Parent-Youth Relationships and Communication among Transgender and Gender Diverse Youth: The Impact on Sexual Health

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Dedication

This dissertation is dedicated to the two people who are most responsible for this dissertation's completion: Anna Tibstra and Bart Hanus. Friendships that begin in adolescence do not usually develop into deep family bonds that span decades but ours have. No word of this dissertation would be possible without either of you. I love you both.

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Abstract

Adolescence marks a period of rapid development in the domain of sexual health. In general, adolescents bear a disproportionate share of the sexual health burden compared to adult age groups. Among adolescents, transgender and gender diverse (TGD) youth are particularly at risk for negative sexual health outcomes. Such health disparity is theorized to be related to chronic stress related to stigmatized minority identity and may be mitigated by factors bolstering resilience like strong parent-youth relationships. Some parent-youth relationship factors such as communication about sexuality, may be especially complex among TGD youth and their parents, which may further influence health outcomes. This multi-methods dissertation study explores these phenomena by first testing associations between parent connectedness and sexual health variables and second by investigating TGD youth perceptions of parental messages about sex and relationships. This study utilized the 2016 Minnesota Student Survey, which provided a population level sample of 2,168 9th and 11th grade students who identified as TGD. In eight of sixteen final analytic models, reports of greater parent connectedness were associated with the less risky sexual health outcome. In the qualitative portion, eight TGD youth between the ages of 16-23 were recruited from the Twin Cities Metro to participate in one-to-one semi-structured interviews about family communication about sexuality. Content analysis led to four overarching themes representing what the youth shared; the first three describing the types of messages youth received about sex and relationships from parents and the final theme relating those messages to youth personal feelings and decision-making. Survey findings suggest parent connectedness likely promotes healthy sexual behavior among TGD youth. Participants in the interviews

acknowledged the influence of messages they received from their parents on feelings about sex and relationships while carefully asserting autonomous decision-making and ability to change one's own feelings over time. Together, these analyses indicate nurses might best choose to acknowledge and promote parental guidance but emphasize youth independent choice while providing care to ensure trusting relationships.

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Chapter 1: Introduction

Background and Theoretical Frames

Research in the area of adolescent sexual health is of particular importance as adolescents bear a disproportionate share of negative sexual health outcomes compared to adults (Centers for Disease Control and Prevention, 2019). For instance, in the U.S. approximately half of all new sexually transmitted infections (STI) reported occur among youth between 15 and 24, and among sexually active adolescent females, it is estimated that one in four have an STI at any given time (Centers for Disease Control and Prevention, 2019). Patterns of risky sexual behaviors during adolescence often continue into adulthood, increasing adult risk for STI and other negative sexual health outcomes including cancers and pelvic inflammatory disease. As such, preventing risky sexual behaviors during adolescence has long term implications for health (Vasilenko, Kugler, Butera, Lanza, & Edu, 2014).

Within the field of adolescent health, there is a growing awareness of the health disparities existing between youth who identify as transgender or gender diverse (TGD) and cisgender youth. TGD young people have gender identities (i.e., the internal sense of being a boy, a girl, both, or neither) that do not align fully with their sex assigned at birth [i.e., being assigned male or female; (American Psychological Association, 2015a)]. Cisgender youth are those young people for whom gender identity and sex assigned at birth are aligned (American Psychological Association, 2015a). TGD youth are at higher risk of reporting poorer health and social outcomes compared to their cisgender peers across many domains (Perez-Brumer, Day, Russell, & Hatzenbuehler, 2017; Reisner, Greytak, Parsons, & Ybarra, 2015; Rider, McMorris, Gower, Coleman, & Eisenberg,

2018; Veale, Watson, Peter, & Saewyc, 2017), including sexual health (Clark et al., 2014; Eisenberg et al., 2017).

Minority Stress Theory

TGD young people are not inherently at high risk for poor health due to their gender identity; instead it is theorized that chronic stress related to their stigmatized minority gender identity leads to these disparities (Hendricks & Testa, 2012). Minority Stress Theory posits that a combination of distal and proximal stressors related to minority identity—such as internalized trans-negativity and experiences of discrimination based on their TGD identity—directly impact the health and wellbeing of TGD individuals [see Figure 1.1, (Hendricks & Testa, 2012; Meyer, 1995, 2010)]. For instance, experiences of trans-negative discrimination in healthcare settings may reduce an individuals willingness to access health care when needed or expectation of rejection from potential sexual partners may encourage one to participate in sexual risk taking with less ideal partners (e.g. partners displaying coersive behavior).

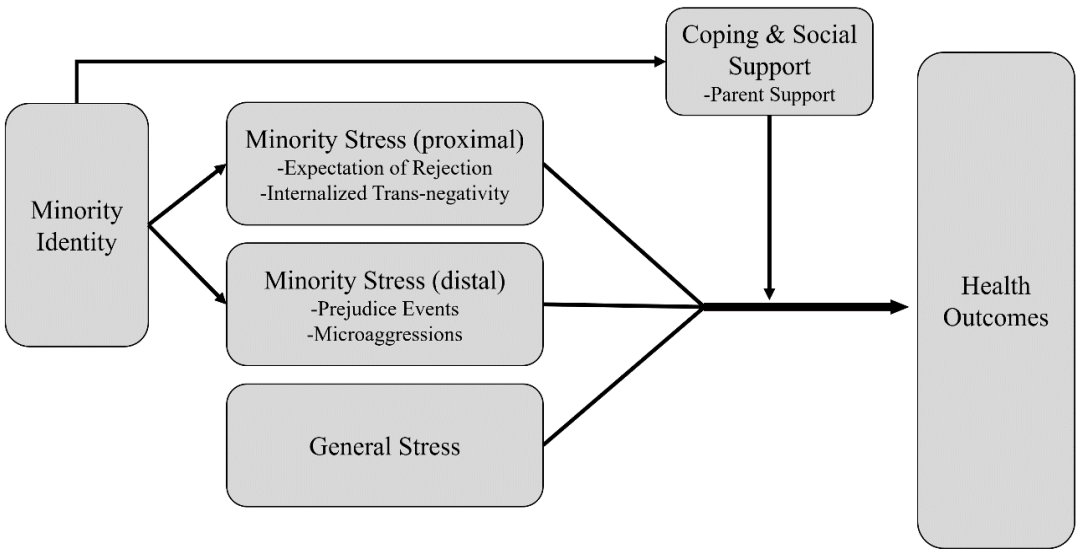

Figure 1.1 *Minority Stress Theory; adapted from Meyer (1995, 2010) and Hendricks & Testa (2012).*

Protective Influences on TGD Sexual Health

Importantly, although disparities exist, many TGD young people are thriving due in part to a number of protective factors supporting these youth (Gower et al., 2018). Protective factors are variables that modify, ameliorate, influence, or in some way alter how someone responds to hardship (Rutter, 1985). Such factors—including coping skills and social support—help buffer young people from poor health outcomes and help them build resilience (Afifi & Macmillian, 2011; Rutter, 1985). Similar to findings among general populations of youth (Markham et al., 2010a; Sieving et al., 2017), a social support key to overall health and well-being among TGD youth is strong family relationships (Katz-Wise, Ehrensaft, Vetters, Forcier, & Austin, 2018; Taliaferro, McMorris, & Eisenberg, 2018; Taliaferro, McMorris, Rider, & Eisenberg, 2018; Watson, Veale, & Saewyc, 2017). A specific aspect of strong families is parent connectedness, which combines youth perceptions of parental caring and parent-youth communication. This construct is often tested as a protective factor in survey research among youth (Conner et al., 2016; Eisenberg et al., 2017; Sieving et al., 2017; Taliaferro & Muehlenkamp, 2017; Williams & Chapman, 2012). However, few studies have examined the connections between the quality of family relationships and indicators of sexual health among TGD youth.

One of the mechanisms theorized to be partially responsible for the strong protective association between strong family relationships and healthy sexual behaviors is parent-youth communication about sex (Holman & Kellas, 2015; Rogers, 2017; Verbeek et al., 2020; Whitaker & Miller, 2000). Research suggests that the quality of communication about sex has an important impact on sexual risk taking among

adolescents (Rogers, Ha, Stormshak, & Dishion, 2015). Communication about sex—both specifics around sex behaviors and sexuality more broadly—between TGD youth and their parents may not be of the same quality as communication about sex between cisgender youth and their parents. Parents' communication messages about sex are often strongly influenced by their understanding and belief in societally dictated gender roles or stereotypes related to sexuality (Goldfarb, Lieberman, Kwiatkowski, & Santos, 2018; Velazquez et al., 2017). For instance, young girls are often expected to be the gatekeepers of sexual activities while boys are expected to be the initiators and, often, the aggressors in the process. Gender roles may be less clear or less applicable when parents are discussing sexuality with TGD youth. Research involving minority groups related to TGD youth, such as gay, bisexual, and queer young men, indicate parental communication about sex and sexual health may be fundamentally different in applicability, frequency, and accuracy compared to heterosexual youth (Flores, Docherty, Relf, McKinney, & Barroso, 2018). TGD youth, who may engage in heterosexual or same-gender sexual activity, may similarly find parents are less willing or equipped to engage in communication about sex with them. As a result, even generally strong parent-youth relationships may not be equally effective in the promotion of specific healthy sexual behaviors and outcomes among TGD youth compared to cisgender or general populations, thereby reinforcing health disparities.

Social Cognitive Theory

Understanding how parental relationships and messages might influence youth sexual behaviors may provide insight into potential interventions to improve the effectiveness of both formal (e.g., in schools) and informal (e.g., communication between

parents and youth) sexuality education. First introduced in the 1960's, Social Cognitive Theory provides a framework for understanding how parental messages and the quality of parent-youth relationships influence TGD youth sexual health behaviors. According to Social Cognitive Theory, family/environmental factors—a label denoting an array of social influences—impact internal/personal factors, which impact behavior, which in turn impact family/environmental factors. The theory further posits all these relationships are reciprocal (Figure 1.2). As such, the messages youth receive from their parents regarding sex and relationships and the quality of the parent-youth relationship (i.e., family/environmental factors) influence both youth feelings (i.e., internal/personal factor) and sexual health decision-making (i.e., behavior) (Bandura & National Institute of Mental Health, 1986).

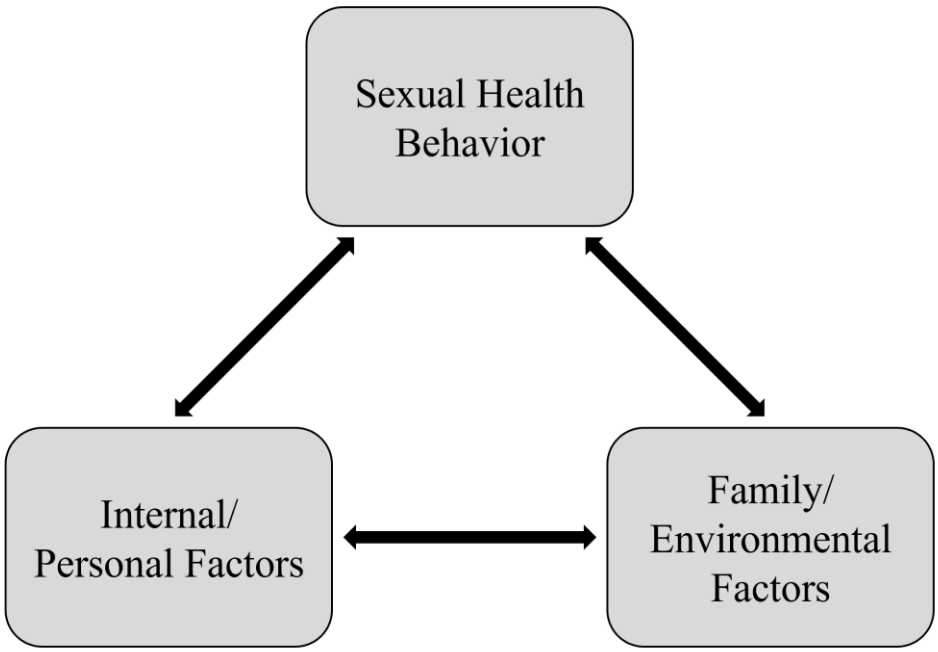

Figure 1.2 *Social Cognitive Theory; adapted from Bandura (1986).*

Statement of Purpose

Based on the findings of a review of the literature, research on the impact of parent-youth relationships on sexual health among TGD youth is extremely sparse. Generating new knowledge about how parent-youth relationships and communication may impact the sexual health of TGD young people is an important step toward developing effective interventions designed to address the health equity gap for this group of youth. The purpose of this study was to (1) test the impact of parent-youth relationships on sexual health and (2) explore how parental messaging may influence sexual health among TGD youth. This purpose was achieved in using a sequential QUAN→QUAL multimethod design. To date, no other studies utilizing multiple methods to address the impact of parent-youth relationships on sexual health among TGD youth have been published. *Phase 1* is a cross-sectional, secondary analysis of state-wide secondary student survey data. The data from this state-wide survey allows for assessment of relationships between a specific parent-youth relationship factor—parent connectedness—and sexual health variables among a large, population-level sample of TGD adolescents. *Phase 2* involves in-depth semi-structured interviews conducted with TGD young people recruited from the local community. Data from this phase allows for exploration of how TGD youth describe parental messages about sex and relationships that they have received and how they perceive those messages to impact their sexual health. Combining these two phases answers not only if parent-youth relationships impact TGD youth sexual health but provides insight into how youth may perceive one aspect of the relationship to influence their sexual health.

Specific Aims

To address the purpose of this dissertation, three specific aims have been developed. Specific Aim 1—and associated hypotheses—pertains to *Phase 1* of this dissertation. Specific Aims 2 and 3 pertain to *Phase 2* of this dissertation.

Specific Aim 1: Examine the relationship between parent connectedness and eight sexual health indicators among TGD youth in a large population-level, school-based sample.

H1: Greater parent connectedness will be associated with fewer risky sexual health behaviors and more sexual health promoting behaviors in final models.

H2: Patterns in the associations between parent connectedness and sexual health indicators will differ based on sex assigned at birth.

Specific Aim 2: Explore TGD youth perceptions of messages they have received from their parents in relation to sex, sexuality, and sexual health.

Specific Aim 3: Explore TGD youth perceptions of how parental messages about sex, sexuality, and sexual health influence youth feelings and decision-making related to their sexual health behaviors.

Significance

This dissertation will contribute to the scientific literature in three distinct ways: (1) by expanding knowledge regarding the relationship between parent connectedness and sexual health indicators among a population-level sample of TGD high school students; (2) by describing the messages TGD youth receive from parents related to sex and romantic relationships; and (3) by describing TGD youth perceptions of how parental messages about sex and romantic relationships influence their sexual health behaviors. Such knowledge might inform development of education sexuality curricula, design of

clinical preventive healthcare services, and provider approaches to communication about sexuality with TGD youth and their families. For example, findings from the quantitative phase of this study may support greater or less emphasis on relationship-building between TGD youth and their parents as a way to improve sexual health. These impacts may contribute to reduction in the health equity gap experienced by TGD youth and contribute to improved public health overall. Generating new knowledge utilizing multiple methods and integrated findings fills a large gap in the literature. Using multiple methods, multiple data sources, and triangulation provide highly credible findings (Morse, 2003).

Organization of Dissertation

This dissertation consists of six chapters, including the present introduction (Chapter 1). Chapter 2 presents a manuscript currently under review at the Journal of LGBT Health describing the state of the literature on family influences on the health and well-being of TGD youth. Chapter 3 provides an overview of the data sources (the Minnesota Student Survey and semi-structured interviews with TGD young people), data collection methods, design, and analysis plans for the two studies conducted as part of this dissertation. Chapter 4 is a manuscript currently under review at Perspectives on Sexual and Reproductive Health describing the *Phase 1* (quantitative) study conducted for this dissertation. This manuscript tested associations between parent connectedness and sexual health indicators among TGD youth in Minnesota. Chapter 5 is a manuscript describing the *Phase 2* (qualitative) study conducted for this dissertation. This manuscript explored ways TGD young people perceived parental messages related to sexuality to influence their feelings and decision-making about sexual health. The final chapter

(Chapter 6) reviews major findings from the dissertation and discusses implications and future directions for nursing research and practice.

Chapter 2: Manuscript One (Title: Family relationships and the health and well-being of transgender and gender diverse youth: A critical review)

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Abstract

Transgender and gender diverse (TGD) youth experience significant health and well-being disparities compared to their cisgender peers. However, disparities experienced at a population-level might be mitigated by individual-level factors such as strong family relationships. Discrete aspects of strong family relationships may impact the health and well-being of TGD youth differently. To date, no systematic reviews known to us have explored the state of the science regarding the association between family relationships and the health and well-being of TGD adolescents and young adults. As such, our review aimed to: (1) compile and present the scientific literature addressing the connection between family relationships and the health and well-being of TGD youth in those families; (2) sort results utilizing the Family Strengths Model; and (3) assess the strength of the literature with evidence-based appraisal tools. Sixteen articles met eligibility criteria (10 quantitative; 6 qualitative). These articles discussed family relationship qualities influencing health and well-being outcomes including mental health, homelessness, sexual health, and substance use. Three of six qualities of strong families—coping ability, appreciation and affection, and positive communication—were represented in the literature. The risk for bias and study strength appraisals suggest that

the available literature is moderately strong overall. Certain characteristics of strong families (commitment, enjoyable time spent together, and spiritual well-being) were under-represented in the literature. Future research should explore these gaps to ensure that healthcare and community service providers can deliver the most effective support and care for TGD youth and their families.

Introduction

Personal identity formation is one of the key developmental tasks of adolescence and early adulthood (Erikson, 1956; Marcia, 1966; Marcia et al., 1993). The development of gender identity is a specific aspect of personal identity development that begins in early childhood and consolidates during adolescence and early adulthood (Steensma et al., 2013). Although most young people find that their gender identity aligns with the sex they were assigned at birth, transgender and gender diverse (TGD) young people find that their gender identities do not align with the sex they were assigned at birth (American Psychological Association, 2015). Population-level research suggests TGD youth consistently experience poorer health and well-being outcomes compared to their cisgender peers (Reisner et al., 2015; Rider et al., 2018; Smalley et al., 2016; Veale et al., 2017). For instance, one population-based study found that TGD high school students were twice as likely to report poorer physical health and over three times as likely to report chronic mental health issues compared to cisgender students (Rider et al., 2018). These disparities are theorized to be the result of high levels of chronic stress related to stigmatization of this minority group and the consequence of systemic and interpersonal oppression experienced by TGD individuals (Bockting et al., 2013; Hendricks & Testa, 2012; Meyer, 1995).

Importantly, population-level disparities for TGD youth are not necessarily the experience of individual TGD young people. Numerous factors can act to protect the health and well-being of individual young people, including TGD youth (Eisenberg et al., 2017; Gower et al., 2018; Johns et al., 2018). One protective factor that is crucial to the health and well-being of young people, in general, is positive family relationships. Family relationships have been shown to be protective against health risk behaviors (McCormick et al., 2016; Resnick et al., 1997; Sieving et al., 2017), poor mental health outcomes (Guassi Moreira & Telzer, 2015; Ryan et al., 2010), and complications of chronic conditions (Leeman et al., 2016).

Family Strengths Model

Although the literature indicates an association between positive family relationships and youth health and well-being, what constitutes a positive family relationship is less clear. One framework that provides a theoretical definition of what comprises positive family relationships is the Family Strengths Model (DeFrain, 1999; DeFrain & Asay, 2007; Olson et al., 2019).

