**Identifying Interventions to Reduce Teen Dating Violence through Participatory Human-Centered Design with Sexual and Gender Minority Youth**

by

**Shannon R. Mitchell**

BS, Virginia Polytechnic Institute and State University, 2018

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This thesis was presented

by

**Shannon R. Mitchell**

It was defended on

April 16, 2021

and approved by

**Thesis Chair:**
Robert W.S. Coulter, PhD, MPH
Assistant Professor
Behavioral and Community Health Sciences
Graduate School of Public Health
University of Pittsburgh

James E. Egan, PhD, MPH
Assistant Professor
Behavioral and Community Health Sciences
Graduate School of Public Health
University of Pittsburgh

Carla D. Chugani, PhD, LPC
Assistant Professor of Pediatrics
Division of Adolescent and Young Adult Medicine
School of Medicine
University of Pittsburgh

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**ABSTRACT**

*Background:* Sexual and gender minority youth (SGMY) are at a disproportionately higher risk of experiencing teen dating violence (TDV) than their heterosexual and cisgender peers. Currently, there are few evidence-based TDV interventions for high school students and existing interventions fail to include meaningful representation of SGMY relationships and experiences. Thus, it is unclear what strategies or interventions are best suited to reduce TDV in SGMY. Human-centered design, which includes structured activities to encourage brainstorming and collaboration, is a novel method that can be used to develop new, SGMY-informed intervention ideas for reducing TDV.

*Aims:* This study aimed to identify and explore potential intervention ideas to reduce TDV among SGMY.

*Methods:* This study focused on one section of a larger, longitudinal study that utilizes a digital platform, MURAL Collaborative Workspace and Zoom Video Conferencing to conduct online human-centered design activities in four, 1.5-hour sessions over the span of two to four weeks with SGMY. Human-centered design was used in these sessions to organize multiple, structured brainstorming activities to create novel intervention ideas. The focus of this study was on session three, which utilizes a creative matrix to generate a multitude of ideas for reducing TDV among SGMY.

*Results:* The creative matrix activity online allowed for a plethora of ideas to be produced by a diverse scope of SGMY. SGMY identified many intervention ideas related to physical space, social media, family, inclusive curriculum, anti-discrimination, guidelines/safety, student clubs/organizations, and support groups. The creative matrix results highlight that there are multiple intersecting environmental factors that contribute to the reduction of TDV among SGMY.

*Conclusion:* SGMY provided numerous ideas for reducing TDV that can be translated into intervention concepts to be implemented and tested for efficacy.  Additionally, SGMY suggested several platforms and environments ripe for interventions (online, in schools, in medical settings, in other physical spaces). Findings from this study can also be used to adapt existing interventions to specifically target SGMY in high school, incorporating the different types of support that SGMY identified as imperative to schools' increasing their inclusivity.

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**Preface**


I would like to thank Dr. Robert Coulter for his mentorship over the past three years and his dedication to my professional and personal growth. Thank you for pushing me to take on a leadership role in our research projects and for allowing me to utilize our data for my thesis. I cannot express how grateful I am to you for believing in me and guiding me along the way.

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I would also like to thank Dr. Carla Chugani for sitting on my thesis committee and investing in my professional development throughout this process. While our time together has been a recent addition to my education, I am in full admiration of your professional role and aspire to follow in your footsteps.

Without the assistance from each of these individuals, I would not be where I am academically and personally. I hope this study and its findings provide insight to future intervention development so that we can improve the mental, physical, and sexual health of all sexual and gender minorities by reducing, and eventually eradicating, teen dating violence.

**Introduction**

**1.1 Purpose**

This original research project utilizes human-centered design to identify and explore novel intervention ideas to reduce teen dating violence (TDV) inequities for sexual and gender minority youth, which are also created and developed by sexual and gender minority high school students in the United States.

**1.1.1 Research Question**

What intervention ideas do SGMY create using human-centered design, with the purpose of reducing TDV among SGMY?

**1.2 Literature Review**

**Teen Dating Violence and SGMY**

Intimate partner violence (IPV), teen dating violence (TDV), and adolescent relationship abuse (ARA) are terms frequently used to describe the perpetration and victimization of violence between two or more people that are in a romantic and/or sexual relationship. TDV involves any form or combination of sexual (unwanted kissing or touching), verbal (insults, name-calling), physical (hitting or kicking), and psychological abuse (manipulation, coercion), used to exert

power and control over another person or youth. Most IPV research has focused on heterosexual and cisgender adults (adults whose gender identity matches their sex assigned at birth), with a growing focus on Lesbian, Gay, Bisexual, Transgender, Queer, and Questioning (LGBTQ) adults (Carvalho et al., 2011). Research on IPV among sexual minority youth (gay or lesbian and bisexual youth and youth with same-gender attractions or sexual behaviors) and gender minority youth (youth whose gender identity does not match their sex assigned at birth) (SGMY) is limited, but there is an increase in evidence to suggest that SGMY are at a disproportionate risk of experiencing TDV compared to their heterosexual and cisgender counterparts (White et al. 2018) (Adams et al., 2021).

The Centers for Disease Control and Prevention (CDC) states that "nearly 1 in 11 female and 1 in 14 male high school students report having experienced physical dating violence in the last year" and "about 1 in 8 females and 1 in 26 male high school students report having experienced sexual dating violence in the past year" (CDC, 2021). The CDC's bi-annual 2019 Youth Risk Behavioral Surveillance (YRBS) survey revealed that females, sexual minorities, and sexually questioning students were at increased risk of violence victimization compared to their heterosexual counterparts (Basile et al., 2020). One study of violence victimization of SGMY revealed that 25% had experienced psychological or physical relationship violence, 10% had experienced physical victimization, 59% of SMY and 59% of GMY experienced psychological relationship abuse, 17%-43% of SMY and 61% of GMY experienced sexual relationship abuse (Reuter & Whitton, 2018).

