election. Further study of this intervention – with a proper control group and ideally a randomized design to reduce potential for selection bias in the intervention population – is warranted.

It is clear from this evaluation that Let's Connect and similar interventions focused on improving mental health for LGBTQ+ Californians are desperately needed, and it is worthwhile to continue investing resources for adaptation, implementation, and evaluation of this work in the future. This will be especially true in the upcoming years while the globe recovers from the COVID-19 pandemic, and begins to reckon with the physical, emotional, and mental health impacts of this disease and the community mitigation interventions required to stop its spread. In the meantime, this 6-week virtual intervention – focused on helping LGBTQ+ people to communicate and connect with the world around them – clearly did its small part to improve the mental health of the participants who were able to enroll and engage.

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