Developed in the field of Family Studies and using a strengths perspective, this model posits that strong families exhibit six qualities (DeFrain, 1999; DeFrain & Asay, 2007; Olson et al., 2019). *Coping ability* recognizes that a family's ability to handle stressful situations and lean on one another during difficulties strengthens family relationships. *Appreciation and affection* describe positive emotional bonds among family members and how those bonds are fostered through expression of appreciation for family members. *Positive communication* includes open, honest, and clear communication that allows room for disagreement while avoids being overly critical.

Commitment refers to valuing the family as a unit and demonstrating support to the family unit over time. *Enjoyable time together* simply means that strong families spend time together and enjoy that time spent together. *Spiritual well-being* describes a family's shared religiosity or shared ethical values and beliefs, as well as how those concepts are expressed by family members. The Family Strengths Model has not previously been applied to the experiences of TGD youth and their families and provides a clear framework from which to consider the available literature relating to family relationships and the health and well-being of TGD youth.

TGD Youth Perceptions of Family Relationships

Existing research suggests TGD young people may be less likely to have strong family relationships compared to cisgender youth (Clark et al., 2014; Eisenberg et al., 2017). Strained relationships between TGD youth and their families may be a direct result of family rejection of the TGD young person's gender identity, a young person's perception or expectation of rejection, or due to reasons similar to why cisgender youth may have poor family relationships [e.g., general family discord, poor parental mental health, youth acting out behaviors, etc., (Shelton & Bond, 2017)]. It is possible that if society's acceptance and understanding of normal gender variation continues to expand (Rubin et al., 2019) that TGD youth will experience less familial turmoil. Human service providers who work with TGD youth could help hasten this change by helping families strengthen their relationships (Walsh, 2016). Thus, it may be important to know which family relationship qualities to prioritize when working with TGD youth and their families.

Delineation between youth perceptions of family experiences and parent or family perceptions may facilitate work with youth and their families. A meta-analysis by Korelitz and Garber (2016) suggests that youth and parent perceptions of family experiences can be significantly mismatched. An adolescent's perceptions about family relationships may have more influence on youth outcomes than parental perceptions (Human et al., 2016). To our knowledge, no published studies have explored discordance between youth and parent perceptions of family relationships or if youth or adolescent perceptions about family relationships have more influence on youth outcomes among TGD youth in particular.

Current Review

It is unclear, currently, which family relationship qualities are fundamental to the health and well-being of TGD youth. Initial scoping searches indicated that literature on the impact of family relationships on specific aspects of health and well-being among TGD youth is sparse; therefore, it is appropriate for a review to consider health and well-being as a broad topic. Our searches revealed no reviews considering these associations or reporting the quality of existing research on family relationships and the health and well-being of TGD youth. This review will systematically address these gaps by synthesizing the research conducted with TGD adolescents and young adults regarding the impact of family relationship qualities on their health and well-being and assessing the scientific rigor of these published studies. The findings will be organized using the qualities of the Family Strengths Model (DeFrain, 1999; DeFrain & Asay, 2007; Olson et al., 2019).

Methods

Search Strategy

We searched Ovid MEDLINE, Ovid PsycINFO, CINAHL, and Scopus for articles that explored associations between family relationship constructs and health and well-being outcomes among TGD young people. Search term lists were developed to describe the two key concepts of "family relationships" and "transgender and gender diverse" (Table 2.1). To ensure that the literature included in our review had an intentional focus on TGD young people, keywords used to describe the key concept of "transgender and gender diverse" were required in the title of all articles. In addition to keyword searches, citation chaining was employed on articles identified in the full-text screening to reveal content that may have been missed by the original searches.

Table 2.1
Keyword search terms

Key Construct	Search In	Keywords Search Terms
Family relationship	Title, keywords, abstract, and text	family* or families or parent* or mother* or father*
Transgender and gender diverse	Title	transgender* or transsex* or transex* or gender identity or genderqueer or queer or gender nonconform* or gender fluid or gender non-conform* or gender non-binary or gender nonbinary or nonbinary gender or non-binary gender or gender variant or two spirit or 2 spirit or 2-spirit or two-spirit

Selection Criteria

Original peer-reviewed research articles were included in this review if they: (1) were published between January 1, 2010 and July 25, 2018—with the start date selected because it followed the release of a key medical protocol (Hembree et al., 2009); (2)

explicitly included at least two TGD young people in the analyzed sample–number selected to allow for qualitative studies with mixed samples of lesbian, gay, bisexual, transgender, and queer/questioning (LGBTQ) youth); (3) included youth in the sample between the ages of 10 and 25 years (NAHIC, n.d.); (4) included at least one well-described quality of a family-youth relationship; (5) included findings related to the association between a family-youth relationship measure and the health and/or well-being of TGD participants; and (6) were written in English. Note that some articles have samples that include youth older or younger than the specified age-range of 10-25. Articles were excluded if: (1) the data did not include youths' perspectives; (2) the mean age of all youth participants was outside of the age range; (3) sample recruitment did not explicitly target adolescents, young people, or young adults (e.g., targeting TGD adults broadly); and (4) the main study focus of the published article was specific to adult populations and would not be realistically studied among mixed samples of adolescents and young adults (e.g., experiences of artificial insemination among transmen).

Initially, abstracts were screened for inclusion and exclusion criteria. If the article met eligibility criteria, if eligibility was unclear, or if the article was found through citation chaining the full article was reviewed. Articles that reported findings on mixed samples of LGBTQ youth that could not be disaggregated for TGD youth and LGBQ youth separately were excluded from the final review.

Scientific Quality and Risk of Bias Assessment

The scientific quality of each quantitative study article that met eligibility criteria was assessed using a modified version of the Joanna Briggs Institute's (JBI) critical appraisal tools for observational quantitative studies (Aromataris & Munn, 2017; Ibitoye

et al., 2017). Ten points from the modified tool were used to assess the scientific rigor of quantitative studies (Table 2). The strength of the qualitative studies that met all eligibility criteria were assessed using the JBI Critical Appraisal Checklist for Qualitative Research (Lockwood et al., 2015). Ten points from this tool were used to assess the scientific rigor of qualitative studies (Table 2.2). Full details of JBI critical appraisal tools and individual items are available elsewhere (Aromataris & Munn, 2017; Lockwood et al., 2015).

All assessments were conducted by the primary author who has formal training in the conduct of systematic reviews. For all articles, each point in the checklist was rated as *present*, *not present*, *unclear*, or *not applicable*. Articles assessed with no *unclear* or *not present* ratings were rated as strong. Articles assigned between one and five *unclear* or *not present* ratings were rated as moderately strong. Articles with six or more *unclear* or *not present* ratings were rated as weak. Although cut offs in the literature differ widely, these guidelines were selected to provide consistency between qualitative and quantitative measures and to ensure rigorous results (Ibitoye et al., 2017).

Table 2.2
Critical appraisal tools used to assess quality and bias of included articles

	JBI Critical Appraisal Tools for Observational Quantitative Studies (adapted)	JBI Critical Appraisal Checklist for Qualitative Research
1	Was the study design appropriate?	Was there congruity between philosophical perspective and methodology?
2	Was the stated population of interest represented?	Was there congruity between methodology and research purpose?
3	Were eligibility criteria clear?	Was there congruity between methodology and data collection?
4	Was the study interval appropriate?	Was there congruity between methodology and data representation and analysis?
5	Was reporting of missing data appropriate?	Was there congruity between methodology and interpretation of results?
6	Were study measures reliable and valid?	Did the report include a statement placing the researcher in the context of the study topic?
7	Were confounding factors appropriately addressed and reported?	Did the report include a statement placing the researcher and findings in relationship with each other?
8	Was the description of comparison groups clear?	Were participant voices adequately represented?
9	Was the statistical analysis appropriate for the study?	Was the interpretation of the results appropriate?
10	Were ethical considerations appropriately reported?	Were ethical considerations appropriately reported?

Note: JBI, Joanna Briggs Institute

Data Extraction and Analysis

Standardized information was extracted from each article. The extracted data included: (1) study design, (2) sample size and description, including explicit information on the number of TGD youth included, (3) mean age and/or age range of the sample, (4) race and/or ethnicity of the participants, (5) geographical location of sample recruitment, (6) description of family-youth relationship measure(s), (7) description of health and/or well-being measure(s), and (8) association of family-youth relationship measure(s) and

the health and/or well-being measure(s). Each discrete family relationship construct described in an article was compared to the definitions of the six qualities in the Family Strengths Model (DeFrain, 1999; DeFrain & Asay, 2007; Olson et al., 2019) and the keywords developed by the first author based on those definitions (Table 2.3 provides full details). Each relationship construct was labeled with one or more Family Strengths Model (DeFrain, 1999; DeFrain & Asay, 2007; Olson et al., 2019) quality based on keywords and specific decision-making criteria. Family relationship constructs representing multiple strengths are noted under each related subheading, although described in detail under only the first subheading. All family relationship constructs in the articles that met eligibility criteria fit with the definition of one or more of the six qualities. Decisions regarding family relationship construct categorization are presented in Table 2.4.

Table 2.3.
Decision making criteria and potential keywords for categorizing family relationship constructs into family strengths as described by DeFrain's Family Strengths Model

Family Strength	Family Strengths Description	Decision Making Criteria	Potential Keywords
Coping ability	Strong families can cope effectively with stressful situations, often by pulling together as a unit as opposed to addressing strain individually.	Each construct must include a measure or description representing family coping with stressful situations either effectively or ineffectively.	Pulling together Resilience Effective coping Support
Appreciation and affection	Strong families feel deep caring for each other and express that caring regularly.	Each construct must include a measure or description of family caring or not caring for each other.	Caring Warmth Love
Positive communication	Strong families openly communicate with each other, although it does not always produce agreement. Strong families speak directly and honestly.	Each construct must include a measure or description of either positive or negative family communication.	Communication Talking Language Speech
Commitment	Strong families clearly indicate that internal family relationships, as well as the family as a whole, are an important priority.	Each construct must include a measure or description of prioritization of family or specific lack of prioritization of family.	Important Comes first Priority
Enjoyable time together	Strong families spend time together and enjoy spending that time together.	Each construct must include a measure or description of enjoyable or unenjoyable time together with family.	Enjoy Happy Content Sad Unhappy Painful
Spiritual well-being	Strong families share values, ethical beliefs, spirituality, and/or religiosity.	Each construct must include a measure or description of shared or divergent values, ethical beliefs, spirituality, and/or religiosity.	Religion Values Ethics Spirit

Table 2.4

Decisions regarding family relationship construct categorization into family strengths as described by DeFrain's Family Strengths Model

Family Strength	Family Relationship Construct	Articles
Coping ability	*General family support*	
	Multidimensional Scale of Perceived Social Support: Family support subscale (4-items)	Simons et al., 2013
	Emotional support from family (1-item)	Lefevor et al., 2019
	Qualitative description of family support[a]	Wilson et al., 2012 Budge et al., 2018
	Family Environment Scale: Cohesion subscale (5-items)	Stotzer, 2011
	Minority identity specific support	
	Qualitative description of family rejection of gender identity	Hein, 2010 Robinson, 2018 Shelton and Bond, 2017
	Qualitative description of family support of gender identity	Budge et al., 2018 Schimmel-Bristow et al., 2018
	Family acceptance of gender identity (2-items)	Bouris and Hill, 2017
	(10-items)	Wilson et al., 2016
	Family rejection of gender identity (6-items)	Yadegarfard, Meinhold-Bergmann, and Ho, 2014
Appreciation and affection	Maternal warmth (1-item)	Bouris and Hill, 2017
	FACES IV: Family satisfaction subscale (10-items)	Katz-Wise et al., 2018
	Connectedness[a] (3-items)	Taliaferro, McMorris, and Eisenberg, 2018
	(3-items)	Taliaferro et al., 2018
	(7-items)	Watson, Veale, and Saewyc, 2017
	Closeness[a] (5-items)	Wilson et al., 2016
Positive communication	Qualitative description of family support*	Wilson et al., 2012
	Connectedness[a] (3-items)	Taliaferro, McMorris, and Eisenberg, 2018
	(3-items)	Taliaferro et al., 2018
	(7-items)	Watson, Veale, and Saewyc, 2017
	Closeness[a] (5-items)	Wilson et al., 2016
	Maternal communication about sex (17-items)	Bouris and Hill, 2017
	FACES IV: Communication subscale (8-items)	Katz-Wise et al., 2018
Commitment	*No constructs found in this search*	N/A
Enjoyable time together	*No constructs found in this search*	N/A
Spiritual well-being	*No constructs found in this search*	N/A

Note: FACES IV, Family Adaptability and Cohesion Evaluations Scales; N/A, not applicable

[a]Family relationship construct labeled as multiple family strengths

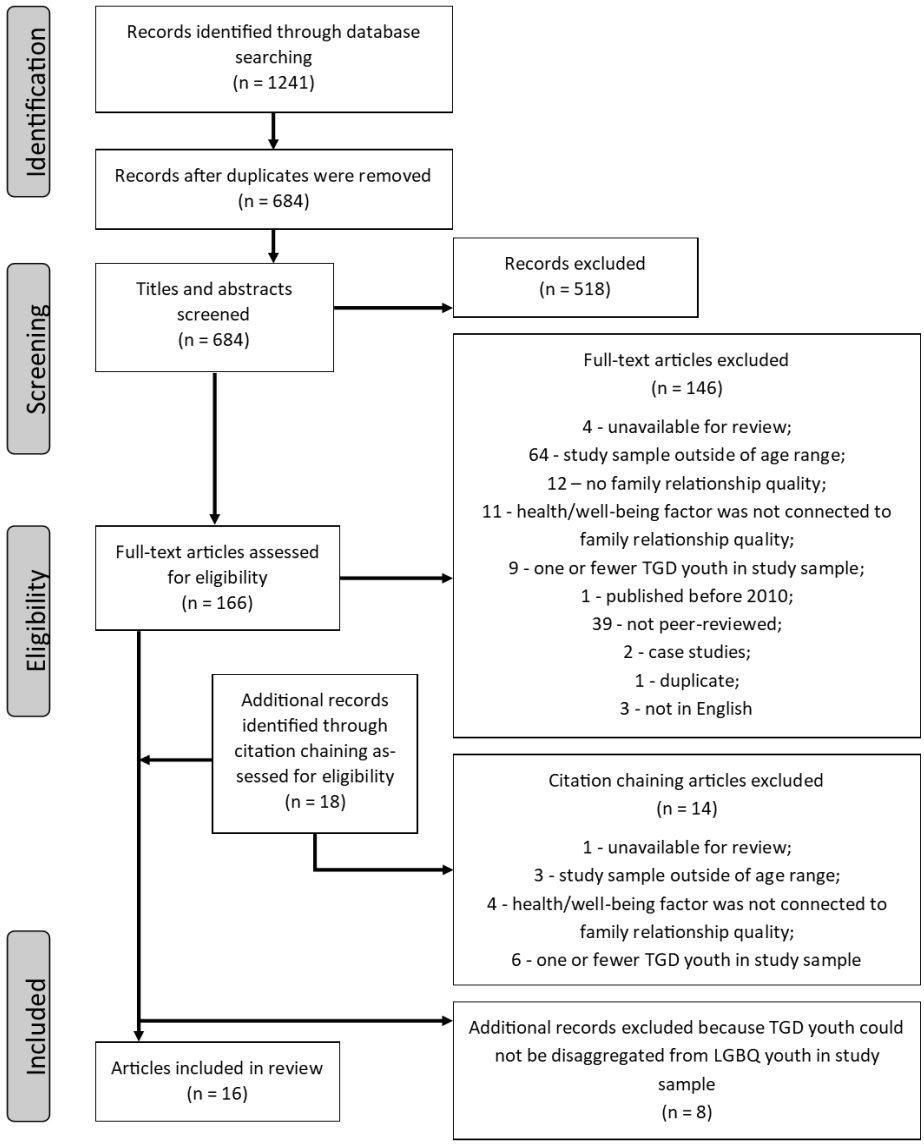

Figure 2.1 *PRISMA flowchart of inclusion and exclusion of articles; adapted from Moher and colleagues (2009).*

Note: TGD, transgender or gender diverse; LGBQ, lesbian, gay, bisexual and/or queer/questioning

Results

This search yielded 684 individual citations with a total of 16 articles (Bouris & Hill, 2017; Budge et al., 2018; Hein, 2010; Katz-Wise et al., 2018; Lefevor et al., 2018; Robinson, 2018; Schimmel-Bristow et al., 2018; Shelton & Bond, 2017; Simons et al., 2013; Stotzer, 2011; Taliaferro, McMorris, & Eisenberg, 2018; Taliaferro, McMorris, Rider, et al., 2018; Watson et al., 2017; Wilson et al., 2012, 2016; Yadegarfard et al., 2014) representing 15 independent datasets that met all eligibility criteria [Figure 2.1, (Moher et al., 2009)].

Family Coping Ability

Twelve articles out of 16 (75%) included discussion of the family relationship construct of family coping ability (Bouris & Hill, 2017; Budge et al., 2018; Hein, 2010; Lefevor et al., 2018; Robinson, 2018; Schimmel-Bristow et al., 2018; Shelton & Bond, 2017; Simons et al., 2013; Stotzer, 2011; Wilson et al., 2016, 2012; Yadegarfard et al., 2014). Because family social support is described as providing practical or emotional assistance to others in times of stress to help them cope (American Psychological Association, 2007), measures of general family support were considered indicators of family coping ability. Family support related to minority identity was also considered an indicator of family coping ability. Acceptance of the youth's gender identity represented effective coping because supportive families help insulate youth from transnegativity experienced outside the family context (Hendricks & Testa, 2012). Conversely, rejection represented a lack of support for a fundamental portion of the youth's identity (Catalpa & McGuire, 2018).

Five of the articles that assessed family coping ability focused on general family support, and these articles are described first (Budge et al., 2018; Lefevor et al., 2018; Simons et al., 2013; Stotzer, 2011; Wilson et al., 2012). Eight of the articles that assessed family coping ability included discussion of family rejection or acceptance of the TGD youth's gender identity or gender presentation (Bouris & Hill, 2017; Budge et al., 2018; Hein, 2010; Robinson, 2018; Schimmel-Bristow et al., 2018; Shelton & Bond, 2017; Wilson et al., 2016; Yadegarfard et al., 2014). These articles are described second. Only one article described both general family support and family support specific to the youth's gender identity (Budge et al., 2018).

General family support. One (Simons et al., 2013) of the five articles focused on general support utilized an extensively tested measure of general family support, the family support subscale of the Multidimensional Scale of Perceived Social Support (Zimet et al., 1990). This article by Simons et al. (2013) found that parent support was associated with greater quality of life, lower perceived burden of trans identity, and fewer symptoms of depression. Other articles used less extensive measures of family support to assess the impact among youth. For example, Lefevor et al. (2019), using a single item measure of emotional support from family members, found that supportive family relationships were negatively associated with psychological distress for TGD college students. In another article, Stotzer (2011) found positive associations between family support and higher levels of self-esteem, sexual self-efficacy, and delay of sexual debut among mahuwahine youth. Mahuwahine is a traditional Hawaiian Islander term used to describe people who do not conform to traditional gender roles and fall loosely under the category of TGD. This study found no significant associations between family support

and having multiple sexual partners, engagement in sex work, underage drinking, use of tobacco or illicit drugs, and history of incarceration.

Two articles (Budge et al., 2018; Wilson et al., 2012) used qualitative methods to assess general family support and outcomes. Wilson et al. (2012) reported that TGD youth participants who described their family relationships as supportive, often also reported consistent condom use with sexual partners. Wilson et al.'s description of family support included explicit mention of positive family communication; thus, this article is also noted in the section on positive communication. Finally, Budge et al. (2018) found that general family support provided to TGD youth promoted a general sense of well-being.