Studies show that perpetrators in both same-sex and heterosexual relationships use violence, intimidation, and emotional abuse to maintain control over their partner, and that the victim often remains in the relationship due to love for their perpetrator, financial and emotional

dependence, hope for change, and fear of reprisal (Carvalho et al., 2011). SGMY experience additional barriers in leaving abusive relationships, such as limited community resources, lack of social support if they are not 'out' with their friends and family, fear of being discriminated against within the legal system, and the danger of being 'outed' by their partner (Carvalho et al. 2011). Compared with SGMY who do not experience TDV, SGMY who experience TDV are at a higher risk for lowered academic performance, mental health issues such as anxiety, depression, and suicidality, truancy, school drop-out, and are more likely to require medical care as a result of experiencing injury (Reuter & Whitton, 2018) (White et al., 2018).

## Minority Stress Framework and SGMY

The minority stress framework posits that people living with marginalized and minoritized identities (e.g., racial, ethnic, sexual, gender) are likely to experience increased oppressions and adversities as a result of societal norms (Meyer, 2020). People who live with multiple minoritized identities are more likely experience discrimination than those with only one minoritized identity (White et al., 2018). Youth are at a disadvantage because they have less autonomy than adults due to their age. Racial minorities, such as Black, Brown, and Native and Indigenous youth are also at a higher risk of TDV than their White counterparts (Reuter & Whitton, 2018) (Crooks et al., 2019). Adding a sexual and/or gender minority identity to the equation leads to compounded inequitable experiences.

The minority stress framework identifies several different factors that affect SGMY. Internalized stressors, such as whether the individual is 'out' with their friends and family, perceived discrimination from peers, classmates, and teachers, and internalized homophobia or internalized transphobia (the feeling of shame about one's sexual and/or gender identity) can lead to feelings of anxiety and depression (Carvalho et al., 2011). Externalized stressors such as

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discrimination by teachers and classmates in the form of homophobic, biphobic, and/or transphobic harassment or bullying, lack of inclusive policies, and lack of inclusive clubs, create an unsafe environment for SGMY and contribute to overall mental distress (Carvalho et al., 2011) (Adams et al., 2021). The underlying causes of TDV among SGMY are not yet concretely understood, but minority stress theory is helpful in considering unique factors that affect SGMY in the context of TDV (Reuter & Whitton, 2018).

## Environmental Factors and SGMY

### Family

Families play a critical role in the development of youth's overall mental and physical health, yet there has been limited research on the extent of familial influence on the wellbeing of SGMY (Newcomb et al., 2019). Existing research shows that SGMY experience high rates of familial rejection due to stigma and lack of acceptance by parents because of their child's sexual orientation and/or gender identity (Newcomb et al., 2019). This rejection can lead to homelessness, entrance into foster care, mental health problems such as suicidality and substance use, and engage in risky sexual behavior (Newcomb et al., 2019). According to Brandon Robinson (2018), "73% of gay and lesbian youth and 26% of bisexual youth experiencing homelessness report parental disapproval of their sexual orientation as the main reason for their homelessness". This highlights the severity that familial acceptance or rejection has on the wellbeing of the SGMY, as research shows that suicidality is higher among SGMY with non-supportive families compared to SGMY with supportive families (Mustanski & Liu, 2013). Family relationships can serve as protective factors when the family members are accepting and supportive of their child's sexual orientation and/or gender identity (Lachman et al., 2019).

Families are one of the most influential factors for how adolescents and youth learn about forming and maintaining relationships. Youth are likely to be vulnerable to poor physical, mental, and social wellbeing across the lifespan if there is violence in their home growing up (Willems et al., 2018). Witnessing domestic violence as a child can also heavily influence if the adolescent will perpetrate violence or fall victim to violence as they age, which can become a dangerous cycle (Willems et al., 2018). SGMY who do not have healthy examples of relationships, especially relationships that are representative of their own sexual and/or gender identity, can struggle with understanding how to form healthy relationships with peers and healthy intimate relationships with sexual and/or romantic partners (Eisman et al., 2019). The combination of familial rejection and lack of healthy sexual and gender minority (SGM) relationship models are risk factors that may contribute to TDV among SGMY, but more research is needed to better understand this relationship and how to mitigate these risk factors.

**Education**

Many youth in the United States spend five days per week for 8-10 months out of the year in the education system, which makes four years of the high school environment one of the most influential aspects of their daily teenage lives. Outside of family members, youth are shaped by their teachers, classmates, friends, and other high school staff (e.g., administration, coaches, club leaders, bus drivers). This environment is one where youth meet other potential romantic and/or sexual partners, learn about sexual and physical health, and experience social dynamics such as bullying and discrimination.

GLSEN releases a national school climate survey every two years, with the most recent survey results published in 2020 (Kosciw et al., 2020). This survey was administered online during the 2018 – 2019 academic year to youth (at least 13 years of age) that attended a K-12 school in

the United States and identified as a member of the LGBTQ community (Kosciw et al., 2020). The purpose of this survey is to measure the school climate towards SGMY by investigating negative aspects (homophobic remarks, feelings of safety, days of class missed, experiencing harassment/assault, and discriminatory policies), as well as supportive resources (Gay-Straight Alliances or similar clubs, inclusive school policies, supportive staff, and LGBTQ inclusive curriculum) (Kosciw et al., 2020). The results of this survey are alarming; extremely high numbers of SGMY report experiencing harassment due to their sexual and/or gender identity (59.1%), missing at least one day of school per month out of fear (32.7%), hearing homophobic remarks (95.2%), experiencing LGBTQ-related discriminatory policies (59.1%), and having lower academic performance (57.2% - 59%) (Kosciw et al., 2020). Students that reported having a Gay Straight Alliance (gender and/or sexuality-based club) (61.6%), were taught LGBTQ-inclusive education (19.4%), and could identify at least one supportive adult (97.7%) were more likely to report better mental health outcomes and academic performance compared to those who did not have positive factors (Kosciw et al., 2020). While the GLSEN national school climate survey uncovers a plethora of evidence that SGMY experience discrimination and harassment in schools, it fails to explore how SGMY experience dating or sexual relationships, including experiences of abusive relationships.