Family support for minority identity. Of the eight articles that discussed family acceptance or rejection of gender identity, three were quantitative (Bouris & Hill, 2017; Wilson et al., 2016; Yadegarfard et al., 2014) and five were qualitative (Budge et al., 2018; Hein, 2010; Robinson, 2018; Schimmel-Bristow et al., 2018; Shelton & Bond, 2017) studies. The Bouris and Hill (2017) measure, maternal acceptance of gender identity, was negatively related to non-suicidal self-injury, suicidal ideation, unprotected anal sex, and living with HIV. Wilson et al. (2016) found that youth with accepting families had lower odds of reporting symptoms associated with post-traumatic stress disorder. Yadegarfard et al. (2014) found that Thai youth rejected by their family due to the youths' gender identity were more likely to endorse symptoms of depression.

Of the five qualitative articles that addressed family acceptance of minority identity, three were specific to youth experiencing homelessness as a result of parental rejection, thus directly linking rejection of a minority identity to youth homelessness

(Hein, 2010; Robinson, 2018; Shelton & Bond, 2017). Budge et al. (2018) discussed how material parental support of gender identity (e.g., explaining trans identity to people in new spaces before youth interacted with those spaces) helped youth feel generally safe in new spaces. Schimmel-Bristow et al. (2018) described family support of gender identity as important to youths' general life satisfaction.

Family Appreciation and Affection

Six total articles out of 16 (38%) included measures of family appreciation and affection (Bouris & Hill, 2017; Katz-Wise et al., 2018; Taliaferro, McMorris, & Eisenberg, 2018; Taliaferro, McMorris, Rider, et al., 2018; Watson et al., 2017; Wilson et al., 2016). All articles which featured findings from quantitative studies indicated that higher levels of family appreciation and affection were associated with improved health and well-being outcomes. For instance, Bouris and Hill (2017) determined that maternal warmth, as perceived by TGD young people, was negatively related to suicidal ideation, although maternal warmth had non-significant associations with depressive symptoms, non-suicidal self-injury, substance use, unprotected anal sex, and HIV serostatus. Similarly, Katz-Wise et al. (2018) found that family satisfaction, as reported by TGD youth, was negatively associated with depressive symptoms, anxiety symptoms, and non-suicidal self-injury, and positively associated with self-esteem.

Four of the six articles used similar measures that combined youth-family affection and youth-family communication items into a single indicator referred to as connectedness (Taliaferro, McMorris, & Eisenberg, 2018; Taliaferro, McMorris, Rider, et al., 2018; Watson et al., 2017) or closeness (Wilson et al., 2016). Multivariable analysis findings for these articles indicated that young people with combined greater affection

and positive communication with their families were less likely to report psychological distress, depressive symptoms, suicidal ideation, a combination of non-suicidal self-injury and suicidal attempts, and vomiting to lose weight.

Positive Family Communication

The third family strength, positive family communication, was included in seven of the 16 (44%) articles reviewed (Bouris & Hill, 2017; Katz-Wise et al., 2018; Taliaferro, McMorris, & Eisenberg, 2018; Taliaferro, McMorris, Rider, et al., 2018; Watson et al., 2017; Wilson et al., 2012, 2016). As an example, Bouris and Hill (2017) found that positive maternal communication about sex was positively associated with feeling safe and supported at school. Similarly, Katz-Wise et al. (2018) found that positive communication between TGD youth and their families was negatively associated with depressive and anxiety symptoms and positively associated with self-esteem and resilience. As described previously, four of the articles had combined family affection and communication variables (Taliaferro, McMorris, & Eisenberg, 2018; Taliaferro, McMorris, Rider, et al., 2018; Watson et al., 2017; Wilson et al., 2016), and one article featured a qualitative study in which positive communication was included as an aspect of family support (Wilson et al., 2012).

Commitment, Enjoyable Time Together, and Spiritual Well-Being

None of the articles included discussion of family commitment to each other or family members enjoying time together as a factor influencing the health of TGD youth. Likewise, no articles discussed spiritual well-being as described by the Family Strengths Model—as shared or misaligned beliefs and values between family members. However, some articles discussed youths' (Budge et al., 2018; Lefevor et al., 2018) or parents'

individual religiosity (Robinson, 2018; Wilson et al., 2012; Yadegarfard et al., 2014) as potentially influential on TGD youth health or well-being.

Table 2.5
Summary of data extraction results

Article	Study Design	Sample Description	Family Strength Factor(s)			Health and/or Well-being Factor(s)[a]
Shelton and Bond, 2017	Qualitative Phenomenological study	27 TGD youth Ages: 21-25 years Race/ethnicity: 10 BAA; 9 Mixed race Recruited: New York City, New York	CA	AA	PC	Homelessness
			x			
			C	ETT	SW	
Bouris and Hill, 2017	Quantitative Cross-sectional survey	28 TGD youth Ages:13-19 years Race/ethnicity: 57% BAA; 32% Multiracial; 11% BAA and Latino Recruited: Chicago, Illinois	CA	AA	PC	Victimization at school; resilience; **school support and safety**; depression; **NSSI**; **suicidal ideation**; substance use; **unprotected anal sex**; **HIV serostatus**
			x	x	x	
			C	ETT	SW	
Budge et al., 2018	Qualitative Grounded theory	20 TGD youth (+ 34 Parents/caregivers) Youth mean age: 7-18 years Youth race/ethnicity: 18 White; 2 Multiracial Recruited: Northeast, Midwest and Southern USA	CA	AA	PC	General well-being; safety in new places
			x			
			C	ETT	SW	
Hein, 2010	Qualitative Comparative descriptive study	4 TGD youth (+ 9 LGBQ youth) Ages: 16-20 years Race/ethnicity: 2 BAA; 2 Caucasian; 1 Hispanic Recruited: 6 large US cities	CA	AA	PC	Homelessness
			x			
			C	ETT	SW	
Katz-Wise et al., 2018	Quantitative Cross-sectional survey	33 TGD youth Ages:13-17 years Race/ethnicity: 73% White; 15% Mixed race/ethnicity; 6% Asian; 3% Hispanic or Latino/a; 3% AI or AN Recruited: New England, USA	CA	AA	PC	**NSSI; depressive symptoms; anxiety symptoms; self-esteem; resiliency**
				x	x	
			C	ETT	SW	
Lefevor et al., 2019	Quantitative Cross-sectional survey	1,030 TGD youth Mean age[b]: 21.1 years Race/ethnicity: 72% White; 28% POC Recruited: United States (National)	CA	AA	PC	**Psychological distress**
			x			
			C	ETT	SW	

Robinson, 2018	Qualitative Multisite ethnography	27 TGD youth (+13 LGBQ youth) Ages: 17-25 years Race/ethnicity: 75% YOC Recruited: Austin, Texas; San Antonio, Texas	CA	AA	PC	Homelessness
			x			
			C	ETT	SW	
Schimmel-Bristow et al., 2018	Qualitative Theoretical thematic analysis	18 TGD youth (+ 49 Parents/caregivers) Youth ages: 14-22 years Race/ethnicity: 14 White; 3 More than one race/ethnicity; 1 Hispanic/Latino; 1 Native American, AI or AN Recruited: Seattle, Washington	CA	AA	PC	General life satisfaction
			x			
			C	ETT	SW	
Simons et al., 2013	Quantitative Cross-sectional survey	66 TGD youth Ages: 12-24 years Race/ethnicity: 52% Caucasian; 29% Latino(a); 10.6% BAA; 9.1% Other race Recruited: Los Angeles, California	CA	AA	PC	**Quality of life**; **lower perceived burden of trans identity**; **depressive symptoms**
			x			
			C	ETT	SW	
Stotzer, 2011	Quantitative Cross-sectional survey	168 TGD youth Ages: 16-26 years Race/ethnicity: All Asian or PI[c] Recruited: O'ahu, Hawaii	CA	AA	PC	**Self-esteem**; **age of sexual debut**; **sexual self-efficacy**; multiple sexual partners; sex work; tobacco use; underage drinking; illicit drug use; history of incarceration
			x			
			C	ETT	SW	
Taliaferro, McMorris, and Eisenberg, 2018	Quantitative Cross-sectional survey	2,168 TGD youth Age proxy[b]: 9th and 11th grade students Race/ethnicity: 58% White Recruited: Minnesota, USA	CA	AA	PC	**NSSI (ever); NSSI (repetitive)**
				x	x	
			C	ETT	SW	
Taliaferro et al., 2018	Quantitative Cross-sectional survey	2,168 TGD youth Age proxy[b]: 9th and 11th grade students Race/ethnicity: 59% White; 12% Hispanic; 12% Mixed race; 9% Asian; 7% Black; 2% Native American; 0.5% PI Recruited: Minnesota, USA	CA	AA	PC	NSSI; **NSSI + suicide attempt (ever)**
				x	x	
			C	ETT	SW	
Watson, Veale, and Saewyc, 2017	Quantitative Cross-sectional survey	923 TGD youth Ages:14-25 years Race/ethnicity: 74% White; 20% Aboriginal Recruited: Canada (National)	CA	AA	PC	Binge eating; weight loss by fasting; weight loss by pills or speed; weight loss by laxatives; **weight loss by vomiting**
				x	x	
			C	ETT	SW	
	Quantitative	216 TGD youth	CA	AA	PC	

Wilson et al., 2016	Cross-sectional survey	Ages: 16-24 years Race/ethnicity: 34% White; 23% Latina; 15% Mixed race 13% African American; 8% Other race; 6% Asian Recruited: San Francisco, California	x	x	x	**Psychological distress; PTSD symptoms; depression; stress related to suicidal ideation**
			C	ETT	SW	
Wilson et al., 2012	Qualitative Secondary analysis of qualitative data	21 TGD youth Ages: 16-24 years Race/ethnicity: 33% BAA; 19% Hispanic/Latina; 14% Asian or PI; 14% Multiracial; 14% White; 5% AI or AN Recruited: Los Angeles, CA; Chicago, Illinois	CA	AA	PC	Consistent condom use; multiple sex partners
			x		x	
			C	ETT	SW	
Yadegarfard, Meinhold-Bergmann, and Ho, 2014	Quantitative Cross-sectional survey	129 TGD youth Ages:15-25 years Race/ethnicity: All Thai Nationals Recruited: Bangkok, Thailand	CA	AA	PC	**Depression**; suicidality; sexual risk behavior
			x			
			C	ETT	SW	

Notes:
TGD, transgender and gender-diverse; LGBQ, lesbian, gay, bisexual, and/or queer/questioning.
Family strength acronyms: CA, coping ability; AA, appreciation and affection; PC, positive communication; C, commitment; ETT, enjoyable time together; SW, spiritual well-being; x indicates which family strength is present in the described article.
Race/ethnicity acronyms*:* BAA, Black or African American; AI, American Indian; AN, Alaska Native; POC, people of Color; YOC, youth of Color; PI, Pacific Islander. Youth race/ethnicity variables may not add up to 100% as some studies allowed more than one category to be selected and some studies did not report on all categories.
Health and/or well-being acronyms: NSSI, non-suicidal self-injury; PTSD, post-traumatic stress disorder.
[a]The outcomes shown in bold had a significant relationship with the family strength factor in the final analysis for quantitative studies.
[b]Age range not reported.
[c]Race and ethnicity further split into 13 more specific identities.

Evaluation of Quality and Risk of Bias

In an assessment of scientific quality and risk of bias, 4 articles were rated as strong quality (Budge et al., 2018; Katz-Wise et al., 2018; Robinson, 2018; Schimmel-Bristow et al., 2018), 11 articles were rated as moderate quality (Bouris & Hill, 2017; Hein, 2010; Lefevor et al., 2018; Shelton & Bond, 2017; Simons et al., 2013; Stotzer, 2011; Taliaferro, McMorris, & Eisenberg, 2018; Taliaferro, McMorris, Rider, et al., 2018; Watson et al., 2017; Wilson et al., 2016; Yadegarfard et al., 2014), and 1 article was rated as weak quality (Wilson et al., 2012); Tables 2.6 and 2.7 provide full details (Aromataris

& Munn, 2017; Lockwood et al., 2015). Although all articles featuring quantitative studies reported sound study design and appropriate statistical analysis, most articles failed to report on missing data procedures. All qualitative articles provided sufficient representation of the voices of youth study participants, however, only half adequately put the author in the context of the study (Budge et al., 2018; Robinson, 2018; Schimmel-Bristow et al., 2018). Within both the quantitative and qualitative articles the measure or description of family relationship qualities was adequate for the study specific objectives.

Table 2.6
Summary of quantitative critical appraisal

Article	1	2	3	4	5	6	7	8	9	10	Overall
Bouris and Hill, 2017	+	+	+	n/a	+	+	-	+	+	+	Moderate
Katz-Wise et al., 2018	+	+	+	n/a	+	+	+	+	+	+	Strong
Lefevor et al., 2019	+	-	+	n/a	-	+	+	+	+	+	Moderate
Simons et al., 2013	+	+	+	n/a	-	+	+	+	+	+	Moderate
Stotzer, 2011	+	+	+	n/a	-	+	u	+	+	u	Moderate
Taliaferro, McMorris, and Eisenberg, 2018	+	+	+	n/a	-	+	+	+	+	+	Moderate
Taliaferro et al., 2018	+	+	+	n/a	-	+	+	+	+	+	Moderate
Watson, Veale, and Saewyc, 2017	+	+	+	n/a	-	+	u	+	+	+	Moderate
Wilson et al., 2016	+	+	+	n/a	-	+	+	+	+	+	Moderate
Yadegarfard, Meinhold-Bergmann, and Ho, 2014	+	+	-	n/a	-	+	u	+	+	-	Moderate

Note: Yes (+); No (-); Unclear (u); Not applicable (n/a)
Adapted from Joanna Briggs Institute's Critical Appraisal Tools for Observational Quantitative Studies: 1 - study design; 2 - representativeness of population; 3 - eligibility criteria; 4 - study interval; 5 - missing data; 6 - study measures; 7 - confounding factors,; 8 - comparison groups; 9 - statistical analysis; 10 - ethical considerations

Table 2.7
Summary of qualitative critical appraisal

Article	1	2	3	4	5	6	7	8	9	10	Overall
Shelton and Bond, 2017	+	+	+	+	+	u	u	+	+	+	Moderate
Budge et al., 2018	+	+	+	+	+	+	+	+	+	+	Strong
Hein, 2010	u	+	+	+	-	u	u	+	+	+	Moderate
Robinson, 2018	+	+	+	+	+	+	+	+	+	+	Strong
Schimmel-Bristow et al., 2018	+	+	+	+	+	+	+	+	+	+	Strong
Wilson et al., 2012	-	-	+	-	-	u	+	+	-	+	Weak

Note: Yes (+); No (-); Unclear (u); Not applicable (n/a)
JBI Critical Appraisal Checklist for Qualitative Studies: 1 - philosophical perspective; 2 - research purpose; 3 - data collection; 4 - data representation and analysis; 5 – methodology and interpretation of results; 6 - researcher in the context of the study topic; 7 - researcher and findings in relationship with each other; 8 - representation of participant voices; 9 - interpretation of the results; 10 - ethical considerations

Discussion

Health and Well-being Outcomes and Research Implications

This review aimed to collect and examine the available scientific literature regarding family relationships and health and well-being among TGD adolescents and young adults. Of the 16 reviewed articles, the majority of health and well-being outcomes described fell into four broad categories: mental health, homelessness, sexual health, and substance use. The only outcome to fall outside of these categories, disordered eating, was discussed in a single article (Watson et al., 2017).

Over half of the reviewed articles discussed mental health outcomes in relation to family coping ability, appreciation and affection, and positive communication (Bouris & Hill, 2017; Budge et al., 2018; Katz-Wise et al., 2018; Schimmel-Bristow et al., 2018; Simons et al., 2013; Stotzer, 2011; Taliaferro, McMorris, & Eisenberg, 2018; Taliaferro, McMorris, Rider, et al., 2018; Wilson et al., 2016; Yadegarfard et al., 2014). The emphasis in the literature on mental health is likely a response to disproportionately high

rates of poor mental health among TGD young people (Eisenberg et al., 2017; Reisner, Vetters, et al., 2015) and the severity of outcomes associated with poor mental health (e.g., suicide). Suicide is the second leading cause of death among 10-24-year-old young people in the United States (Heron, 2015) and TGD individuals attempt suicide at rates much higher than the general population (James et al., 2016). Finding factors that support mental health and protect TGD youth from suicidality could prevent needless loss of life. Future studies should continue to examine the link between strong family relationships and mental health.

As with poor mental health, homelessness is associated with severe consequences and is experienced disproportionately by TGD young people compared to cisgender youth (Durso & Gates, 2012). Among the reviewed articles using qualitative methodologies, homelessness and coping ability was the most commonly explored relationship (Hein, 2010; Robinson, 2018; Shelton & Bond, 2017). However, no articles quantitatively examined family relationship constructs and homelessness. The qualitative findings noted in this review are consistent with research among adults that suggests that family rejection of gender identity is a leading cause of homelessness among TGD people (Choi et al., 2015). Quantitative studies with youth should be pursued to examine the connection between parent-child relationships and homelessness among TGD young people. Disappointingly, the available literature did not include discussion of how TGD youth and their families might be able to strengthen their coping abilities and repair relationships in cases where families might wish to reunite. In addition, none of the articles directly addressed how family strengths not related to coping ability might help to keep TGD youth in stable living situations.

The available literature yielded relatively few findings related to the impact of family relationships on sexual health outcomes and behaviors among TGD youth (Bouris & Hill, 2017; Stotzer, 2011; Wilson et al., 2012; Yadegarfard et al., 2014). The limited number of studies may be related to systematically discriminatory practices that reinforce heteronormativity within clinics (Knight et al., 2014) and schools (Abbott et al., 2015)—where much adolescent sexual health research takes place. Given the evidence that family relationships are key in adolescent sexual health among other populations (Markham et al., 2010; Sieving et al., 2017; Steiner et al., 2014), and the disproportionate sexual health burden carried by the TGD population (Reisner et al., 2016), future studies should explore these relationships. As the article by Stotzer (2011) was the only sexual health-related article to include any youth assigned female at birth (and youth assigned female at birth represented less than 3% of Stotzer's study sample), ensuring broader representation of samples in further studies should also be a priority. Notably, participants assigned female at birth and those assigned male at birth were relatively evenly represented among articles exploring the other health and well-being outcomes mentioned in this review (i.e., mental health, homelessness, substance use, and disordered eating).

Only two of the reviewed articles (Bouris & Hill, 2017; Stotzer, 2011) explored family relationship constructs and substance use among TGD youth. Neither study had relevant significant findings, however, both studies had small sample sizes, limiting power. In population-based survey research, TGD high school students consistently endorsed substance use at significantly higher rates than their cisgender peers (Day et al., 2017; Eisenberg et al., 2017), with the widest disparity among youth who have used illicit drugs such as heroin or cocaine (Johns et al., 2019). Substance use among TGD youth

may be used as an unhealthy strategy for dealing with stress (Fontanari et al., 2019), and modifiable factors such as strong family relationships may reduce the risk that TGD youth will experience stressful events (e.g., parental rejection of gender identity) or that such unhealthy strategies will be used to cope with existing stress (Fontanari et al., 2019; Gower et al., 2018). Further studies exploring family strengths and substance use among TGD youth should include greater emphasis on how stress and family relationships may modulate risk for substance use with sample sizes that allow for sufficient power in analysis.

No articles in the review considered associations between, or youth perspectives on, family relationships and chronic condition-related outcomes among TGD youth who have chronic conditions or disabilities (e.g., diabetes, cystic fibrosis, or asthma). Given the known importance of family relationships for treatment adherence among adolescents (Leeman et al., 2016; Psihogios et al., 2019) and the necessity of treatment adherence for management of symptoms, TGD youth with complex chronic conditions may be among the most vulnerable. Research addressing issues for these young people is needed and could inform development and delivery of critical strategies of care and support.

Research Design Implications

The literature included in this review was moderately strong overall as assessed by the JBI tools. The weakest aspect of the existing literature was how missing data were handled. This could speak more to the state of scientific literature generally than in this specific topic, as cross-sectional research frequently fails to report on missing data (Masconi et al., 2015). Future research should strive to explicitly report all details on missing data to ensure that articles are effectively addressing this source of potential bias.

For studies using qualitative methods, only half adequately addressed researcher background or characteristics, which can be an important contributor to contextualizing findings and identifying any researcher biases (Lincoln & Guba, 1985). Future qualitative studies should ensure clear description of researcher context in relation to the research conducted.

All the quantitative studies in this review used cross-sectional data, which limits our ability to interpret causality. Studies with longitudinal designs are needed not only to determine temporal sequence, but to test stability of family relationship constructs and the stability of their impact on health and well-being outcomes among cohorts of young people. Designs among the qualitative studies varied, but the sparse number limited the overall richness of the available literature. Understanding the ways in which TGD youth describe family influences on health and well-being, and how these descriptions may differ from cisgender youth, may provide important contextual information for researchers and service providers. Additional qualitative studies of all designs are needed but approaches that include youth and a variety of family members (e.g., parents, siblings, grandparents) could provide additional triangulation and depth to the literature. No mixed-methods articles were found for this review. Researchers might consider integrating quantitative and qualitative approaches to provide mixed-methods products in order to provide unique understanding of how family relationships affect TGD youth health and well-being.

Sampling varied across studies and included recruitment of youth from LGBTQ serving community centers, gender clinics, public high schools, college and universities, and online spaces. This variation should be continued and expanded to include youth

from a range of venues to avoid bias. Approximately half of the included studies had participants who were recruited from metropolitan areas in the United States. Recruitment strategies that include rural areas and geographic locations outside of the United States should be prioritized to broaden our understanding of the contexts of TGD youth experiences in settings outside of U.S. metropolitan areas. As noted above, there was uneven sampling between youth assigned female at birth and youth assigned male at birth in the articles describing sexual health outcomes. Most articles included samples representing multiple TGD identities (e.g., include trans girls, trans boys, and non-binary youth). Many could not disaggregate samples in reports because the measures did not differentiate between specific identities or for other reasons (e.g., number of write-in options made it prohibitive). This limitation in study measures, along with small sample sizes, often limited analyses of specific identity groups. Future studies should recruit larger samples and include measures that allow for more specific analysis by identity, whenever possible.

Appropriately, the vast majority of the literature focused on parent-youth or general family-youth relationship constructs (as opposed to sibling-youth or grandparent-youth relationship constructs, for example). Researchers might build on those studies by examining a wider variety of specific family relationship constructs and determining differences in their influences on health and well-being. In addition, the field would benefit from investigations of potential differential effects based on specific parental characteristics such as parents' own gender identity or sexual orientation. Similar studies have been conducted among the general youth population to determine how specific

family relationships and specific parental characteristics influence youth health and well-being (Baiocco et al., 2018; Van Heerden & Wild, 2018).

Distinct characteristics of family relationships that influence the health and well-being of TGD youth could be examined in future research to determine if specific aspects of family relationships provide more effective support than other aspects. For instance, is it more important for clinicians to support commitment to the family of origin or to promote youth pursuit of a gender-affirming environment in their living situation? Existing studies have demonstrated that both general family support (Lefevor et al., 2018; Simons et al., 2013; Stotzer, 2011) and gender identity-specific family support (Bouris & Hill, 2017; Wilson et al., 2016; Yadegarfard et al., 2014) protect the health and well-being of TGD young people, but they have not explored the possibility of general and gender-specific support being unevenly offered within one family unit. Future research might measure these qualities and examine potential interactions between these specific family strengths.

Strengths and Limitations

As with all reviews, strengths and limitations characterize this work. Notable strengths include findings across studies uniformly indicating that strong family relationships are broadly protective for TGD youth, which is consistent with a body of research examining these relationships in general populations of youth. An additional strength is the broad range of health and well-being outcomes included in the reviewed articles, indicating that strong family relationships are protective against a number of risk behaviors and poor outcomes. Limitations include restrictions set by search parameters (e.g., inability to use the truncated term ‘trans’ as a search term due to the large number

of unrelated results returned) and the relatively small number of available independent data sources and scholarly articles addressing the topic of this review.

Conclusion

Literature regarding family relationships as a factor in the health and well-being of TGD youth is sparse. However, among the limited number of relevant studies, strong family relationships were found to support the health and well-being of TGD youth suggesting that positive family relationships may buffer youth against stress related to stigma associated with TGD identity. Health inequities experienced by TGD youth may be minimized with protective and positive family relationships. Informed preventive interventions improve odds of setting them on trajectories toward health and well-being. This review provides a foundation upon which researchers and practitioners can build to ensure all young people are provided with the opportunity to survive and thrive.

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Chapter 3: Methods

Review of Specific Aims

This project sought to address gaps in the current literature base by providing evidence of how parent-youth relationships and parental messages as perceived by TGD youth relate to sexual health among TGD young people. To review, the specific aims of this study were:

Specific Aim 1

Examine the relationship between parent connectedness and eight sexual health indicators among TGD youth in a large population-level sample.

H1: Greater parent connectedness will be associated with fewer risky sexual health behaviors and more sexual health promoting behaviors in final models.

H2: Patterns in the associations between parent connectedness and sexual health indicators will differ based on sex assigned at birth.

Specific Aim 2

Explore TGD youth perceptions of messages they have received from their parents in relation to sex, sexuality, and sexual health.

Specific Aim 3

Explore TGD youth perceptions of how parental messages about sex, sexuality, and sexual health influence youth feelings and decision-making related to their sexual health behaviors.

Design

As briefly described in Chapter 1, this dissertation followed a sequential QUAN→QUAL multimethod design with two distinct phases (Morse, 2003). First, the

quantitative phase, a cross-sectional design utilizing secondary survey data, addressed Specific Aim 1 and associated hypotheses. Second, the qualitative phase, a series of 8 in-depth semi-structured interviews with TGD young people from Minnesota, addressed Specific Aims 2 and 3. Data from each phase were analyzed separately and in Chapter 6 triangulated to form a complete picture of knowledge gleaned from this dissertation study.

Phase 1: Quantitative Design

The quantitative phase of this study employed data from the 2016 Minnesota Student Survey (MSS) which is conducted every three years across Minnesota public schools as a partnership between the Minnesota Departments of Education, Health, Human Services, and Public Safety. The 2016 MSS provides the unique opportunity to determine population-level associations between health outcomes and behaviors and a range of risk and protective factors. The 2016 MSS was the first time the survey included a measure of gender identity, allowing for this cross-sectional analysis addressing Specific Aim 1 and the associated hypotheses. As all data for *Phase 1* were de-identified secondary data, the University of Minnesota Institutional Review Board (IRB) exempted this portion of the dissertation from IRB review (IRB correspondence in Appendix A).

Sample and Data Collection

All public schools in Minnesota were invited to participate in the 2016 MSS and 85.5% of public school districts chose to participate (Minnesota Department of Health, 2016). The survey was distributed to 5th, 8th, 9th, and 11th grade students in the second semester of the 2015-2016 school year in both online and paper formats. In accordance with federal laws, passive parental consent procedures were followed. Parents or

guardians were informed of the survey prior to data collection and could opt their child out. Students were free to choose not to participate and if they took the survey, students were informed they could skip any question or stop at any point. No names, addresses, phone numbers, birthdates, registered id numbers, or other such identifying information was collected in association with the survey to protect anonymity and confidentiality.

The versions of the survey given to 5th and 8th grade students did not include all variables of interest, so these youth were excluded from the analytic sample. Of more than 81,000 9th and 11th grade students who took part in the 2016 MSS, 2,168 students identified themselves as TGD and were included in the primary analytic sample. Before providing the dataset to external researchers including those with the University of Minnesota, approximately 2% of MSS cases were discarded as responses were deemed highly implausible or internally conflicting, as per a standard protocol.

Measures

Focal Independent Variable: Parent connectedness. Three items (Gower et al., 2018) were included in the MSS parent connectedness variable: "Can you talk to your father about problems you are having?" (most of the time, some of the time, not very often, not at all, my father is not around), "Can you talk to your mother about problems you are having?" (most of the time, some of the time, not very often, not at all, my mother is not around), and "How much do you feel your parents care about you?" (Not at all, a little, some, quite a bit, or very much). The first two items were re-coded to match the direction of the third item; higher scores indicated higher parent connectedness (Cronbach's alpha=0.65). The mean of the items was used to represent an individual's parent connectedness. Participants missing more than one parent connectedness item were not

included in the analysis. Notably, the internal consistency of this measure is borderline-low. This reflects a measure that combines two concepts: parent-youth communication and parental caring, and includes a relatively small number of items. As such, the internal validity was determined to be acceptable.

Dependent Variables: All participants were asked to indicate ever having had *sex* with the question: "Have you ever had sexual intercourse ("had sex")?" (yes=1; no=0). Only participants who answered this item in the affirmative were asked additional questions about sexual behaviors and outcomes. Thus, the analytic sample for models testing associations with subsequent sexual health variables was those students who reported ever having had sexual intercourse.

Multiple sexual partners in the last 12 months. Two items were combined to indicate multiple sexual partners in the last year. One item asked, "During the last 12 months, with how many different male partners have you had sexual intercourse?" and gave seven response options from "none" to "6 or more persons." The other item was the same question and response options asking about female partners. Participants indicating more than one partner in response to either item or across items were coded as having multiple sexual partners in the last year (two or more partners=1; one or fewer partners=0).

Substance use before last sex. Participants were asked about substance use before last sex with the question: "Did you drink alcohol or use drugs before you had sexual intercourse the last time?" (yes=1; no=0).

Pregnancy involvement. Participant involvement with pregnancy was measured with the question: "How many times have you been pregnant or gotten someone pregnant?" (ever/unsure=1; never=0).

Condom use at last sex. Participants indicated condom use at last sex by answering the question: "The last time you had sexual intercourse did you or your partner use a condom?" (yes=1; no=0).

Pregnancy prevention at last sex. Use of effective methods of pregnancy prevention at last sex was assessed with the question: "The last time you had sexual intercourse, what one method did you or your partner use to prevent pregnancy?" (pill/condom/shot/ring/implant/ IUD/other=1; no method/withdrawal/unsure=0). Notably, both youth who identified themselves as LGBQ and/or reported same sex behavior in the full sample of 9th and 11th grade students were more likely to have reported use of "other" methods to prevent pregnancy at last sex. Furthermore, a gradient pattern by sexual orientation was noted indicating as individuals identified with groups more likely to have same sex behaviors, they were more likely to select "other" (heterosexual = 0.7%; questioning sexual orientation = 1.4%; bisexual = 3.1%; gay/lesbian = 6.0%). As this response can be interpreted as "the last time I had sex it was with someone with the same body parts as me," which is an effective way to avoid pregnancy, "other" was included with other effective methods to decrease the cisnormativity and heteronormativity of the measure.

Communication with partner(s) about sexually transmitted infection (STI) prevention. Participants indicated communication with partner(s) about sexually transmitted infection (STI) prevention with the question: "Have you talked with your

partner(s) about protecting yourselves from getting sexually transmitted infections/HIV/AIDS?" (every partner=1; not with every partner/never=0).

Communication with partner(s) about pregnancy prevention. Participants indicated communication with partner(s) about pregnancy prevention with responses to a question asking, "Have you talked with your partner(s) about preventing pregnancy?" (with every partner=1; not with every partner/never=0).

Control Variables: The multivariate models included four variables that may influence the likelihood of involvement in sexual behaviors and outcomes examined in this study.

Grade level was reported as either 9th or 11th grade.

Race and ethnicity. Participants were asked to describe their race and ethnicity by selecting one or more of five racial groups and whether they considered themselves Hispanic or Latino/a. Responses were combined to create 6 exclusive categories: American Indian or Alaskan Native (non-Hispanic); Asian, Native Hawaiian, or other Pacific Islander (non-Hispanic); Black, African, or African American (non-Hispanic); White (non-Hispanic); multiple races (non-Hispanic); and Hispanic or Latino/a.

Economic hardship. Three items were combined to assess economic hardship (Chatterjee et al., 2018). In the first item, participants were asked to indicate if they currently received free or reduced-price lunch at school (yes/no). In the second item, youth were asked if during the last 12 months they had "stayed in a shelter, somewhere not intended as a place to live, or someone else's home" because they had no other place to stay; an affirmative answer indicated housing insecurity. The third item asked participants to indicate if during the past 30 days they had skipped meals because their families did not have enough money to buy food (yes/no). Participants who indicated

receiving free or reduced-price lunch at school, affirmed housing insecurity, or skipped meals because their family could not afford food were considered to be experiencing economic hardship.

Household structure. To assess household structure, participants were asked to indicate which adults they lived with from a list of 13 options (biological mother, biological father, adoptive mother, adoptive father, sometimes mother and sometimes father, stepmother, stepfather, parent's girlfriend/partner, parent's boyfriend/partner, grandparents or other adult relatives, foster parents, other unrelated adults, or no adults). Participants who indicated living with two biological or adoptive parents (or a combination thereof) were coded as living in a nuclear family. All other household structures were coded as 0.

Data Analysis Plan

Descriptive statistics were calculated to characterize the sample and examine distribution of variables. To address ***H1***, separate multivariate logistic regression models were used to describe associations between TGD participant's *parent connectedness* and the eight sexual health variables: (1) ever having *sex*, (2) *having multiple sexual partners* in the past year, (3) *pregnancy involvement*, (4) *substance use at last sex*, (5) *partner communication about STI prevention*, (6) *partner communication about pregnancy prevention*, (7) *condom use at last sex*, and (8) *pregnancy prevention at last sex*. Models were stratified by sex assigned at birth. This resulted in a total of 16 models. Both unadjusted (i.e., without control variables) and adjusted (i.e., including grade level, race and ethnicity, economic hardship, and household structure variables) models were presented in the manuscript (see Table 4.3).

With half of the outcome variables—ever having sex, having multiple sexual partners in the past year, pregnancy involvement and substance use at last sex—an odds ratio of less than one indicated parent connectedness as a protective factor against the outcome. The other four outcome variables—sexual health promoting behaviors of partner communication about STI prevention, partner communication about pregnancy prevention, using effective STI prevention at last sex, and using effective pregnancy prevention at last sex—were coded such that an odds ratio of greater than one indicated parent connectedness as a health promoting factor for the outcome.

To address ***H2***, interaction terms were introduced into models to assess differences in parent connectedness' impact on sexual health indicators based on sex assigned at birth. Eight combined models (i.e., unstratified models) were adjusted with the same control variables as final **H1** models—grade level, race and ethnicity, economic hardship, and household structure variables—and an additional sex assigned at birth variable—assigned male at birth as reference group. Findings are presented in Appendix E (Table E.1). Significance was determined for interaction terms at $p < .05$ and 95% confidence intervals were calculated for odds ratios. Analyses were performed using SPSS version 22.0 (IBM Corporation, Armonk, NY).

Missing Data

As previously stated, prior to the publicly available dataset being released for use in this study, approximately 2% of cases were removed as survey results indicated associated participants were inconsistent responders. This study employed listwise deletion—or deletion of cases with missing data—as the primary method of handling missing data in *Phase 1*. For example, 27 TGD participants did not respond to the item on

sex assigned at birth, therefore those participants were not included in the models addressing H1 that were stratified by sex assigned at birth or the models addressing H2 that included an interaction term for sex assigned at birth. The only exception was for parent connectedness, a variable created as the mean of three items, where missing data on a single item does not change interpretation of the mean. The valid total sample will be reported along with missing percentages for each variable.

Data in the primary analytic sample—TGD 9th and 11th grade participants—were missing at a rate of between 0.7-12.9% depending on specific item. All independent and control variables were missing data at a rate of less than 10% per variable (0.3-9.1%)—with the exception of the combined three-item variable of economic hardship (10.1%)—which is relatively low. The dependent variables were missing data in 11.9-12.9% of cases when assuming all missing cases would have answered skip pattern questions. See Table 3.1 for full details on missing data for total sample, as well as by grade level and by birth assigned sex. Skip-pattern dependent variables were missing data in 0.3-3.7% of cases when only including respondents who indicated being sexually active (see Table 3.2 for details).

Table 3.1
Missing data statistics for select variables from the 2016 Minnesota Student Survey by grade level and sex assigned at birth among TGD youth

	Total missing *n=2168*		Missing by grade level				Missing by sex assigned at birth					
			9th n=1271		*11th n=897*		*AFAB n=1457*		*AMAB n=684*		*Missing n=27*	
Focal independent variable	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Parent connectedness	16	0.7	7	0.6	9	1.0	5	0.3	10	1.5	1	3.7
Communication with father	19	0.9	10	0.8	9	1.0	10	0.7	8	1.2	1	3.7
Communication with mother	19	0.9	9	0.7	10	1.1	7	0.5	11	1.6	1	3.7
Parental caring	141	6.5	76	6.0	65	7.2	63	4.3	76	11.1	2	7.4
Dependent variable	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Ever had sex	258	11.9	157	12.4	101	11.3	133	9.1	120	17.5	5	18.5
Multiple partners in the last year	260	12.0	159	12.5	101	11.3	134	9.2	121	17.7	5	18.5
Pregnancy involvement	262	12.1	158	12.4	104	11.6	134	9.2	123	18.0	5	18.5
Substance use at last sex	260	12.0	159	12.5	101	11.3	134	9.2	121	17.7	5	18.5
Communication with partner(s) about STI prevention	265	12.2	161	12.7	104	11.6	134	9.2	126	18.4	5	18.5
Communication with partner(s) about pregnancy prevention	266	12.3	161	12.7	105	11.7	135	9.3	126	18.4	5	18.5
Condom use at last sex	267	12.3	165	13.0	102	11.4	138	9.5	123	18.0	6	22.2
Pregnancy prevention at last sex	279	12.9	167	13.1	112	12.5	143	9.8	131	19.2	5	18.5
Control variables	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Sex assigned at birth	27	1.2	15	1.2	12	1.3	N/A	N/A	N/A	N/A	N/A	N/A
Race and ethnicity	28	1.3	16	1.3	12	1.3	13	0.9	12	1.8	3	11.1
Economic hardship	219	10.1	125	9.8	94	10.5	100	6.9	112	16.4	7	25.9
Reduced price lunch	19	0.9	12	0.9	7	0.8	9	0.6	8	1.2	2	7.4
Stayed in shelter	198	9.1	111	8.7	87	9.7	87	6.0	107	15.6	4	14.8
Food insecurity	104	4.8	53	4.2	51	5.7	48	3.3	53	7.7	3	11.1
Household structure	28	1.3	14	1.1	14	1.6	12	0.8	16	2.3	0	0.0

Note: TGD=Transgender or Gender Diverse; AFAB=Assigned Female at Birth; AMAB=Assigned Male at Birth; N/A=Not Applicable

Table 3.2
Missing data statistics for select sexual health variables from the 2016 Minnesota Student Survey by grade level and sex assigned at birth among sexually active TGD youth

	Total missing *n=572*		Missing by grade level				Missing by sex assigned at birth					
			9th n=238		*11th n=334*		*AFAB n=378*		*AMAB n=187*		*Missing n=7*	
Dependent variable	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Multiple partners in the last year	2	0.3	2	0.8	0	0.0	1	0.3	1	0.5	0	0
Pregnancy involvement	4	0.7	1	0.4	3	0.9	1	0.3	3	1.6	0	0
Substance use at last sex	2	0.3	2	0.8	0	0.0	1	0.3	1	0.5	0	0
Communication with partner(s) about STI prevention	7	1.2	4	1.7	3	0.9	1	0.3	6	3.2	0	0
Communication with partner(s) about pregnancy prevention	8	1.4	4	1.7	4	1.2	2	0.5	6	3.2	0	0
Condom use at last sex	9	1.6	8	3.4	1	0.3	5	1.3	3	1.6	1	14.3
Pregnancy prevention at last sex	21	3.7	10	4.2	11	3.3	10	2.6	11	5.9	0	0.0

Note: TGD=Transgender or Gender Diverse; AFAB=Assigned Female at Birth; AMAB=Assigned Male at Birth; N/A=Not Applicable

Notably, among the full sample of TGD participants, a lower percentage of 9th grade students responded to items related to the focal independent variable; while the opposite was true for the dependent variables. Patterns in the missing data for control variables were more scattered. AMAB youth failed to respond to all items at a higher rate than AFAB youth. Among sexually active TGD youth, AMAB youth 9th grade students tended to have higher rates of missing data; however, the cell sizes are particularly small among sexually active TGD youth, so these differences were not statistically significant.