There are limited high school interventions that address TDV specifically among SGMY (Greene et al., 2015). There is an ongoing societal debate about who is responsible for educating youth about sexual health – their parents or their schools – yet schools often lack the permission to provide effective sexual education, as several states have laws that restrict their schools from discussing diverse sexualities and gender identities in classes (Lewis & Kern, 2018). Sexual health education in public schools within the United States is limited in the information that it disposes,

as federal funding has restricted the content to only focus on scientifically inaccurate abstinence-only-until marriage programming (Schalet et al., 2014). Ideally, sexual health education would be comprehensive in nature, covering topics such as consent, sexual orientation, gender identity, contraception, menstruation, sexually transmitted infections (STIs), abortion, and healthy and unhealthy relationship characteristics. Unfortunately, due to the restrictive and highly politicized nature of sexual health, these programs continue to emphasize pregnancy avoidance and cisheteronormative practices, which completely ignores SGMY relationships (Schalet et al., 2014).

The demonstration and visibility of healthy SGM youth and adult relationships is a crucial contributor to the development of healthy sexuality (Schalet et al., 2014). According to Greene et al. (2015), there are significant associations between adolescents' romantic experiences and development of sexual identity, maintenance of peer relationships, and adjustments in prioritizing family relationships. Many SGMY desire to be in relationships, and supportive SGMY relationships have been shown to be protective factors against prejudice and discrimination (Greene et al., 2015). Unfortunately, the lack of LGBTQ-inclusive resources and curriculum results in an increased risk of TDV among SGMY (White et al., 2018).

## Society

SGM in the United States have not always been able to legally marry their significant other. It was not until June 26, 2015, that the federal government of the United States declared same-sex marriage legal in all 50 states. Fortunately, this has paved a more positive and accepting environment for today's youth, as they will grow up in a nation that has formally recognized their legal right to marry, while older SGM will remember the time that it was not legal and the hardships that came with that inequity. There are still many battles to be won on a

state-by-state basis, as there are individuals who perpetuate anti-SGM attitudes and discriminate against SGM by refusing to perform legal marriage ceremonies (Franke, 2016).

How can SGMY learn to have healthy intimate relationships if they know that at one point in time, it would not have been legal for them to marry their loved one? While this specific notion is under-researched, it can be assumed that the illegality of same-sex marriage in the United States' history still has lasting repercussions on SGMY's mental health and internalized homophobia, biphobia, and/or transphobia (Franke, 2016). The need for more representation of SGM healthy relationships in their daily lives and the media is imperative to their learning of what healthy intimate relationships can look like for them (Haider-Markel, 2010).

## Interventions for Reducing TDV among SGMY

A systematic review of violence interventions for sexual minority youth unveiled the need for interventions specifically aimed at reducing health disparities among SMY (Coulter et al., 2019). This systematic review did not identify any existing violence interventions targeting gender minority youth (Coulter et al., 2019). The implications of this review suggest the need for adaptation of existing interventions to accommodate both sexual and gender minorities, to test more interventions for SGM-inclusivity and effectiveness, and to develop and implement new interventions targeting SGMY (Coulter et al., 2019).

Another study addressed how existing interventions that aim to reduce violence victimization and violence perpetration in high schools place an emphasis on bystander intervention (Coker et al., 2020). Bystander intervention can be gender-neutral, meaning there is gender-inclusive language (not only binary-focused) and that all individuals are seen as responsible for playing a part in reducing violence through recognizing risk factors and signs of violence, and actively intervening (Coker et al., 2020). While this is a step towards inclusivity, it

can also make SGMY's health disparities invisible in the process by ignoring how they are disproportionately affected by violence victimization (Coker et al., 2020). This article fails to address if bystander intervention incorporates any educational tools regarding health disparities that SGMY face and indicates that more comprehensive interventions to reduce TDV among SGMY are needed (Coker et al., 2020).

## This Study

The goal of this original research is to explore the utilization of human-centered design activities to develop potential intervention ideas created by SGMY with the intention of identifying common intervention themes, unique intervention ideas, and specific intervention needs. Human-centered design has been defined as a "systematic, intelligent process in which designers generate, evaluate, and specify ideas for devices, systems, or processes whose form and function achieve clients' objectives or users' need while satisfying a specified set of constraints" (Zoltowski et al., 2012). This research will assist in both the expansion of the use of human-centered design activities and the conceptualization of interventions targeting the reduction of TDV among SGMY.

## 2.0 Methods

### 2.1 Study Design

This study focuses on the third session of a larger, longitudinal study, that has been detailed elsewhere (Coulter et al., 2021). The primary purpose of the larger study was to elucidate SGMY's beliefs about healthy and unhealthy relationships, obtain feedback from SGMY about existing interventions, and brainstorm and vote on new intervention ideas (Coulter et al., 2021). These sessions utilize technology to conduct online human-centered design activities through Zoom Video conferencing and MURAL Collaborative Workspace for 1.5-hours, over the course of two weeks to one month per cohort, for four cohorts. All study procedures were approved by the University of Pittsburgh Human Research Protections Office.

### 2.2 Study Population

Participants were between the ages of 14 and 18 years old, live in the United States, identified as sexual and/or gender minorities, and had Internet, video camera, audio, and microphone access to attend the virtual sessions.