Phase 2: Qualitative Design

The qualitative portion of this study centered on the voices and experiences of the TGD young people who were recruited from the community and participated in semi-structured interviews. In *Phase 2*, the collected data were analyzed by two members of the research team (Camille Brown and Dr. Nic Rider) using inductive content analysis. This process addressed Specific Aims 2 and 3. Protocols for *Phase 2*, were approved by the University of Minnesota IRB (see Appendix B).

Recruitment and Sample

Eight TGD young people were interviewed for this study. As is most appropriate for recruitment of hidden, stigmatized groups (Heckathorn, 1997), this study relied on non-probability intercept- and referral-driven sampling with the assistance of partners and personal contacts in school districts and TGD youth serving community organizations throughout the Minneapolis-St. Paul metropolitan area. Youth who identify as TGD between the ages of 16 and 23 were eligible. This age range represents the same age cohort as those represented in the Phase 1 data (i.e. 9th and 11th grade 2016 MSS participants would be the appropriate age to participate in Phase 2 during the study period). This study intentionally sampled for youth of color, youth who had experienced homelessness, and approximately even numbers of youth assigned male or assigned female sex at birth to maximize variability of experiences. However, the final group of participants displayed an uneven distribution by sex assigned at birth. Recruitment took place through word of mouth and fliers (see Appendix C) placed at identified community locations where TGD youth were likely to congregate, including community youth serving organizations (e.g., student clinic at Macalester College) and online spaces (e.g.,

Facebook group “Minneapolis/St. Paul Trans Exchange”). Young people who were interested in participating contacted the student PI to determine fit with study via text message (SMS message), telephone call, or email.

Recruitment took place between July and October of 2019. Twenty-eight people were screened for eligibility and fit with study. The vast majority of interest in participation came from a flyer posted on a trans-specific Facebook group. To promote variability in the sample, the student PI, in consultation with her dissertation committee, decided to cap the number of participants recruited from a single source at half of the sample. Notably, more people assigned female (n=20) were screened than people assigned male (n=7). One additional person was screened but because they were outside eligible age range, deemed ineligible before birth assigned sex was assessed. Additionally, two young people assigned male at birth who met eligibility criteria and initially agreed to participate changed their minds on the day of the interviews before enrolling in the study. As such, the final group of participants has an uneven distribution of birth assigned sex.

Study procedures and ethical considerations were discussed with all participants and a participant guardian (if under 18 years of age) per informed consent protocol. All participants 18 years of age and older and parents of youth under 18 signed consent forms prior to data collection. Youth under 18 signed assent forms prior to data collection. To protect participants under the age of 18 in instances where they might have not felt safe informing their parents or legal guardians about this study, youth would have been allowed to sign for their own participation under a waiver of parental consent granted by the University of Minnesota IRB per recommendations for research involving LGBT

youth (Taylor, 2008). However, only one participant in the sample was under 18 and he felt comfortable and safe seeking parental consent, so the waiver was not enacted.

Data Collection

In person, one-on-one interviews took place on the University of Minnesota campus in private conference rooms and spanned 49-79 minutes. The interview followed a semi-structured interview guide (see Appendix D) developed utilizing concepts from Social Cognitive Theory (Bandura, 1986). To begin each interview, participants were asked to create a visual representation of their family using the provided 'family information labels,' tag board, tape, and markers. Participants were not provided with specific definitions of who to include or define as family. Family members could be added or removed as the participant decided throughout the interview. This method of describing participant families was useful for three reasons. First, it provided the interviewer with the ability to easily track who family members were throughout the interview without relying on memory or taking notes which ensured the interviewer could fully engage in the interview. Second, this method provided a concrete framework for the participant to come back to which kept interviews focused. Third, it documented quantitative data about participants' families (e.g. birth order, ages, etc.) and the participants' relationships with each member systematically (e.g. the family members who know about the participants' gender identity).

In order to build trust and comfort for the participants, interview questions began as broad and unobtrusive (e.g., Looking at this family chart you made, who do you feel closest to overall?) and worked up to potentially emotionally sensitive questions (e.g., Who are you open about your gender with?) and more invasive questions (e.g., Who in

your family influences how you feel about sex and sexual health most and could you share some examples of their influence?). Throughout the interview, some questions asked participants to add to the visual representation of their family by identifying specific relationship qualities in different colors on the chart. As participants answered questions, they were encouraged to elaborate on or clarify statements that needed further development through informal probes (example: Can you tell me more about that?). At the end of each interview, participants were asked if they had anything further they would like to add to ensure a complete overview of the participant's experiences. Youth who participated were provided with a $50 gift card as a token of appreciation.

Data Analysis

Each interview was transcribed by a professional transcriptionist and then the student PI compared transcripts to the audio to ensure accuracy, errors were corrected. Transcription service maintains an agreement of confidentiality with the University of Minnesota's School of Nursing ensuring data remained confidential and secure prior to, during, and following transcription. The qualitative analysis followed a series of steps characterizing content analyses (Saldana, 2016). First, two members of the research team (Camille Brown and Dr. Nic Rider) reviewed each transcript and discussed relevant structural codes. Structural codes are codes applied to segments of data that allow data to be sorted based on a content-based or conceptual topic that relates to a specific research question used to frame the interview (Saldana, 2016).

Second, transcribed dialogue was uploaded to NVivo 12 software (QRS International, 2018) and sorted by structural codes. In this study, the structural codes represented family groups discussed by the participant. Each structural code was labeled

by the analysis team as *parent*, *sibling*, *other family member* (e.g. grandparent, aunt, etc.), *family as a general concept* (i.e. describing family in general but not discussing individual members or groups of members), or *mixed group*. While family information labels did ask participants to assign relationship labels to each family member, complex family structures made determining family groups by relationship label alone unreliable. As such, *parent* and *sibling* family groups were defined for each participant individually using a standardized method developed by the student PI basing decisions on family information labels, transcript review, and rule in/rule out decision making (Camille Brown) and reviewed by the other member of the coding team (Dr. Nic Rider). This method is described in more detail in the paragraph below.

For the *parent* family group, the standardized method to determine who were considered parents was designed in consideration of the legal definition of "parent" and based on three factors characterizing that definition (Richards, 1991). The first factor considered was biological parentage. Biological parents were ruled out only if a participant: (a) did not mention a specific biological parent or (b) strongly indicated that a biological parent was minimally involved in parenting (e.g. participant was adopted at a young age and had minimal contact with biological mother). The second factor considered was if an adult was a legally defined parent or guardian to the participant (e.g. adoptive parent, foster parent, etc.). Legal parents were ruled out only if the role was: (a) short term (e.g. less than a year) or (b) legal parenting relationship occurred only when the participant was too young to recall details of the relationship (e.g. participant in a long-term foster care placement from infancy to preschool age). The third factor considered was long-term partnerships with another parent (e.g. stepparent). A parent's

long-term partner was ruled out if: (a) the relationship did not include cohabitation with the participant during childhood or adolescence, (b) the participant indicated the parent's long-term partner took on minimal or no parenting roles for the participant, or (c) the participant indicated explicitly they did not consider the parent's long-term partner to be a parent. The *sibling* family group had a similar method but does not pertain to this dissertation and is thus not described herein. The *other* family member group was defined as any person discussed as a family member who did not fall into a *parent* or *sibling* family member group.

After structural coding was complete, data were coded inductively by each individual coder and individual code lists were generated. Text coded as *parent*, *family as a general concept*, or *mixed group* was included in analysis to address Aims 2 and 3. All text coded as *parent* or *family as a general concept* was included in the analysis. Text discussing a *mixed group* of family members was only included if parents were not excluded from the group being discussed (e.g. a discussion about cousins and siblings would not be included in analysis). Next, coders met to reconcile code list differences and discuss other discrepancies. Differences and discrepancies were discussed to consensus. Finally, codes were sorted into distinct themes and exemplar quotes were selected (Saldana, 2016).

Reflexivity

Approaching this dissertation, the student PI acknowledged and remained conscious of the fact that she is a white, educated, middle-class, queer, cisgender woman with her own experiences as a nurse, a sister, and offspring of her parents. These identities emerged differently throughout this project and she sought to hold space to

consider the ways in which they influenced the qualitative portion of the dissertation in particular.

Often, the student PI considered the question of why she was the right person to take on this project. Her identity as a cisgender woman meant she had not experienced what TGD youth experience growing up. Her experience as a middle-class, white woman did not match the experiences of many participants who were racial or ethnic minorities or had lived in poverty. However, she did have some overlapping experiences to draw from, such as the experience of hearing information about sexuality from her parents that did not match with her needs as a queer young person. As a nurse, the student PI practiced in communities consisting of primarily people of color, characterized by generational poverty stemming from the effects of racism in U.S. culture. In this role, she worked closely with transgender students struggling to articulate their gender identities and provided inclusive education about sexual health. This work with racially diverse groups of youth and their families taught her to consider the importance of cultural identity and provided specific insights into the experiences of TGD youth and their intersecting identities. These experiences are what initially drove her interest in this dissertation project.

However, perhaps the most pivotal role that brought the student PI to this work was that of a sister and caregiver for a transgender woman. She has long been the primary emotional support for her younger sister, growing-up in a household with parents who were not willing to or capable of providing safe emotional space. The summer before her second year in graduate school, the student PI's sister was hospitalized after an attempted suicide (one of twenty or more similar attempts in her life to that point). During that

hospitalization, the student PI's sister came out as transgender and her care provider decided it would not be safe for her to return to their parents' home where she had been living. As the student PI was already her sister's primary emotional support and had not had contact with their parents for several years, the provider agreed to let her sister leave the facility only if she would be staying with the student PI. The student PI drove to pick her sister up from the hospital in a neighboring state the next day. Over the ensuing years, as her sister's caretaker, the student PI has been intimately aware of her sister's experiences as a transgender woman just coming out. From her sister's struggle with internalized trans-negativity to dealing with systemic transphobia in health care and social systems; from her sister's gender dysphoria around her sex organs to the adjustments in her expression of sexuality and approach to intimate relationships. The student PI was a part of those experiences as a confidante, advocate, and advisor.

Still, the student PI acknowledges that parallel or tangential experiences do not provide the same depth of understanding that holding an identity does. Additionally, the experiences of an individual do not equate to the experience of people across a population; so, her experience with her sister and parents would not necessarily be reflective of the participants in this study. With this in mind, the student PI approached the design of the project in consultation with multiple TGD people including a colleague, Dr. Nic Rider, who provided support across the project including sharing in the process of qualitative data analysis. This promoted the centering of TGD people throughout the design of interview items, data analysis, and manuscript development.

Another important reflexive action she took was to begin each interview with introductions that included acknowledgment of her identity as a queer, cisgender nurse

who worked with young people and her identity as the sister of a transgender woman. This provided more equitable positioning from which to build relationships with the participants. It allowed the young people to approach the conversations from a place of power. This information told participants that she was there to learn from them and was familiar with and engaged enough in the TGD community that they could discuss content without needing to explain or defend the validity of their experiences.

These actions, as well as articulation of her positioning within the content, are necessary to provide sufficient information on the process of reflexivity within this project. Self-reflexivity is essential to multiple aspects of science, including data collection in the field and interpretation of the findings (Saldana, 2016; Wesp, 2019). Awareness of her own positioning in relation to the project and consideration of how that positioning should be acknowledged and applied was vital to the integrity of the work she sought to do.

Chapter 4: Manuscript Two (Title: Parents matter: Associations between parent connectedness and sexual health indicators among transgender and gender diverse adolescents)

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Abstract

Although transgender and gender diverse (TGD) youth experience significant health disparities, many are thriving due in part to external protective factors such as parent connectedness. Sexual health is an aspect of health for which parent connectedness may have particularly strong influences. This study investigates relationships between parent connectedness and sexual health indicators among TGD youth who participated in a statewide population-based survey of high school students, the 2016 Minnesota Student Survey. Multivariate models, stratified by sex assigned at birth, tested associations between parent connectedness and eight sexual health indicators— (1) ever having sex, (2) having multiple sexual partners in the past year, (3) pregnancy involvement, (4) substance use at last sex, (5) partner communication about STI prevention and (6) pregnancy prevention, and (7) methods of STI prevention and (8) pregnancy prevention at last sex—among TGD participants (n=2,168). Results indicate that parent connectedness was protective against ever having had sex, regardless of sex assigned at birth. While parent connectedness was found to be protective against having multiple sexual partners in the past year and pregnancy involvement among TGD youth assigned male at birth, these relationships were non-significant among TGD youth assigned female

at birth. Further differences in associations between parent connectedness and four sexual risk-reduction behaviors were found between youth assigned male at birth and those assigned female. Findings support the literature suggesting, as with other youth populations, parent connectedness is linked to TGD youth health and well-being.

Introduction

Young people of all gender identities engage in significant sexual development during adolescence as part of their overall development (Arbeit et al., 2015). Social, emotional, and cognitive skills established during adolescence influence engagement in fulfilling relationships and sexual decision-making in adulthood (Diamond & Savin-Williams, 2009). Research in the area of adolescent sexual health is of particular importance as adolescents bear a disproportionate share of negative sexual health outcomes compared to adults (Centers for Disease Control and Prevention, 2017). For instance, in the United States, half of all new sexually transmitted infections (STI) reported occur among youth between 15 and 24, even though youth ages 15-24 comprise only one quarter of the sexually active population (Centers for Disease Control and Prevention, 2017). Many facets of strong parent-youth relationships may promote sexual health and positive development of young people (Beach et al., 2016; Beckmeyer & Russell, 2018; Rote & Smetana, 2015; Sieving et al., 2017) and thereby reduce the disproportionality of adverse sexual health outcomes borne by youth.

One key aspect of parent-child relationships that influences multiple dimensions of health is parent connectedness (Conner et al., 2016; Sieving et al., 2017; Taliaferro & Muehlenkamp, 2017; Williams & Chapman, 2012). Parent connectedness is the sense of closeness between a child and their parent or parents (Resnick et al., 1997). This bond

can be described by an adolescent's perceptions of parental caring and parent-child communication (Sieving et al., 2017). Parent connectedness has an important role in the sexual and reproductive health of adolescents (Markham et al., 2010b; Sieving et al., 2017; Steiner et al., 2014). Youth who report high levels of parent connectedness are more likely to delay sexual debut (Sieving et al., 2017) and to use condoms when they have sex (Sieving et al., 2017; Wilson et al., 2012), and are less likely to be diagnosed with an STI (Steiner et al., 2014), although specific patterns of relative risk often differ based on birth assigned sex. As such, understanding parent connectedness' relationship with sexual health behaviors may be valuable for health care and community service providers promoting sexual health among groups of young people at elevated risk of negative sexual health outcomes.

Transgender and Gender Diverse (TGD) Youth

Within the field of adolescent health, there is a growing awareness of health disparities borne by youth who identify as transgender or gender diverse (TGD). TGD young people have gender identities that do not align fully with their sex assigned at birth (American Psychological Association, 2015). Cisgender youth are those youth for whom gender identity and sex assigned at birth are aligned (American Psychological Association, 2015). TGD youth consistently report poorer health and more high risk behaviors—including risky sexual behaviors—than do cisgender youth (Clark et al., 2014; Eisenberg et al., 2017; Perez-Brumer et al., 2017; Reisner et al., 2015; Rider et al., 2018; Veale et al., 2017). TGD young people are not inherently at high risk of poor health due to their gender identity; instead it is theorized that chronic stress related to their stigmatized minority gender identity leads to these disparities (Hendricks & Testa,

2012). Minority stress theory posits a combination of distal and proximal stressors related to minority status—including internalized transphobia and experiences of discrimination based on TGD identity—directly impact the health and wellbeing of TGD individuals (Hendricks & Testa, 2012; Meyer, 1995, 2010).

Despite these stressors, it is important to acknowledge that many TGD young people are thriving, perhaps due in part to protective factors in their families such as high levels of parent connectedness supporting these youth (Gower et al., 2018; Taliaferro et al., 2018; Watson et al., 2017; Wilson et al., 2016). Such protective factors have been shown to be important in promoting resilience among young people (Fergus & Zimmerman, 2005). In minority stress theory, resilience (i.e., the ability to recover quickly from distressing circumstances) is described as a mediating factor that buffers minority group individuals against the harmful impact of minority stress (Hendricks & Testa, 2012). As such, particular attention should be paid to supporting the resilience of vulnerable groups including TGD youth, by promoting factors like parent connectedness. Unfortunately, TGD youth are more likely than cisgender youth to report lower levels of parent connectedness (Eisenberg et al., 2017). To ensure youth who are thriving continue to do so, and to provide needed support to youth who are struggling, further efforts are needed to promote and strengthen family relationships that may be sources of support for youth.

Family Relationships and TGD Sexual Health

In a recent systematic review of literature, associations between strong family relationships and positive health and well-being outcomes for TGD youth were similar to linkages found in general youth populations (Brown et al., 2020). For example, the

likelihood of experiencing mental health problems or engaging in substance abuse was less likely for TGD youth with strong family relationships compared to TGD youth with tenuous family relationships. However, findings from the limited number of studies specifically addressing sexual health outcomes among TGD youth were mixed and reliant on samples limited in size and/or ethnic diversity (Bouris & Hill, 2017; Stotzer, 2011; Wilson et al., 2012; Yadegarfard et al., 2014). Furthermore, samples from these four studies including sexual health indicators included youth assigned male at birth (AMAB) nearly exclusively; youth assigned female at birth (AFAB) were only included in one study, with fewer than 3% of the sample reporting being AFAB. This limitation is concerning, as associations between specific risky sexual behaviors and parental or family connectedness often vary on the basis of sex assigned at birth (Markham et al., 2010a; Sieving et al., 2017).

Additional research assessing associations between family relationship variables and sexual health indicators with large diverse samples of TGD youth is particularly important because the experiences of family dynamics for TGD youth may be substantively different than for cisgender youth. For instance, it is theorized that parent-youth communication specific to topics of sex and sexuality reduces risk of youth sexual risk taking behaviors (Holman & Kellas, 2015; Whitaker & Miller, 2000). Research also suggests that the quality of parent-youth communication about sex is an important influence on sexual risk taking among adolescents (Rogers et al., 2015). However, communication about sex and sexuality between TGD youth and their parents may not be of the same quality as communication about sex between cisgender youth and their parents. This is because parent-youth communication about sex is often strongly

influenced by parents' understanding and beliefs in societally dictated gender roles or stereotypes related to sexuality (Goldfarb et al., 2018; Velazquez et al., 2017). For example, young girls are often expected to be gatekeepers of sexual activities while boys are expected to be initiators and often aggressors in the process. Gender roles may be less clear or applicable when parents are discussing sex with TGD youth. Relatedly, research involving other marginalized groups, such as gay, bisexual, and queer young men, indicates parental communication about sex and sexual health may be fundamentally different in relevance, frequency, and accuracy compared to parental communication with heterosexual youth (Flores et al., 2018). Finally, TGD youth may find parents are less willing or prepared to engage in communication about sex with them because sexual activity among TGD youth may not reflect heteronormative and cisnormative expectations. As a result, family relationships may be less effective in promoting healthy sexual behaviors among TGD youth than cisgender youth.