## 2.3 Recruitment

Recruitment was conducted through advertisements on Facebook and Instagram. The advertisements included videos of images of racial and ethnic LGBTQ youth, the rainbow pride flag, and the transgender pride flag. Advertisements were created through Facebook's advertisement center. The settings of the advertisements included the geographic range of the United States and target phrases like "LGBTQ", "Pride", "Transgender", and "Stonewall" so that Facebook users who 'liked' groups, pages, or organizations with similar phrases would be more likely to see the advertisements. The advertisements had a link to the eligibility screener survey, which was created via REDCap.

## 2.4 Inclusion and Exclusion Criteria

The REDCap eligibility survey asked about the individual's age, gender identity, sex assigned at birth, sexual orientation, sexual attraction, sexual behavior throughout their life, ethnicity, race, city, state, and zip code of school, grade in school, access to a laptop/computer, internet, camera, microphone, and audio, to determine eligibility.

## 2.5 Purposive Sampling

Upon identifying which individuals were eligible, the research assistant determined who to invite based on sexual orientation, gender identity, and race/ethnicity. Individuals who identified

as a racial and/or ethnic minority and met eligibility requirements were prioritized and invited to participate, encouraging a diverse range of participants.

## 2.6 Consent Process

Potential participants were sent a link to an online consent form administered via DocuSign, a website that allows individuals to securely provide a virtual signature. A Waiver of Parental Consent was obtained so that SGMY could consent for themselves. This study was no more than minimal risk and requiring SGMY to obtain parental permission could 'out' them as SGMY to their parents/guardians, which may put them at increased risk of experiencing abuse or other adverse experiences. The consent form described all essential components of the study, including (but not limited) to the study purpose, the study background, study risks and benefits, privacy and confidentiality, participant payments, and the study's voluntary nature.

Once the consent form was virtually signed, the research assistant received a PDF of the signed form, which were stored securely in Pitt Box, the University of Pittsburgh's online storage system. The research assistant then emailed or texted participants a link to Zoom video conference meeting, where the online human-centered design sessions were conducted, included instructions on how to best prepare for the session and how to access MURAL, the online collaborative workspace used during the online sessions. Participants were sent reminders 2-3 times prior to each session.

In addition to the initial online consent form, participants provided verbal or typed consent at the beginning of each online human-centered design session. A research assistant read aloud a

verbal consent script reiterating the purpose of the session, stated that sessions will be recorded, reminded everyone that participation is voluntary, and asked if there were any questions. Participants provided their consent by using Zoom's "thumbs up" or via Zoom's chat feature.
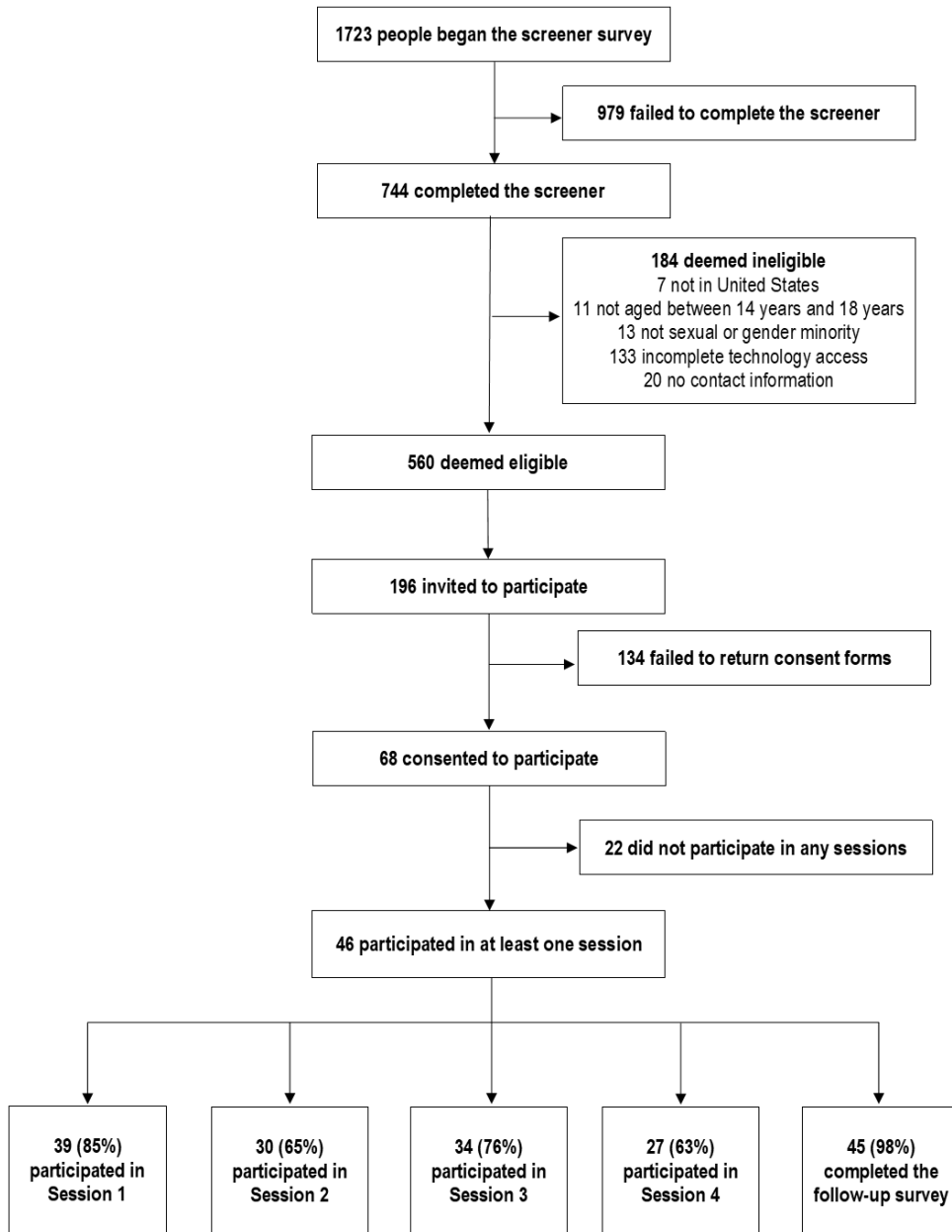
## 2.7 Recruitment Flow