This study aims to address gaps in the literature and examine evidence regarding the impact of parent connectedness on the sexual health of TGD youth. Specifically, we seek to examine relationships between parent connectedness and eight sexual health indicators among TGD youth in models stratified by sex assigned at birth in a large population-based sample. First, our study tests our a priori hypothesis that greater levels of parent connectedness will be inversely associated with ever having sex and risky sexual behaviors and positively associated with sexual health promoting behaviors. Second, our study considers if patterns in associations between parent connectedness and sexual health indicators differ based on sex assigned at birth.

Methods

Data for the study were collected as part of the statewide Minnesota Student Survey (MSS) conducted in 2016 with 9th and 11th grade students as a collaborative project between the Minnesota Departments of Education, Health, Human Services, and Public Safety. The MSS has been conducted every three years among Minnesota public schools for approximately 30 years, providing researchers with the unique opportunity to determine population-level associations between health outcomes and behaviors and a range of risk and protective factors for Minnesota's youth. All public schools in Minnesota were invited to participate in the survey and, in 2016, 85% of public school districts chose to participate (Minnesota Department of Health, 2016).

The 2016 MSS administered to 9th and 11th grade students included 248 items (with skip patterns for certain high-risk behaviors) and was available to schools in either paper or electronic formats. Youth who participated did not have their names or other identifiers connected with their data at any time, ensuring confidentiality. In accordance with federal laws, passive parental consent procedures were followed (Minnesota Department of Health, 2016). In order to improve the validity of self-reported data, approximately 2% of surveys were discarded due to highly implausible or inconsistent responses or a response pattern suggesting exaggeration. A total of 81,885 9th and 11th graders took part in the 2016 survey. The University of Minnesota Institutional Review Board determined the current study was exempt from review as it was a secondary analysis of de-identified data.

Measures

Gender Identity. A modified version of the validated two-item (Reisner et al., 2014) approach to measurement of gender identity was included for the first time in the 2016

MSS. First, participants were asked to identify their sex assigned at birth with the question, “What is your biological sex?” (male or female). Second, participants were asked about gender identity with the question, “Do you consider yourself transgender, genderqueer, genderfluid, or unsure about your gender identity?” (yes or no). Students who selected “yes” on the second question were categorized as TGD and were included in the primary analytic sample (n = 2,168). Cisgender youth (n = 79,717) were included the descriptive analysis sample for comparison.

Dependent Variables

Ever had sex. All students were asked to indicate if they *ever had sex* with the question: “Have you ever had sexual intercourse (“had sex”)?” (yes=1 or no=0). Only participants who answered in the affirmative were asked to complete other survey questions about sexual health and are therefore included in subsequent analyses (n=565).

Risky Sexual Behaviors. Three risky sexual behaviors were measured on the MSS. Two items were combined to indicate *multiple sexual partners in the last year*. One item asked, “During the last 12 months, with how many different male partners have you had sexual intercourse?” and gave seven response options from “none” to “6 or more persons.” The other item was the same question and response options asking about female partners. Participants indicating more than one partner in either item or across items were coded as having multiple sexual partners in the last year (two or more partners=1 or one or fewer partners=0). *Pregnancy involvement* was indicated by the question: “How many times have you been pregnant or gotten someone pregnant?” (ever/unsure=1 or never=0). Participants were asked about *substance use at last sex* with

the question: “Did you drink alcohol or use drugs before you had sexual intercourse the last time?” (yes=1 or no=0).

Sexual Health Promoting Behaviors. Four health promoting behaviors were included on the survey. Participants indicated *communication with partner(s) about STI prevention* with responses from the question, “Have you talked with your partner(s) about protecting yourselves from getting sexually transmitted infections/HIV/AIDS?” (every partner=1 or not with every partner/never=0). *Communication with partner(s) about pregnancy prevention* was indicated with responses from the question asking, “Have you talked with your partner(s) about preventing pregnancy?” (every partner=1 or not with every partner/never=0). Participants indicated *condom use at last sex* by answering the question, “The last time you had sexual intercourse did you or your partner use a condom?” (yes=1 or no=0). Use of effective methods of *pregnancy prevention at last sex* was assessed with the question, “The last time you had sexual intercourse, what one method did you or your partner use to prevent pregnancy?” (pill/condom/shot/ring/implant/IUD/ other=1 or no method/withdrawal/unsure=0).

Independent Variables

Parent connectedness. Three items (Gower et al., 2018) were included in the parent connectedness variable: “Can you talk to your [mother/father] about problems you are having?” (most of the time, some of the time, not very often, not at all, my [mother/father] is not around; two questions) and “How much do you feel your parents care about you?” (Not at all, a little, some, quite a bit, or very much). The first two items were re-coded to match the direction of the third, so that higher scores indicate higher parent connectedness (Cronbach's alpha=0.65). The mean of the items was used to

represent an individual's parent connectedness. Participants missing more than one parent connectedness item were not included in the analysis (missing n=15, 0.7%).

Control variables

Multivariate models included four variables that may influence the likelihood of reporting or performing these sexual behaviors. *Grade level* was reported as either 9th or 11th grade. Students were asked to describe their *race and ethnicity* by selecting one or more of five racial groups and whether they considered themselves Hispanic. Responses were combined to create six exclusive categories: American Indian or Alaskan Native (non-Hispanic); Asian, Native Hawaiian, or other Pacific Islander (non-Hispanic); Black, African, or African American (non-Hispanic); White (non-Hispanic); multiple races (non-Hispanic); and Hispanic or Latino/a. Students who indicated receiving free or reduced price lunch at school, housing insecurity, or skipping meals because their family could not afford food were considered to have *economic hardship*. To assess *household structure*, participants were asked to indicate which adults they lived with (biological mother, biological father, adoptive mother, adoptive father, sometimes mother and sometimes father, stepmother, stepfather, parent's girlfriend/partner, parent's boyfriend/partner, grandparents or other adult relatives, foster parents, other unrelated adults, or no adults). Students who indicated living with both parents together (two biological or adoptive parents living in the home) were coded as living in a nuclear family (1) vs. living in another household structure (0).

Analysis

Analyses were conducted using IBM Corporation's SPSS Statistics, version 22.0. To account for differences between birth assigned sexes (Sieving et al., 2017; Steiner et

al., 2014), all analyses were stratified by sex assigned at birth a priori. Univariate statistics were used first to describe demographic variables in the TGD sample. Then, both TGD and cisgender youth samples were compared to contextualize univariate statistics for sexual health variables. For subsequent multivariate models, the analytic sample was restricted to TGD youth only. To test our hypothesis, two parallel sets of multivariate logistic regression models were used to examine associations between parent connectedness and eight sexual health variables. First, unadjusted models were estimated for each sexual health variable. Second, models were estimated controlling for grade level, race/ethnicity, economic hardship, and family structure. Valid sample sizes for each model are presented. Students missing data due to non-response were removed from the sample using list-wise deletion (for missing data numbers see Table 4.1). To explore differences by sex assigned at birth, models were estimated that included interaction terms to test whether the strength of the relationship between parent connectedness and outcomes differed for AFAB and AMAB respondents. Statistical significance for all models was determined using a p-value of <0.05.

Table 4.1
Sample demographic characteristics for TGD youth in the 2016 Minnesota Student Survey

	TGD Sample Total N (%)	AFAB n (%)	AMAB n (%)
Sex Assigned at Birth			
AFAB	1457 (67.2)	1457 (100)	--
AMAB	684 (31.5)	--	684 (100)
No Answer	27 (1.2)	--	--
Grade Level			
9th	1271 (58.6)	891 (61.2)	365 (53.4)
11th	897 (41.4)	566 (38.8)	319 (46.6)
Race/Ethnicity			
American Indian or Alaska Native (NH)	44 (2.0)	27 (1.9)	17 (2.5)
Asian, Native Hawaiian, or other Pacific Islander (NH)	192 (8.9)	109 (7.5)	79 (11.5)
Black, African, or African American (NH)	140 (6.5)	65 (4.5)	71 (10.4)
White (NH)	1257 (58.0)	902 (61.9)	346 (50.6)
Multiple races (NH)	252 (11.6)	181 (12.4)	67 (9.8)
Hispanic or Latino/a	255 (11.8)	160 (11.0)	92 (13.5)
Missing	28 (1.3)	13 (0.9)	12 (1.8)
Socioeconomic			
Economic Hardship	884 (40.8)	588 (40.4)	289 (42.3)
Missing	219 (10.1)	100 (6.9)	112 (16.4)
Household Structure			
Nuclear	1002 (46.2)	677 (46.5)	313 (45.8)
Non-nuclear	1138 (52.5)	768 (52.7)	355 (51.9)
Missing	28 (1.3)	12 (0.8)	16 (2.3)
	TGD Sample Total Mean (SD)	AFAB Mean (SD)	AMAB Mean (SD)
Parent connectedness (range 1-5)	3.55 (0.99)	3.49 (0.92)	3.68 (1.10)

Note: TGD=Transgender or Gender Diverse; AFAB=Assigned Female at Birth; AMAB=Assigned Male at Birth; NH=non-Hispanic

Results

Descriptive Statistics

Almost 3% (n = 2,168 respondents, 2.7%) of the full 2016 9th and 11th grade MSS sample reported identifying as TGD. As shown in Table 4.1, approximately two-thirds of

the TGD sample indicated being AFAB. Slightly more 9th grade students identified as TGD compared to 11th grade students. Approximately 40% of respondents experienced economic hardship, defined as food insecurity, housing instability, or receiving free or reduced-price lunch at school. Parent connectedness had a possible range from 1-5 with an overall mean of 3.55 (SD=0.99) within the sample. AFAB youth (mean=3.49; SD=0.92) reported slightly lower parent connectedness than AMAB youth (mean=3.68; SD=1.10); this difference was statistically significant (p<.001).

Table 4.2 details the number and percentage of youth endorsing sexual health variables, stratified by sex assigned at birth and by TGD or cisgender identity for the entire MSS sample. For ever had sex and all risky sexual behaviors, a higher percentage of TGD youth reported engaging in those behaviors compared to cisgender youth of the same sex assigned at birth (all p-values <.001). For all sexual health promoting behaviors, a higher percentage of cisgender youth reported engaging in those behaviors compared to TGD youth assigned the same sex at birth (three of four p-values <.001; *communication with partner(s) about STI prevention* did not reach statistical significance, p=.056). Regardless of TGD or cisgender identity, a higher percentage of AMAB youth reported engaging in sex ever and all three risky sexual behaviors (p-values ranged from <.001 to .014). Condom use at last sexual encounter was the only sexual health promoting behavior that AMAB youth reported at a higher percentage compared to AFAB youth, again regardless of TGD or cisgender identity (all p-values <.001).

Table 4.2
Sexual health indicators by sex assigned at birth for TGD and cisgender students in the 2016 Minnesota Student Survey

	TGD students		**Cisgender students**	
	AFAB n (%)	*AMAB* n (%)	*AFAB* n (%)	*AMAB* n (%)
Ever had sex	378 (28.5)	187 (33.2)	7536 (21.0)	8189 (23.0)
Risky sexual behaviors				
Multiple partners in the last year[a]	190 (50.4)	102 (54.8)	2632 (35.1)	3434 (42.3)
Pregnancy involvement[a]	37 (9.8)	39 (21.2)	400 (5.3)	662 (8.2)
Substance use at last sex[a]	65 (17.2)	59 (31.7)	1038 (13.8)	1216 (15.0)
Sexual health promoting behaviors				
Communication with partner(s) about STI prevention[a]	217 (57.6)	82 (45.3)	4577 (61.4)	4338 (54.1)
Communication with partner(s) about pregnancy prevention[a]	210 (55.9)	78 (43.1)	5209 (70.0)	4869 (60.8)
Condom use at last sex[a]	170 (45.6)	100 (54.3)	4262 (57.4)	5275 (65.7)
Pregnancy prevention at last sex[a]	222 (60.3)	100 (56.8)	5389 (77.2)	5448 (72.2)

Note: TGD=Transgender or Gender Diverse; AFAB=Assigned Female at Birth; AMAB=Assigned Male at Birth
[a]Indicates only sexually active youth included in sample

Multivariate Models

To address our hypothesis, 16 logistic regression models tested associations between parent connectedness and eight sexual health indicators among TGD youth, stratified by sex assigned at birth (AFAB or AMAB). Table 4.3 presents findings from unadjusted and adjusted regression models. The top half of Table 4.3 presents results pertaining to ever having sex and risky sexual behaviors. In adjusted models for AFAB youth, only one of the first four sexual health indicators was significantly and negatively related to parent connectedness. In adjusted models for AMAB youth, three of the first

four sexual health indicators were significantly and inversely related to parent connectedness. Findings from these models indicated that greater parent connectedness was associated with lower odds of engagement in these sexual behaviors. For instance, our findings suggest for every one unit increase in mean parent connectedness reported, AMAB youth had 44% lower odds of having impregnated someone (OR=0.56, CI: 0.35-0.88).

The bottom portion of Table 4.3 reflects results for sexual health promoting behaviors. In adjusted models for both AFAB and AMAB youth, two of four sexual health promoting behaviors were significantly related to parent connectedness, although the specific health promoting behaviors were not the same. All four significant models indicated that greater parent connectedness was associated with greater odds of engagement in sexual health promoting behaviors. For instance, our findings suggest for every one unit increase in parent connectedness reported, AFAB youth were 1.47 times more likely to report talking to every sexual partner about pregnancy prevention.

Table 4.3
Associations between parent connectedness and sexual health indicators among TGD youth, stratified by sex assigned at birth

	AFAB		**AMAB**	
	Unadjusted model	*Adjusted model*[a]	*Unadjusted model*	*Adjusted model*[a]
Ever had sex *(valid n)*	1323	1288	559	529
OR (CI 95%) for parent connectedness	**0.61*** (0.54-0.70)**	**0.64*** (0.55-0.75)**	**0.75** (0.63-0.88)**	**0.75** (0.62-0.91)**
Risky sexual behaviors				
Multiple partners in the last year (*valid n)*	377	364	182	171
OR (CI 95%) for parent connectedness	1.03 (0.83-1.27)	1.01 (0.87-1.38)	**0.67** (0.50-0.89)**	**0.70* (0.50-0.99)**
Pregnancy involvement *(valid n)*	377	364	181	170
OR (CI 95%) for parent connectedness	**0.54** (0.37-0.78)**	0.69 (0.46-1.04)	**0.52*** (0.37-0.74)**	**0.56* (0.35-0.88)**
Substance use at last sex *(valid n)*	377	364	182	171
OR (CI 95%) for parent connectedness	0.87 (0.66-1.15)	0.87 (0.64-1.17)	0.86 (0.64-1.15)	1.03 (0.73-1.45)
Sexual health promoting behaviors				
Communication with partner(s) about STI prevention *(valid n)*	377	364	177	168
OR (CI 95%) for parent connectedness	**1.30* (1.05-1.62)**	**1.39** (1.09-1.76)**	1.09 (0.82-1.44)	1.02 (0.73-1.41)
Communication with partner(s) about pregnancy prevention *(valid n)*	376	363	177	168
OR (CI 95%) for parent connectedness	**1.36** (1.09-1.69)**	**1.47** (1.16-1.87)**	1.23 (0.93-1.64)	1.18 (0.85-1.63)
Condom use at last sex *(valid n)*	373	360	180	169
OR (CI 95%) for parent connectedness	1.00 (0.81-1.24)	1.01 (0.80-1.27)	**1.44* (1.08-1.91)**	**1.58** (1.13-2.21)**
Pregnancy prevention at last sex *(valid n)*	368	355	174	165
OR (CI 95%) for parent connectedness	1.17 (0.94-1.45)	1.25 (0.98-1.59)	**1.75*** (1.29-2.36)**	**1.78** (1.24-2.54)**

Note: TGD=Transgender or Gender Diverse; AFAB=Assigned Female at Birth; AMAB=Assigned Male at Birth. OR=Odds ratio; CI = Confidence Interval.
*p values ≤ 0.05; **p values < 0.01; ***p values < 0.001; significant odds ratios are bolded.
[a]Model controls for grade level, race and ethnicity, economic hardship, and family structure

In summary, our hypothesis that greater levels of parent connectedness would be inversely associated with ever having sex and risky sexual behaviors and positively associated with sexual health promoting behaviors was partially supported by our finding of eight significant relationships in 16 tests. Three of eight relationships were significant among AFAB youth; while five of eight relationships were significant among AMAB youth. Notably, most of the significant relationships were not for the same behaviors between the two groups. The only sexual health indicator that had a significant association with parent connectedness for both AFAB and AMAB youth was ever having sex (OR=0.64 for AFAB youth; OR=0.75 for AMAB youth). For AMAB youth, parent connectedness was associated with lower odds of having multiple sexual partners in the last 12 months (OR=0.70) and lifetime pregnancy involvement (OR=0.56). Among AFAB youth, parent connectedness was associated with higher odds of talking to every partner about STI prevention (OR=1.39) and talking to every partner about pregnancy prevention (OR=1.47) but not significantly associated with condom use at last sexual encounter or use of effective pregnancy prevention methods at last sexual encounter. The reverse was true for AMAB youth; for this group, higher levels of parent connectedness were associated with greater odds of condom use at last sexual encounter (OR=1.58) and use of an effective pregnancy prevention method at last sexual encounter (OR=1.78) but not significantly with talking with partners about pregnancy prevention and STI prevention. Level of parent connectedness was not associated with substance use at last sex regardless of sex assigned at birth.

As described above, patterns in significant associations varied by sex assigned at birth. To further test for differences, we tested our combined models with an interaction

term between sex assigned at birth and parent connectedness. A significant interaction was found in one model out of eight tested, assessing multiple sexual partners in the last year. Findings from this model suggest that parent connectedness is more protective against having multiple sexual partners for AMAB youth than for AFAB youth (see Appendix E, Table E.1 for full details).

Discussion

The goal of this study was to assess relationships between parent connectedness and eight sexual health indicators among TGD youth in a statewide population survey. In alignment with previous research on general adolescent samples, we found that greater levels of parent connectedness were associated with not having sex, fewer risky sexual behaviors, and more health promoting behaviors for TGD youth. However, only half of the estimated models yielded significant associations between parent connectedness and sexual health indicators. These findings indicate some support for theories suggesting strong parent-child relationships promote the development of resilience and healthy behaviors among young people but may imply that factors other than parent connectedness are involved in the process in regard to sexual health. Parent-youth relationship dynamics more proximal to adolescent sexual health (e.g., parent-youth communication about sex) may have a greater direct impact on sexual behaviors and sexual health promoting behaviors than more general parent-youth factors (e.g., parent connectedness) as is suggested in some research (Guilamo-Ramos et al., 2012; Harris et al., 2013; Holman & Kellas, 2015).

Our findings suggest greater parent connectedness is associated with lower odds of ever having sex among TGD youth, regardless of sex assigned at birth. However, all

other significant relationships between parent connectedness and sexual health variables diverged on the basis of sex assigned at birth. Moreover, in a model with the full TGD sample, parent connectedness was significantly more protective against having multiple partners in the past year for AMAB youth than for AFAB youth. One possible explanation for these findings is that parents who are highly connected to their children provide sexuality education or sexual expectations that differ depending on sex assigned at birth. For instance, parents may emphasize the importance of communication with partners about prevention of negative sexual health outcomes with AFAB youth, while emphasizing the need to use condoms at every sexual encounter with AMAB youth. Future studies exploring messages about sexuality TGD youth receive from their parents should consider the impact of sex assigned at birth on messaging content or emphasis.

In our study, parent connectedness was not associated with lower odds of substance use before last sex among participants, regardless of sex assigned at birth. Notably, when young people are under the influence of substances during a sexual encounter, they may be more likely to participate in riskier sexual behavior like casual sex (Calsyn et al., 2010) and unprotected sex (Dir et al., 2017). We are not aware of existing literature that discusses a mechanism of action that may impede the protective effect of parent connectedness on this specific risky sexual behavior among TGD youth. Among the general population of sexually active adolescents, some literature suggests that other factors (e.g., knowledge about sex) influence the protective quality of parent-child relationships (Shneyderman & Schwartz, 2013), so perhaps a similar mechanism is at work in this population. Further qualitative exploration may help shed light on these relationships.

Strengths and Limitations

Our study is one of the first to include a large population-based sample of TGD youth, which yielded findings that are more generalizable than previous research based on nonprobability samples or smaller geographic areas of recruitment. Another study strength is the number of sexual health indicators asked of adolescents. This allows for a broader understanding of how parent connectedness influences sexual health. Unlike much of the current literature addressing family relationship factors and sexual health among TGD youth, our study did include a large percentage of AFAB youth which allowed us to consider differences between AFAB and AMAB youth and allowed for a more inclusive sample than previous studies.

Certain limitations of this secondary data analysis are important to acknowledge, including our lack of control over the specific measures included on the 2016 MSS. For instance, it was impossible to differentiate between TGD youth who strongly endorse gender identities that do not align fully with sex assigned at birth with those who are questioning or unsure about their gender identities. Given the survey design, it was also not possible to differentiate between specific gender identities (e.g., transwoman, transman, or non-binary gender). Models could only include sex assigned at birth, which may reinforce a gender binary and cisnormative perspectives. Similarly, the use of the phrase "biological sex" as opposed a term preferred by the TGD community (e.g., sex assigned at birth) may have introduced some bias into the study. There is cisnormative and heteronormative bias within the sexual health indicator measures themselves also which may have biased results. For instance, talking about pregnancy prevention between two partners born with uteruses would not be necessary for safe sex to occur, thereby

masking the influence of parent connectedness on partner communication; questions that are of low relevance to this population may also have resulted in greater than average missingness or misclassification on these items. Additionally, it was impossible to identify whether TGD youth have undergone medical transition that impacts their sexual development (e.g., hormone therapy or puberty suppression). Finally, no item on the 2016 MSS assessed parental knowledge or parental support of youth TGD identity, nor did any item assess parent-youth communication about sexuality, so it was not possible to include these factors in the analysis.

Implications for Future Research and Practice

Future research should explore the mechanism of action behind how specific sexual behaviors (e.g., condom use) are influenced by parent-youth relationship factors, such as parent's abilities to connect and communicate about sexual health. TGD youth and their parents may have unique perspectives and experiences that differ from those of cisgender youth and their parents, such as the added dimension of whether parents accept their child's gender identity or not. Furthermore, as stated above, differences in how parent-youth relationship factors influence sexual health on the basis of sex assigned at birth or gender identity should be considered in future studies. Findings from such studies may help guide health care and community service providers who work with TGD youth and their families in development of interventions designed specifically for the needs of the population.

Prior research has suggested that for certain sexual behaviors, such as the decision to have sex under the influence of drugs or alcohol, family connectedness alone is not enough to ensure healthy choices (Shneyderman & Schwartz, 2013). To reduce the health

equity gap in sexual health, future research should employ complex modelling involving a number of factors—like access to comprehensive sexuality education and parental acceptance of gender identity—to determine factors necessary to promote sexual health in the most effective, efficient, and acceptable ways for TGD youth.

In addition, research on the sexual health of TGD young people should also include examination of sexual health items to ensure that cisnormativity is not unduly influencing findings. For instance, on the 2016 MSS, the item assessing condom use at last sexual encounter may not be an appropriate indicator of sexual health for youth who do not have a penis involved in their sexual activity. Instead of asking about condom use at last sex, a more inclusive item might read "the last time you had sex, did you use a barrier method such as a condom or dental dam?" Thus, measures should inquire about sexual health promoting behaviors without excluding sexual activities that do not include a penis. Instead of asking students to select how many male and how many female partners they had in the past 12 months, items that do not reinforce a binary could be developed. When measuring partner communication, it may be more inclusive to include items that assess sexual health communication skills and comfort that does not assume all sexual encounters include a penis and a vagina (i.e., consent or pleasure). Having valid measures to assess the sexual health of TGD youth will improve our ability to monitor and report on the sexual health of a population experiencing significant health disparities.

While many parents are supportive and affirming of their TGD youth's gender identities, some parents may find it difficult to accept their child's gender identity due to a variety of factors (Rosenkrantz, 2018). Current best practices when working with families of TGD youth struggling to accept gender identity include family education to

promote understanding and affirmation of gender identity (Harvey & Stone Fish, 2015). Though parental acceptance of gender identity is often a vital factor in the health and well-being of TGD youth (Bouris & Hill, 2017; Budge et al., 2018; Schimmel-Bristow et al., 2018; Wilson et al., 2015; Yadegarfard et al., 2014), acceptance is not always a rapid, smooth process (Harvey & Stone Fish, 2015). While working with parents who are struggling to accept their child's gender identity, it may be beneficial for health care and community service providers to ease parents' anxieties by acknowledging that strong, general connections between parents and youth, are positively impactful on the health and well-being of their child.

Findings from this study reaffirm the clinical importance of asking all young people about their perceptions of protective factors such as parent connectedness in relation to risky behaviors. Since most adolescents have relatively few physical health problems, healthcare providers may rely on tools such as the Home, Education/Employment, Eating, Activities, Drugs, Sexuality, Suicidal Ideation, and Safety (HEEADSSS) interview to learn about youth experiences and experimentation with risky behaviors (Doukrou & Segal, 2018). Home, one of the domains assessed by the HEEADSSS interview, provides the opportunity to assess adolescent perceptions of parent connectedness. The results of these screenings may help providers understand the context in which the youth are living (i.e., is the parent-youth relationship a strength or a challenge?) which may help guide health care providers as they determine which interventions, education resources, or referrals are most appropriate for their patients, regardless of gender identity.

Conclusion

Findings of this study provide important information on how parent-youth relationships impact the sexual health of TGD youth. Preventing risky sexual behaviors during adolescence has long term implications for health, as patterns of risky sexual behaviors during adolescence often continue into adulthood, increasing adult risk for STI and other negative sexual health outcomes including cancers and pelvic inflammatory disease (Vasilenko et al., 2014). Identifying upstream preventive factors such as parent connectedness can lead to the development of tools with which to equip healthcare and community service providers who work with TGD youth and their families. With the development of such tools, future generations of TGD youth will experience more appropriate and effective healthcare and the health equity gap will be reduced.

Manuscript 2 References

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Chapter 5: Manuscript Three (Title: *"My parents may influence my feelings about it but that's also something that I can change myself:"* Transgender and gender diverse youth perspectives on parental messages about sexual health)

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Abstract

Transgender and gender diverse (TGD) youth are at risk for poorer sexual health outcomes than cisgender peers. Sparse literature suggests parent-youth communication about sexuality, a commonly emphasized protective factor among general populations of youth, may not promote sexual health among similarly marginalized young people (e.g. gay and bisexual boys), likely due to qualitative differences in applicability and additional stigma attached to some messages. To explore how parent-youth communication about sexuality is experienced by TGD young people, this study sought to describe how TGD youth perceive messages regarding sexuality and sexual/romantic relationships from their parents and how those messages impact feelings and decisions about their sexual health. Eight in-depth semi-structured interviews lasting between 49-79 minutes (mean = 66 minutes) were conducted with TGD young people (16-23 years) recruited from the local metro area. Transcribed text was inductively coded by two team members; first with structural codes, then using content analysis. Four themes emerged from the data: (1) *messages received about parent's sexual values as context and a critical testing ground*, (2) *messages youth received about LGBTQ sexuality*, (3)

messages about youth's futures through cisnormative and heteronormative lens, and (4) *the impact of parental messaging on youth's sexual health*. Illustrated by participant quotes, the first three themes describe different types of messages youth receive from their parents and what those messages mean to them. The final theme explores the impact messages have on sexual health including participant emphasis on personal responsibility in sexual health decision-making. Future studies should explore parent perspectives on TGD sexuality and sexual/romantic relationships.

Introduction

In population-level survey research, transgender and gender diverse (TGD) youth endorse significantly higher rates of risky sexual health behaviors compared to cisgender peers. These risky behaviors include higher rates of sex without a condom (Eisenberg et al., 2017; Johns et al., 2019), early sexual debut, and lower rates of ever being tested for HIV (Johns et al., 2019). Patterns of risky sexual behavior that develop in adolescence often continue into adulthood and may contribute to sexual health inequities experienced by adults (Vasilenko et al., 2014). For instance, youth who have sex without a condom or other barrier method to prevent sexually transmitted infection (STI) transmission may continue this behavior into adulthood, contributing to risks of HIV and STI transmission. In 2017, there were approximately three million HIV testing events in the United States, and TGD people received a new HIV positive diagnosis at three times the national average (Centers for Disease Control and Prevention, 2019). Finding ways to help TGD youth establish safer sexual behavior patterns from their sexual debut onwards is vital to ensuring their well-being and eliminating this health inequity.

Parent-Youth Communication about Sex

Multiple factors likely contribute to sexual health disparities experienced by TGD people, including experiences of minority stress (Hendricks & Testa, 2012; Meyer, 1995), limited access to inclusive sexuality education in public schools (Kosciw et al., 2014), and variation in healthcare utilization patterns (Rider et al., 2018). For young people, imbalances in well-established supports such as strong parent-youth relationships often exist (Gower et al., 2018). TGD youth may be disproportionately impacted by this imbalance as such supports often provide a key buffering effect against the harmful influence of chronic stress related to stigmatized minority identity, as described by Minority Stress Theory (Hendricks & Testa, 2012; Meyer, 1995). Nascent literature confirms parent-youth relationship factors provide some measure of protection against risky sexual behaviors among TGD youth, but findings are sparse and inconsistent across health outcomes (Bouris & Hill, 2017; Stotzer, 2011; Yadegarfard et al., 2014). These inconsistencies might be related to specific aspects of parent-youth relationships, and how these relationships promote sexual health.

Prior work has indicated one specific dimension of strong parent-youth relationships is an effective sexual health protective factor among general populations of youth, namely open communication between parents and youth about sexuality (Widman et al., 2016). Generally, open communication about sexuality is best practiced as frequent, ongoing, and actively engaging conversations across childhood and adolescence (Guilamo-Ramos & Bouris, 2009; Widman et al., 2016). Guidance on parent-youth communication about sexuality suggests parents should aim to be perceived by their children as trustworthy, content experts and to be responsive to questions in order to

effectively promote sexual health (Guilamo-Ramos & Bouris, 2009). Unfortunately, due to cisnormative and heteronormative sexuality models, parents may be unfamiliar and/or uncomfortable with TGD inclusive sexuality content and materials, hindering their ability to discuss sexuality with their TGD children.

Among groups of similarly marginalized young people (e.g., gay or bisexual young men), research suggests that measures of parent-youth communication about sexuality may not predict safer sexual health practices in the same ways they do for the general youth population (Thoma & Huebner, 2014). For instance, Thoma and Huebner (2014) discuss that frequent parent-youth communication about sex, generally considered a protective factor among heterosexual youth, appears to be a risk factor in their analysis of a sample of gay and bisexual young men. In their discussion, the researchers hypothesize the messages youth in their study are receiving may not be of equitable quality because parents may emphasize different aspects of sexuality in conversations with their sons who have sex with men. Additional studies with lesbian, gay, bisexual, transgender, and queer (LGBTQ) young people support this hypothesis, suggesting the reason for these discrepancies may be related to qualitative differences in messaging about sexuality and sexual/romantic relationships from parents received by youth who are marginalized compared to messaging received by youth who are not marginalized (Flores et al., 2018; Rubinsky & Cooke-Jackson, 2017). For instance, in a study of parent-youth communication about sexuality and sexual/romantic relationships among gay and bisexual young men, messages that youth received were often stigmatizing (i.e., emphasizing HIV transmission between men), not applicable (i.e., heteronormative focused), and infrequent after the young person came out to parents, possibly reducing

effectiveness (Flores et al., 2018). Describing TGD youth experiences related to parental messaging about sexuality and sexual/romantic relationships is a critical step toward understanding the impact of parent-youth communication about sexuality on TGD youth sexual health.

Theoretical Framework and the Current Study

A large gap in the literature exists around effects of parent-youth communication about sexuality on TGD youth sexual health. In addition to describing parental messages about sexuality and sexual/romantic relationships received by TGD youth, understanding how youth integrate those messages into their feelings and decision-making may be key to driving intervention development forward. Bandura's Social Cognitive Theory posits that social environmental factors (e.g., messages received from parents about sexuality and sexual/romantic relationships) influence both internal/personal factors (e.g., personal feelings and beliefs about sexuality and sexual/romantic relationships), and behaviors [e.g., sexual decisions, (Bandura, 1986)]. These complex, reciprocal relationships provide a framework from which to approach understanding how messages TGD youth receive about sexuality and sexual/romantic relationships might influence their sexual health decisions and behaviors.

Taking Bandura's theory a step further, a conceptual model detailed by Rogers (2017), posits parent-youth communication about sexuality impacts youth attitudes toward sexual behavior, perceived norms about sexuality, and safe-sexual self-efficacy. Such aspects of youth sexuality, in turn, drive sexual intentions, which drive sexual behavior. Rogers (2017) tested this model in a meta-analysis, finding open communication about sexuality between parents and youth can lead to greater self-

efficacy in condom use and safe sex communication, greater youth awareness of consequences of risky sexual behaviors, and more positive youth attitudes toward condom use, which ultimately increase likelihood of safer sexual behaviors. Rogers' conceptual model was guided largely by the Integrative Model of Behavioral Change (Fishbein & Ajzen, 2010) and integrates well with Bandura's if the relationships between parent-youth communication about sexuality and sexual behavior are hypothesized as related and relationships are viewed as reciprocal (as shown in Figure 5.1). This framework guides the current study.

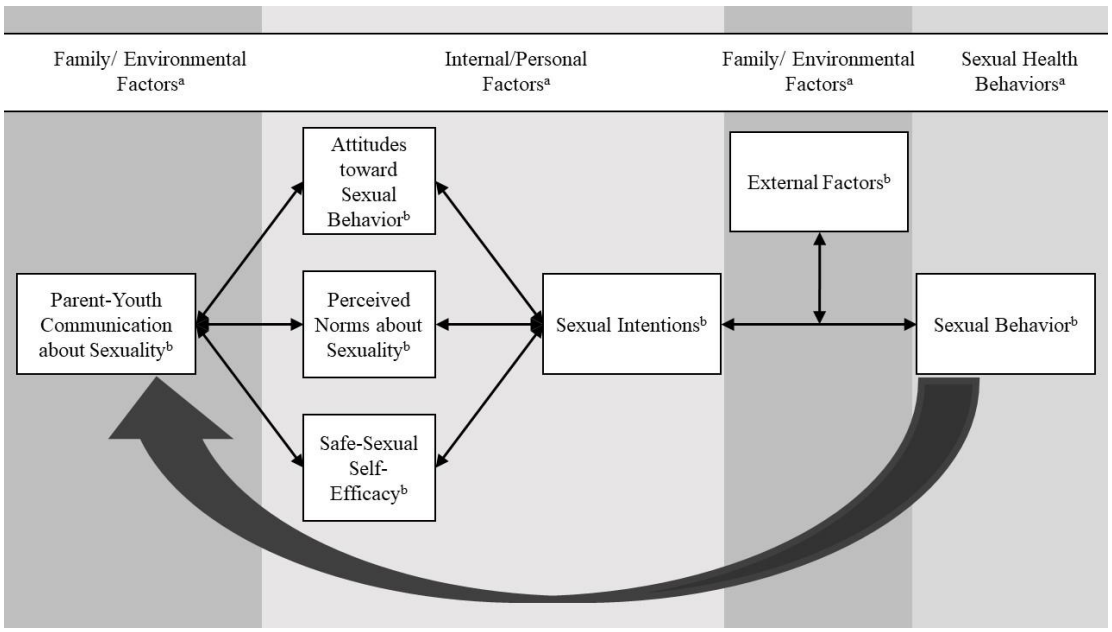

Figure 5.1 Theoretical framework integrating Bandura's (1986) Social Cognitive Model and Rogers' (2017) conceptual model.

Note: [a]Factors from Bandura's Social Cognitive Theory; [b]Factors from Roger's conceptual model

In this study, the term *sexuality* is used as a broad term to describe sexual behaviors, sexual attitudes, and emotions (Verbeek et al., 2020). The term *sexual/romantic relationship* is used to encompass relationships characterized as either sexual, romantic, or both; regardless of duration or commitment within the relationship,

unless specified. The purpose of this study was to explore and describe how some TGD youth perceive messages regarding sexuality and sexual/romantic relationships from their parents and how those messages impact feelings and decisions about their sexual health.

Methods

Recruitment and Sample

This study relied on non-probability intercept and referral-driven sampling for recruitment of a hidden, stigmatized group of young adults (Heckathorn, 1997). The study team and their professional and personal contact networks distributed both physical and digital recruitment fliers, which listed phone and email contact information to allow individuals interested in participating to follow-up. Potential participants were screened to determine whether they met eligibility requirements and to allow for purposive sampling based on specific predetermined demographic characteristics. Eligible individuals were between 16 and 23 years of age, identified with a gender that did not align fully with their birth-assigned sex, and spoke English—as all interviews were conducted in English. Priority for interviews was given to youth who were racial or ethnic minorities. Efforts were made to maintain an approximately even distribution of trans feminine, trans masculine, and non-binary participants. Given the overrepresentation of TGD youth among those who experience homelessness (Choi et al., 2015), the study team also prioritized inclusion of individuals who had experienced homelessness.

Table 5.1 includes demographic information about the eight participants in the final sample organized by participant self-selected pseudonym. These purposive sampling techniques were designed to maximize the anticipated richness and relevance of

participant contribution to the study (Yin, 2011), which facilitated reaching our recruiting endpoint of redundancy in the insights our participants shared, while producing meaningful results from a sample of 8 participants.

Table 5.1
Participant characteristics

Self-selected Pseudonyms	Age	Gender	Race/ethnicity	Lifetime experience of homelessness	Parents[a]
Adelaide	18	Woman	White	No	Mother & Father
Aiden	23	Man	White, Hispanic/Latinx	No	Adoptive Mother & Adoptive Father
E	16	Bigender	American Indian & Black	No	Mother, Father, & Stepmother
Lee	19	Non-binary Man	White	No	Mother & Father
Lucy	21	Woman	White	No	Mother & Father
Riker	19	Genderfluid	White	Yes	Mother & Father
Ron	22	Transman	American Indian, Black, & White	Yes	Mother & Stepfather
Tova	23	Tumtum	White, Ashkenazi Jewish	No	Mother & Father

Notes:
[a]Decisions about who were considered parents were reached by the analysis team based on the content of the full transcripts and the family charts created by the participants.

Procedures

The first author (CB) conducted one-on-one interviews in private conference rooms on a university campus. Informed consent was obtained prior to beginning data

collection. Only one minor under the age of 18 was recruited and he felt comfortable with the team seeking parental consent. This participant provided contact information for the interviewer to contact a parent to discuss the study, review the consent form, and answer any questions about the consent process and research study. Parent consent and assent were obtained prior to data collection. All interviews were audio recorded and lasted between 49-79 minutes (mean = 66 minutes). Participants first created a family chart to orient the interviewer to whom the participant considers members of their family and to guide the interview process in terms of which family members to discuss in relation to specific interview questions. Interviews followed a semi-structured interview guide (example questions in Table 5.2). Participants received a $50 gift card for their time and insights. A professional service transcribed the interviews, and the interviewer checked transcripts for accuracy. Data collection took place between July and October 2019. The Institutional Review Board at the University of Minnesota approved all study protocols.