**Figure 1 Figure Flow Diagram**

# 3.0 Session Three

We used MURAL Collaborative Workspace, a digital platform that allows participants to collaborate on a series of human-centered design activities with the support of a trained facilitator. We used Zoom Video Conferencing to conduct the online sessions and session facilitators shared a link to the MURAL workspace and participants could access it via an app on their smartphone or the Internet on their laptop/computer, without being required to have a MURAL account. Each cohort of SGMY was invited to participate in up to 4 sessions, each lasting 1.5 hours in length. All sessions were audio-recorded and conducted in English. Participant voices and the resultant data were recorded but not images of the participants. Participants were encouraged but not required to attend all 4 sessions, and they received a $25 gift card for each session they attended. Participants were also compensated $10 for completing the follow-up survey provided at the end of the fourth and final session. This study uses data from session 3; see sections 3.1 for more detailed descriptions of this session.

Session 3 began with an introduction to Zoom, an icebreaker, an overview of the agenda, and expectations for behavior from both participants and facilitators. By sessions 3, most participants were familiar with the nature of the sessions. After obtaining their consent, the participants were randomly assigned to different Zoom breakout rooms, with each room composed of 2-5 participants with 1-2 facilitators each. The facilitators in each small group would start with another icebreaker before introducing participants to MURAL. After the introduction to MURAL, the facilitators guided the participants through a series of human-centered design activities. Session 3's human-centered design activities are described in detail in the sections below. At the

conclusion of the session, all participants were brought back together and reported out on the ideas generated during the human-centered design activities.

## 3.1 Human-Centered Design Activities

Session 3 included two human-centered design activities and one transitional activity: *creative matrix*, *choosing ideas*, and *importance-difficulty matrix*. The creative matrix activity was designed as a 5 column by 6 row table, where the column headings represent determinants from the Social Ecological Model (individual, interpersonal, family and community, organizational, and structural) and the row headings are platforms, activities, and spaces, (technology, events/programs, physical environments, policies/procedures, games/competitions, and wild card) (See Figure 2). The purpose of this activity was to encourage brainstorming ideas based on the question "how can we reduce adolescent relationship abuse among LGBTQ high schoolers?" using the table.

The columns intersect with each row, providing guidance to the brainstorming process. For example, in the box where individual determinants intersected with technology, participants were asked to think about how to use technology (social media, cell phones, videos) to address individual factors (knowledge, attitude, internalized stigma) to reduce TDV among SGMY. Participants were instructed to independently complete this activity column-by-column, with 4 minutes to complete each column.

Once the creative matrix was completed, the facilitator shared their screen and read through all of the typed ideas, asking for clarification when ideas appeared to be vague or misspelled.

Participants were then prompted to move onto the *choosing ideas* activity, where they were asked to identify the idea that they deemed most important, most changeable, their favorite, and the most out of the box, from the ideas generated in the creative matrix. Participants were instructed to pick unique ideas so that the final activity would not have any duplicates. Participants would do so by clicking and dragging over an idea to their new column so that people could see the idea has been claimed.

The facilitator dragged the selected ideas over to the importance-difficulty matrix for the final activity of session three. The importance-difficulty matrix was designed as an x- and y- axis, with importance being on the x-axis and difficulty being on the y-axis. The participants initially could only see the importance axis. Depending on how many participants were present, there could be up to 20 ideas along the importance axis. The participants were instructed to rank their selected ideas in level of importance, without any overlapping, forcing their ideas into separate spots along the line. Once this task was complete, the y-axis was unveiled to show the difficulty ranking. Participants were then required to complete the same style of ranking of ideas but by level of difficulty to implement, moving the ideas up and down based on level of difficulty. Again, there could only be one idea per spot on the y-axis. Upon completion of this task, the facilitator read out the final rankings and asked if anyone noticed a pattern between the level of difficulty and level of importance. The facilitator guided the participants in discussion about any visible patterns in terms of level of importance and level of difficulty to implement. Once this discussion ended, the facilitator shared what to expect in the fourth and final session and concluded the session.

**How might we reduce adolescent relationship abuse among LGBTQ+ youth?**

| | Individual determinants<br><br>-Knowledge<br>-Attitudes<br>-Self-efficacy<br>-Internalized stigma | Interpersonal determinants<br><br>-Bullying<br>-Discrimination<br>-Anti-LGBTQ+ Attitudes | Family and community determinants<br><br>-Parental support or rejection<br>-Anti-LGBTQ+ attitudes | Organizational determinants<br><br>-Inclusivity in schools, hospitals, jobs, and places of worship | Structural determinants<br><br>-Policies in local, state, and federal government |
|---|---|---|---|---|---|
| **Technology**<br>Social media<br>Cell phones<br>Videos<br>Television<br>Websites | ▨ | | | | |
| **Events or programs**<br>Classes<br>Extra-curriculars<br>Meet-up<br>Sports | ▨ | | | | |
| **Physical environments**<br>Housing<br>Buildings<br>Statues and art<br>Safe spaces<br>High traffic areas<br>Gatherings | ▨ | | | | |
| **Policies or procedures**<br>Screening<br>Best practices<br>Legislation<br>Positions<br>Customs or traditions | ▨ | | | | |
| **Games or competitions**<br>Video or computer games<br>Incentives<br>Prizes<br>Rewards<br>Scores | ▨ | | | | |
| **Wild card**<br>Fashion and art<br>Famous people<br>Guest appearances<br>Pop-up entertainment | ▨ | | | | |

**Figure 2 Example Creative Matrix from MURAL Workspace**

## 3.2 Data Management

Sessions were recorded (both audio and visual), transcribed professionally, de-identified, and stored securely in Pitt Box. The raw text data from the MURAL workspaces were copied from each session and saved as Word documents in Pitt Box. The MURAL workspaces remained in the MURAL website and were adjusted so that participants could no longer edit them upon completion of each session. PDFs of each MURAL were saved and stored securely in Pitt Box.

## 3.3 Data Analysis

The research team used content analysis to create a codebook for the qualitative data. First, the I reviewed all the creative matrices and clustered the ideas into similar and unique ideas based on common words, themes, and ideas. Two research assistants checked these clusters for any inconsistencies. Upon verification, these clusters were transformed into a codebook, with codes and definitions. The principal investigator and two research assistants reviewed and provided revisions for the codebook two separate times. I uploaded the final codebook to Dedoose, a software used to analyze mixed-methods data.

The codebook included 49 unique categories with distinct definitions. There were 439 excerpts (ideas) to be coded. The most frequently coded categories will be expanded upon, with a cutoff at a frequency of 19 ideas or higher. This cutoff point was determined based on the observation that there were only few codes mentioned less than codes 19 times. The 9 most

frequent categories will be explored in-depth, as well as less frequent but creative and unique categories.

# 4.0 Results

## 4.1 Participants

There were a total of 34 participants who participated in the third session of the larger study. Participants were comprised of cisgender girls, cisgender boys, transgender girls, transgender boys, and nonbinary AFABs and nonbinary AMABs (see Table 1). Participants were also able to select more than one sexual orientation that represents themselves. Reported sexualities included gay, lesbian, bisexual, queer, unsure, and other non-heterosexual identities (pansexual, omnisexual) (See Table 1). The race and ethnicities of participants included White Non-Hispanic, Black Non-Hispanic, Asian Non-Hispanic, American Indian/Alaskan Native, Mixed Non-Hispanic, and Hispanic (See Table 1).

**Table 1: Session 3 Participant Sociodemographics (N = 34)**

|  | *n* | *(%)* |
|---|---|---|
| **Age (years)** | | |
| 14 | 2 | (6) |
| 15 | 9 | (26) |
| 16 | 10 | (29) |
| 17 | 10 | (29) |
| 18 | 3 | (9) |
| **Gender Identity*** | | |
| Cisgender Girl | 9 | (26) |
| Cisgender Boy | 7 | (21) |
| Transgender Girl | 1 | (3) |
| Transgender Boy | 4 | (12) |
| Nonbinary AMAB | 2 | (6) |
| Nonbinary AFAB | 11 | (32) |
| **Sex Assigned at Birth** | | |
| Female | 24 | (71) |
| Male | 10 | (29) |
| **Sexual Orientation** | | |
| Gay/Lesbian | 8 | (24) |
| Bisexual | 10 | (29) |
| Queer | 3 | (9) |
| Pansexual/Panromantic | 3 | (9) |
| Multiple Sexual Minority Identities | 9 | (26) |
| Another Identity (I like girls) | 1 | (3) |
| **Race/Ethnicity** | | |
| White Non-Hispanic | 21 | (62) |
| Black Non-Hispanic | 3 | (9) |
| Asian Non-Hispanic | 1 | (3) |
| American Indian/Alaskan Native | 1 | (3) |
| Mixed Non-Hispanic | 3 | (9) |
| Hispanic | 5 | (15) |

*Totals may not equal 100% as participants were able to choose multiple categories.

# 4.2 Creative Matrix Results

The following categories were most frequently coded: physical space (39), social media (33), family (33), inclusive curriculum (32), anti-discrimination (27), guidelines/safety (21), student clubs/organizations (20), school (19) and support groups (19).   Codes that were less represented included allyship, music, television, online forums, social justice work, sports, and mandatory reporting.

**Table 2: Codebook Example**

| Categories | Definition |
| --- | --- |
| **Physical Space** | This refers to providing LGBTQ youth with physical safe spaces that they can access, such as community centers, teen centers, facilities, and shelters. |
| **Social Media** | This refers to LGBTQ-inclusive social media pages through Facebook and Instagram and other websites. These platforms would be used for discussing teen relationship violence, LGBTQ issues, social support, raising awareness of LGBTQ issues, and positivity campaigns. |
| **Inclusive Curriculum** | This refers to requiring that all classes be inclusive of LGBTQ issues, history, examples, and representation. This also includes providing extra classes on LGBTQ specific topics. |
| **Family** | This code refers to any family involvement, education, or relationship to an LGBTQ individual. |
| **Anti-Discrimination** | This refers to creating and enforcing anti-discrimination policies for hiring, eradicating gay panic laws, and classifying harmful anti-LGBTQ actions as hate speech. |
| **Safety Guidelines** | This refers to the need for stricter safety regulations on social media and websites, such as anti-cyberbullying policies and deactivating accounts that promote bullying or hate speech. This also includes guidelines and safety protocol in person. |
| **Student Clubs/Organizations** | This code refers to having LGBTQ-inclusive clubs at school, such as a Gay-Straight Alliance/Gender and Sexualities Alliance (GSA). This also includes funding for LGBTQ clubs. |
| **School** | This parent code refers to anything that generally references a school setting, school staff, or school environment. |
| **Support Groups** | This code refers to support groups specifically for LGBTQ individuals and LGBTQ individuals' family members to talk about acceptance, LGBTQ issues, encourage open communication, and how to intervene when dating violence occurs. |

## Physical Space

The most frequent idea that SGMY added to the creative matrix was physical space. SGMY identified the need for more accessible LGBTQ inclusive spaces, community centers, facilities, housing, shelters, libraries, and general designated safe spaces. According to the participants, the purpose of these places was for SGMY to have access to physical space away from homophobia, biphobia, and transphobia, harmful families, and to be able to ask questions about resources related to support groups, family issues, mental health services, and relationship issues. These spaces would be free of bullying and discriminatory practices, making them a place to build supportive networks for SGMY.

## Social Media

The ideas regarding social media involved de-stigmatizing SGMY relationships through normalizing representation in images, videos, and stories. For example, special ads targeting SGMY on Tik Tok, Snapchat, and Instagram, where SGMY can click on links to resources and websites with signs of abuse specific to SGMY. SGMY also expressed the need for platforms that encourage SGMY to be themselves, displaying queer-positive content on educational websites, promoting religious acceptance of SGMY on social media, and general healthy relationship campaigns across all types of digital applications.

## Family

SGMY expressed the desire for events that encouraged SGMY and their parents to attend and connect with others, seminars that teach parents and guardians about how to better understand their SGM child, informative pages online for parents to learn about SGM issues, and for parents and SGMY to talk openly about abuse and bullying of SGMY. There were many unique ideas, such as allowing SGMY to control what information regarding their sexual or gender identity is

shared with their parents from their schools, or to create a group of SGM-affirming adults that can serve as parental figures for SGMY that are rejected by their family. SGMY also stated that it should be illegal, or a hate crime, for parents to kick their SGM child out of the house or require them to go to conversion therapy.

## Inclusive Curriculum

Many of the SGMY identified ideas related to incorporating LGBTQ specific content in class curriculum. Examples included having sexual health education that does not only target cisgender heterosexual people (include examples of SGMY relationships), talking openly about the LGBTQ community in classes, teaching how to identify and address bullying of SGMY, integrating LGBTQ history into curriculum, having books that are LGBTQ inclusive accessible in the school library, and requiring that example scenarios in games or lesson problems includes LGBTQ characters. A commonality of these ideas is that regardless of what the course topic is (math, history, science), SGMY want to see, hear, and learn about SGM individuals that have contributed in some way to that specific subject. SGMY also indicated that they want to learn about SGM relationships in their sex education classes, how to 'come out' to their families, and learn scientifically accurate information regarding what it means to be LGBTQ.

## Anti-Discrimination

SGMY identified many avenues where anti-discrimination policies are imperative, such as anti-discriminatory policies for hiring and employment, policies in hospitals and medical settings, and policies for housing. Specific ideas, such as eradicating the gay and transgender panic laws, protecting marriage equality, requiring implicit bias testing, clearly identifying what hate speech is, and implementing policies that make families legally obligated to financially support their SGM child if they kick them out of the house.

**Safety Guidelines**

SGMY indicated a need for stricter and clearer safety guidelines to protect SGMY in both the physical and virtual environments. Some of the ideas SGMY suggested were zero tolerance policies of cyberbullying involving homophobia, biphobia, and transphobia, online pages with information on how to prevent bullying, ensure there are physical and virtual protections in place for SGMY, make cyberbullying and hate speech punishable by law, a 'report' function on social media to flag if accounts are being discriminatory, and to include SGMY examples in seminars about cyberbullying.

**Student Clubs and Organizations**

SGMY named the importance of having school-based clubs and organizations that centered SGMY voices and experiences. This included having dedicated spaces at school for SGM clubs to meet, inclusive clubs that any student can join without fear of being 'outed' such as a Gay-Straight Alliance (GSA) or Queer Student Alliance (QSA), spreading awareness about the clubs to increase acceptance, initiatives to increase funding for SGM-based clubs, social media accounts for SGM clubs, and allow SGM clubs to run assemblies or classes where they can talk about specific SGM-related issues.

**Other School Intervention Ideas**

There were many other ideas related to school that did not fit into other categories. For example, SGMY expressed the desire for all students to attend assemblies and trainings to learn about SGM-related issues and have guest speakers who were SGM themselves. This also included school-related policies surrounding anti-discrimination, bathroom use, and name changing in the system. SGMY also identified the need for schools to uphold accountability and punishment of both students and staff who display homophobic, biphobic, or transphobic behaviors. Safe spaces

in teachers' classrooms or other spaces in schools were commonly identified as a need for SGMY to ask questions and meet other SGMY. SGMY also stressed the importance of teachers and staff knowing when and how to appropriately identify them to the SGMY's family. SGMY stated that it would be helpful for schools to have easily accessible SGM-related resources on their website.

## Support Groups

One idea frequently identified was the need for support groups that serve SGMY. These groups could look like groups with leaders trained in LGBTQ issues and groups to "check in" with other SGMY. SGMY also stated that groups for SGMY experiencing dating violence would be helpful, as well as groups for adults to learn how to better support SGMY experiencing dating violence. School-related support groups where SGMY can build support networks was also identified, and SGMY groups for disowned teens.

## Other Suggestions Raised by SGMY

There were many other topics raised by SGMY that did not appear as frequently in the dataset but are still important to note. Medical references were frequent, including medical settings being inclusive, medical professionals knowing how to speak with SGMY about their unique positions, and medical providers knowing about pronoun usage. General resources, such as hotlines/textlines, events, discussion groups, online forums, screenings for violence, and training. Other ideas such as allyship, awareness, gender-affirming clothing, confidentiality, friends, intimate relationships, pronouns, popular culture (art, celebrities, games, music, television/movies, theatre), religion, social justice, physical affirmations of support (posters, images), sports, and use of LGBTQ language were present.

## 5.0 Discussion

The creative matrix results highlighted that there are multiple intersecting environmental factors with the potential to reduce TDV among SGMY. The need for physical safe spaces that are welcoming of SGMY was evident. SGMY frequently identified that they sought a physical space where they could be themselves, dress in clothing that makes them feel comfortable, meet other SGMY, and confide in SGMY advocates regarding family issues or mental health needs. The need for safe spaces was not only in reference to schools, but across all aspects of their lives – in their homes, community centers, religious settings, or spaces away from family. If SGMY have the ability to be themselves without fear of reprisal, then they could learn more about healthy relationships, seek resources if they are in an unhealthy relationship, discuss sensitive topics about gender identity and sexual orientation, and learn through representation of what a healthy relationship for SGMY looks like.

SGMY expressed the need for one or more advocates whom they could go to with questions regarding relationship issues, family issues, or any SGMY-specific need. It is imperative that SGMY know of at least one safe person, or advocate, within their school setting or other community setting whom they can seek out as a source or support. SGMY voiced the need for adults to be trained on SGM issues and to advocate within school and religious settings for more SGM inclusive practices and enforcing anti-discrimination policies and accountability. SGMY wanted SGM adults and allies to confide in and model their behaviors after, so that they can learn how to have healthy relationships with others.

Each cohort of participants identified a strong desire for parents and family members to be more accepting of SGM identities. SGMY conveyed that they want their parents to be more informed about SGM issues, understanding of SGM identities, and how to talk about healthy SGM relationships. SGMY expressed that family counseling opportunities, educational trainings for parents, and school-based organizations for parents of SGMY were critical to reducing TDV among SGMY. SGMY indicated that TDV may lessen amongst SGMY if they had familial support and acceptance of their identities and relationships.

The need for support groups for SGMY was evident. SGMY communicated that they would like for support groups, discussion groups, and online forums for SGMY to connect with one another and also for families of SGM to learn about SGM-specific issues. SGMY stated that having an online group where resources were shared amongst SGMY and families could improve family relationships and further reduce TDV among SGMY. These support groups could be for gender and sexuality issues, relationship issues, coming out, and mental health issues. Clearly, support groups in multiple forms were seen by SGMY as being beneficial and helpful at reducing the risks of TDV among SGMY.

Using human-centered design activities online allowed for over 400 ideas to be produced by a diverse group of SGMY. The creative matrix encouraged SGMY to systematically brainstorm ideas regarding what platforms can be used to create interventions, what types of interventions they think are needed to reduce TDV among SGMY, what areas of intervention they think are important, and what behaviors they desire to change.

Current interventions to reduce TDV among high school students lack a focus and inclusivity on SGMY and mostly emphasize bystander intervention as a way to reduce violence victimization (Coker et al., 2020). Many of the ideas generated in the creative matrix did not

explicitly reference reducing TDV among SGMY, yet ideas related to pronoun usage, sports, medical settings, anti-discrimination policies, high school curriculum, popular culture, media, and religion all contribute to changing behaviors that are homophobic, biphobic, and transphobic. The need for representation of SGM individuals and SGM sexual/romantic relationships across all aspects of SGMY's lives is needed both to normalize these relationships and also to educate SGMY about what healthy relationships could look like for them.

While these ideas do not overtly state that TDV will be reduced as a result of improving the aforementioned ideas, it does suggest that SGMY are expressing the need and desire for a more inclusive daily life, society, and world. SGMY are earnestly conveying that they want their individual, interpersonal, community, organizational, and systemic atmospheres to change, become more inclusive of SGM identities, and in that process, improve the overall mental and physical wellbeing of SGMY.

To our knowledge, this is the first study to utilized MURAL for human-centered design specifically with SGMY. This study demonstrates the feasibility of using MURAL in a virtual setting, and the adaptability of using human-centered design both in-person and online. SGMY were quick to understand and use the platform, showing its flexibility in purpose of use, which suggests that SGMY could use MURAL in other academic settings to participate in class discussions, club/organization activities, and professional endeavors.

## 5.1 Limitations

One limitation of this study is that the sample is not representative of all SGMY in the United States. Participants in this study were required to have consistent and stable access to internet, a laptop, or a smart phone, and to use social media to find this study, which is a privilege not all SGMY have. While participants were not required to be 'out' with their families or provide a parental signature, this study most likely excluded some SGMY that do not have the ability or safety to openly talk about issues related to SGMY and TDV in their household, so finding a safe space to participate could have limited people from joining.

Another limitation of this study is that the brainstorming activities were structured just so there was a slight restriction on how much depth of information could be collected. Activities were timed and discussion was narrow, whereas interviews or focus group sessions could have produced more detailed, descriptive content. While session three produced a multitude of intervention ideas, many of the ideas were not fully developed concepts, leaving some of the ideas open for interpretation.

Although the sample was diverse, the size (N = 34) was small compared to the number of SGMY throughout the United States (just under 2 million) (Conron, 2020). Factors such as the location of and type of high school they attended (public, private, charter, homeschool) was not brought into the discussion, which could have provided more insight into what issues were more prevalent in different regions of the United States. In addition, the structure of the creative matrix produced data that could not be matched with participants, based on the anonymity of the activity (it did not require names to be placed anywhere on it). This limited the connection between

participant and which ideas they generated, which could have uncovered more about SGMY needs

in different regions.

## 6.0 Conclusion

SGMY produced many ideas that can and should be translated into intervention concepts to be implemented and tested for efficacy. The ideas generated from the human-centered design activities are broad in content and range in level of importance and difficulty to implement. As current research shows the need for more inclusive SGMY-focused interventions, this study unveiled the unique avenues where implementation could occur.

This data can inform future interventions to reduce TDV among SGMY by linking the intervention ideas to theories of behavior like the Transtheoretical Model/Stages of Change (TMSC). If peoples' perceptions of SGMY health disparities change to be more accepting as a result of educational trainings or seminars, then the TMSC can be incorporated in the intervention as a guide. This data can also be used to adapt existing interventions to specifically target SGMY in high school. Human-centered design can be used in both the intervention development and implementation, as it was well-received by the SGMY. The immediate next step for this data is to identify the different environmental factors of SGMYs' lives where intervention can occur, and use the ideas generated by the SGMY as a starting points.

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