Table 5.2
Sample questions from the semi-structured interview guide

Who in your family do you feel you can talk to about sex? *What is it about that person that makes you feel like you can talk about sex with them?*
Who in your family influences decisions you make about sex and sexual health the most? *How and in what ways do they influence decisions you make about sex and sexual health?*
Do you believe your gender identity has influenced how any of your family members communicate with you about sex or sexual health? *If yes, can you share an example?*

Analysis

Qualitative analysis proceeded in a series of steps that typically characterizes content analyses (Saldana, 2016). First, the analysis team, made-up of two members (CB and GNR), initially reviewed each transcript independently and discussed relevant structural code (i.e. text discussing communication with parents or text discussing communication with siblings). Due to the complexity of participant family structures and because participants were not asked to define who they considered their parents a standardized rule in/rule out method of sorting was developed and applied after interviews were complete to assign family members as 'parent' or 'not parent' for the purposes of this study in order to facilitate structural coding (Figure 5.2 provides additional detail). Second, one team member (CB) used NVivo 12 software (QSR International Pty Ltd., 2018) to sort text based on structural codes. Third, data from content related to parents were inductively coded by each team member and separate code lists were generated. Fourth, team members met to reconcile code list differences and discuss other discrepancies. All discrepancies were discussed to consensus and analytic decisions were documented to maintain rigor. Finally, codes were sorted into distinct themes (Saldana, 2016) and exemplar quotes were identified. Two participants were consulted about results to promote validity through member checking (Lincoln & Guba, 1985).

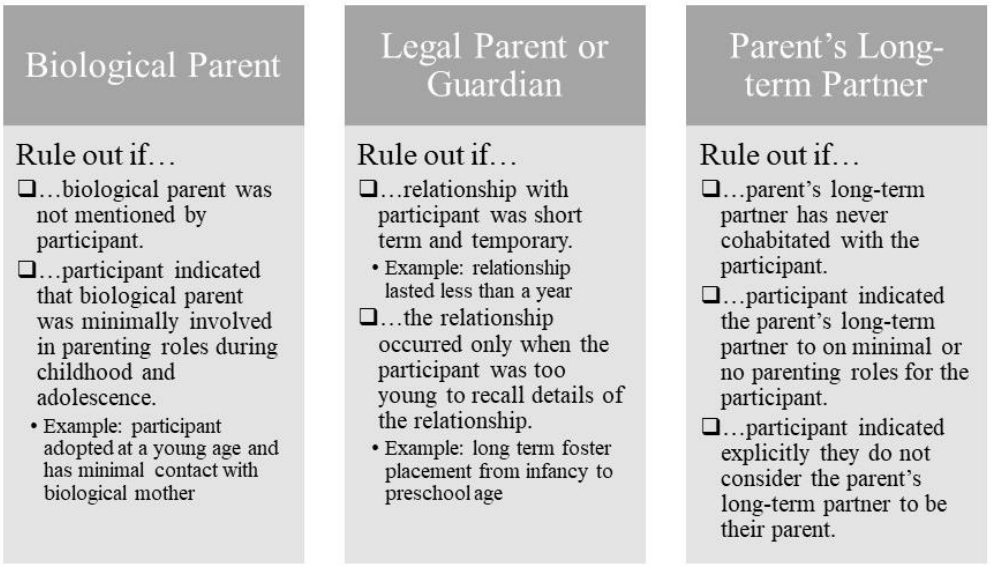

Figure 5.2 Rule in/out decision making protocol for 'parent' family member grouping for structural coding.

Note: Family information labels, audio recordings, and transcripts were reviewed to rule in the three types of parents considered. Rule out determinations were made after full audio and transcript review for each participant.

Results

Four themes emerged from the analysis related to parental messaging about sexuality and sexual/romantic relationships. The first three themes describe key messages youth learned from discussions with their parents about sexuality and sexual/romantic relationships. The final theme highlights the ways in which parents' communication impacts their children's feelings and decision-making about sexual health. Each theme is detailed below with illustrative quotes from participants.

Messages received about parent's sexual values as context and a critical testing ground

Participants described a number of distinct values related to sexuality expressed by parents, ranging from the *importance of monogamy* and *masturbation is shameful* to

the *importance of pleasure*. For some youth the value was not explicitly described but rather the lack of or limited nature of discussion about it sent or augmented a message the youth received. For instance, Tova described:

> The early messages that I got from [my dad] were like, 'I don't want to talk about it. You do you. This is awkward.' So, I think the message that I got was that I can do whatever I want as long as I'm not talking about it with them. It made me feel like I couldn't talk to him about it, or even necessarily my mom, because I think it kind of extrapolated a little bit. The message I got was your parents are not the people to talk to about this stuff.

This young person readily accepted this value from their parents, among our participants, this was not always the case. Youth often described critically testing out a value when the parent first presented it to them before determining if the value matched with their own internal value system. If the value did not fit, it was set aside—although the decision to set the value aside was hidden at times from parents and could be tied to painful emotions. This process is illustrated in a narrative from Lucy:

> I think, around 12 years old, [Dad] caught me looking at porn… He didn't super know how to handle it … [he told me,] 'You need to quit watching porn. You need to not be masturbating,' … it was supposed to be like a soft thing … [telling me,] 'Boys will be boys…[but] masturbation is bad.' I think it was mostly about porn…but it was implied that masturbation was a bad thing wrapped into this bad porn thing… He caught me looking at porn again [6 months later] … and he was much angrier that time. He was like, 'I fucking told you,' like, 'I told you what you were supposed to do, and you deliberately did not listen to me.'… I felt very ashamed, because I was shamed by Dad.

Later in the interview she follow-up on the story to comment:

> That whole sex negativity, like anti-masturbation, etc., [was harmful] …with where some societal trends are going, I definitely can see why

> [my parents] were worried about things like porn addiction. But also, I have the feeling that if you're in testosterone puberty, you're going to need to rub one out sometimes.

This youth weighed her parents' values and felt, perhaps limiting pornography viewership fit for her to some degree but was felt the value of '*masturbation is bad*' did not fit within her value system.

As was further evident in Lucy's statement, participants' experiences as TGD people influenced the context with which they reflect on their parents' messages about sexual values. She noted "*if you're in testosterone puberty, you're going to need to rub one out sometimes,*" making a small reference to how her experience with gender affirming hormone therapy—sometimes discussed as a second puberty—has comparatively reduced her sexual needs as her testosterone levels have decreased. This context is key to understanding youth perceptions of parental messaging as sexual values parents communicated often, but not always, aligned with cisnormative and/or heteronormative perspectives on sexuality which often did not match youth needs or values. This misalignment may have direct influence on a participant's well-being as is illustrated in this quote by E:

> [Mom and mom's sister] think that if a man wants you to do it, you've just got to do it to 'keep' him, and in my mind, at that time, I'm like, 'why do I have to 'keep' a person who supposedly wants to be with me?'… they were saying [to do] sexual stuff, like giving a blow job to someone, regardless of whether or not I wanted to. It's just stuff like that that always really confused me. At the same time, it really let me see how they see things and that the reason they treat me the way they do is because they think, well, no man wants someone who's my weight; …[that's why] having a shirt that shows your bra is bad; or not wearing a bra in public is bad … because my mom still forces me to wear bras and stuff, no matter how dysphoric it makes me feel.

Among participants, messages from parents about sex-positive values were most often acknowledged as aligned with their own internal value systems and were the most affirming. For example, Riker said, "*Yeah, [mom taught me about] putting myself first and thinking about the reasons why I'm having sex and that I don't need to have sex with other people to know that I have agency in my body*."

Messages received about LGBTQ sexuality and sexual/romantic relationships

All participants reported hearing some form of messaging regarding LGBTQ sexuality or sexual/romantic relationships from parents. Many of these messages were particularly impactful, though notably, not all the messages were particularly memorable to every participant. For instance, when trying to recall how she knew her parents supported LGBTQ people when she was growing up, Adelaide replied:

> I think we had gay neighbors for a while, and [my parents] were like, 'Oh, that's cool.' I guess that probably is one of the times they explained [same-sex relationships] to us, and they were, I don't want to keep saying they were cool about it because that's the bare minimum, but they acted positively.

The most impactful communications from parents varied in message, ranging from positive and affirming to negative and transphobic. Negative messages around LGBTQ sexuality were often related to sexual health myths—like the myth discussed briefly in the final theme—or negative messages about sexual/romantic relationships or behaviors that a specific LGBTQ person engaged in or was perceived to have engaged in. For instance, Ron described his stepfather's reaction to a childhood friend coming out as TGD:

> One of [my step-dad's] friends growing up ended up turning out to be trans, and he made some comments about that person a couple of times

> and saying how he thought it was kind of gross, and [that person was] tricking him when they used to go camping and would be shirtless together and things like that, and how he thought it was just not fair and gross that his friend did that to him and things like that.

From Ron's point of view, his stepfather sexualized a situation that was likely not sexual and implied immorality and deception in the person's actions. He reflected that, while early on these transphobic messages from a father-figure were damaging, they were later displaced with healthier messaging from LGBTQ peers.

Many of the messages participants received from parents about LGBTQ sexuality and relationships were positive and affirming. Participants in this study described attending same-sex weddings with their parents and Riker's mother even shared about some of her own sexual and romantic experiences with cisgender women. Riker described: "*I knew about [my mom's sexual orientation] before I came out... because she had talked about [it]… But I feel like she did bring it up more, definitely after I came out*." As illustrated by Riker, some participants found that after they came out to their parents, the messages they received regarding LGBTQ sexuality changed to some degree. Some parents who initially expressed messages that were negative towards LGBTQ sexuality later changed their messaging to more neutral or positive messages. For instance, Lucy described:

> When I was around puberty age, I think [my mom] was still **definitely** subscribing to that 'it's a choice' viewpoint, but she didn't seem to have as many feelings about it as Dad did. So, she just didn't really talk about it that much. But I feel like, now that two of her kids turned out to be queer, she's just kind of like, 'Okay, maybe I don't understand anything.'

Similarly, Aiden commented on his dad's change in messaging over time stating, "*my dad was in seminary for five years, so he is very Catholic. He's definitely adapted and become a much more open [minded] person*" Although the evolving messages themselves may or may not have been wholly affirming of LGBTQ sexuality, the change in ideology was viewed as affirming by the young people in the study. And, while not all participants were out to their families, among those who were, most identified at least one parent who they felt were trying to be supportive of their identity.

Some participants discussed messages from their parents about LGBTQ sexuality that were generally positive in nature but cisnormative framing which caused the messages to feel less than affirming. For example, when asked about sexual health and being TGD, Tova expressed frustration with the erasure of trans experiences in family discussions, stating:

> I don't think any sexual health information [from my family] I've ever gotten has been really helpful...But whether they said this explicitly or with actions [my parents] modeled...it was like, 'You can be in a cis heterosexual relationship or in a cis gay relationship [but not a trans sexual relationship of any kind].

Messages about youth's futures through cisnormative and heteronormative lens

Parents expressed distinct expectations about their children's sexual, reproductive, and romantic futures. Interviewees said that, prior to coming out, their parents communicated cisnormative and heteronormative messages about their futures (i.e., monogamous marriage involving a birth-assigned female and birth-assigned male). After coming out to their families, youth reported that these messages changed. For example, many described instances where a parent told them that they would never find or sustain

fulfilling sexual or romantic partnerships. Some participants almost immediately rejected this idea, yet also acknowledged the distress of having a parent say something so hurtful, as illustrated in this quote from E:

> I know when I came out to my mom, she was like, 'Well, no one's ever going to love you.' And that definitely hurt, at the same time I know that it's also not true. I guess it never really mattered to them how I view a healthy relationship because it's not how they view it, so I guess it equates to being wrong.

Other young people took longer to set aside this particular parental message and experienced more direct consequences due to internalizing this negative view. Aiden reflected:

> Well, with the guy that I was dating that was abusive, I had been told [by Mom] growing up, the whole time, that I was weird and no one was going to love me because I was weird, so when he first started to have sex with me, and I said no, and then I was raped, I really thought that it was like he had to do that because, if I were normal, I would have wanted to have sex, and then he wouldn't have had to force me.

Participants described that parents often expressed confusion about what sexual/romantic relationships involving TGD individuals might look like, sometimes equating their perceptions of what a TGD acquaintance in their social network or community experiences as a likely future for their child. For example, E shared:

> I think [my stepmom] doesn't understand. She talks about her barista, who is a trans woman and so she sees it as, like it's just going to be the same path for me, which I don't think is really fair…[This barista] seems to be [in] an informal relationship, where she has…a sexual partner, but not a relationship partner…which is, maybe, fine…[but a relationship model that doesn't match] who I am, at all.

This young person goes on to consider his stepmother's position further noting he struggles to find representation of TGD people in healthy sexual/romantic relationships to model after but is affirmed by the ones he finds in popular media. "*Thankfully, there are actually good representations, I feel like, in [the show,] 'Steven Universe'*."

Confusion about how TGD identity may not fit with cisnormative and heteronormative futures intersected with parent's ideas about their child's reproductive health plans for the future as well. For instance, Lee described this point of confusion for their mom:

> I don't want to have kids myself. Like I don't want to go through that physical process and labor and also dysphoria, but I think it's just that, because [my mom's] like, 'why wouldn't you want to have a kid yourself? That's the epitome of womanhood.' I'm like, 'well, that's the issue.'

Some parents avoided these discussions altogether after the youth came out to them to the distress of their children. Participants may have interpreted this as discomfort but not necessarily a lack of support. For instance, Tova, who describes their parents as generally supportive reflected:

> I think if I was straight and cis, [my parents] would have been more comfortable having those discussions [about the future] with me. Especially my mom. ... She asks [my older sister and brother-in-law] about their plans to have kids or, before the marriage, if they wanted to get married, all the basic parent questions, but I never got any of that.

Despite youth perceiving parents as having difficulty understanding how TGD and/or queer identity may fit with expectations set through cisnormative or heteronormative lens, many youth described their parents as expressing passive or

somewhat enthusiastic support for seeking relationships that work for them, even if a co-parent may not show similar support. For instance, Tova stated:

> I told my dad a little bit later [about being in a polyamorous relationship], and he was like, 'Yeah, I know,' like he guessed somehow, and he was like, 'Yeah, I know, it's whatever. I love you. I don't understand it one bit, but you do you.'

This support was perceived as critical and important, as described by E: "*My dad very recently has said he could really see me having a good future and a healthy relationship, which meant the world to me when he said that to me*."

The impact of parental messaging on youth's sexual health

Some participants could draw direct lines between specific sexual health messages their parents related to them and their sexual health-related feelings and decisions. For instance, Aiden discussed learning a myth from his father, which suggested that sexual acts between two cisgender men were inherently violent. Aiden attributed learning this myth at an early age to difficulties he has connecting sexually with men at times. "*Now, when it comes to dating men, especially now, dating men as a man, my sexuality is all goofed, and I've had to work through a lot of things*," However, most participants had more vague descriptions of the process, sometimes coupled with frustration that they couldn't provide clearer explanations, as exhibited in this quote by Adelaide:

> I don't know, honestly [how mom influences how I feel about sexual health]. Theoretically, there have been conversations that sort of drip down into what I still remember about it, but I can't actually remember what they were – which is annoying...Yeah. It's the drips...just a collection [of] whatever sense I remember from the stuff that I've mostly forgotten, but it left impressions.

Even without a clear picture of how the messages the participants' parents blended together to inform their feelings about sexual health, youth described their parents' influence on their feelings about sexuality as quite strong and lasting. Some young people reflected that the messaging has caused harm related to sexuality, as E illustrated when he reflected on how his mom made him feel about sex: *"She makes me feel like it's kind of just dirty…it's only for the [cis] guy to really enjoy.* " However, for other participants the lasting impression of the messages received from their parents have been empowering as illustrated by this example from Riker:

> [My mom doesn't influence] the specific choices, but…I think a lot of the guidance that I got when I was like 15 about safer [sex], in terms of STIs and pregnancy, but also mentally safer sex and practices. Risky behaviors and things like that. That my mom taught me that a lot of sex can be harmful. The way that you go out and have sex can be harmful to yourself if you're not doing it for the right reasons. She wasn't telling me what the right reasons are necessarily. That if I'm not thinking of my own wellbeing, being vulnerable in that way to people indiscriminately can be dangerous.

Regardless of the way messages influenced their sexual health, participants were clear that the ultimate responsibility for their decisions were their own, as was demonstrated in the previous quote. In fact, nearly every participant shared similar sentiments, acknowledging some sort of influence from the messages they received from their parents, while still declaring personal autonomy and control over their sexual health decisions. Another participant, Lee, described this control over their own sexual decision-making as distinct from their parent's influence as well:

> Yes, my parents may influence my feelings about it, but that's also something that I can change myself. I can recognize that I'm having these thoughts or feelings or opinions about it because of them or

> because of what they taught me, but I am the one who gets to make decisions about my body for my sexual health.

Discussion

Young TGD participants discussed a wide variety of messages they received from their parents about sexuality and sexual/romantic relationships. Across message types the cisnormative and heteronormative nature of many parental messages about sexuality and sexual/romantic relationships left participants feeling unaffirmed. Youth critically tested parent sexual values to examine if values fit with their own internal sense of what is right. The messages youth received from parents regarding LGBTQ sexuality did not meet the needs of all the participants but increased positive messaging after a youth came out was affirming. Participants perceived messaging from parents about youth's futures to be generally difficult as parents seemed to struggle to envision futures outside of cisnormative expectations. Although parental messages about sexuality and sexual/romantic relationships deeply impacted participant feelings about sexual health and related topics, participants vehemently stressed that messages did not impinge on the autonomy of their sexual health decision making.

Among the general population, research has suggested little connection between sexual values of parents and youth (Negy et al., 2016). Younger generations often reflect more liberal sexual values than their parents (Negy et al., 2016), as was demonstrated by the participants in this study. For TGD youth who are more likely to have difficult relationships with parents compared to cisgender peers (Eisenberg et al., 2017), this misalignment of values may be a factor contributing to, or exacerbating, parent-youth relationship instability. Especially if parents present values that center cisnormative and heteronormative perspectives as was described by the youth in the study. Healthcare

providers working with TGD youth and their families may help relieve some of the strain caused by differences in sexual values by assuring young people that divergence is normal.

The breadth of messages youth participants received from their parents about LGBTQ sexuality are similar to findings with studies that included LGBTQ participants more broadly (Flores et al., 2018; Rubinsky & Cooke-Jackson, 2017). Not surprisingly, some youth in this study found positive messaging to be affirming, although cisnormative framing was at times less than ideal. Family messages that reflect attitudes of LGBTQ rejection are associated with poorer outcomes for LGBTQ youth from those families (Eisenberg et al., 2020). As there are no reliable ways of predicting a young person's gender identity or sexual orientation, all families should be encouraged to promote positive messaging about LGBTQ individuals, including TGD sexuality specifically. The messages that parents present to youth regarding LGBTQ sexuality likely depend on a variety of factors. These factors may include factual knowledge of the sexual behaviors LGBTQ individuals engage in and related risks, personal or community values related to LGBTQ sexual/romantic relationships, and their own relationships to the LGBTQ community. Future studies should seek additional perspectives (e.g., parent perspectives) to explore how these messages are created as a step toward effective intervention development to guide parents toward more positive messaging that centers all LGBTQ perspectives.

From participants' perspectives, many of their parents struggled to envision their children in future sexual/romantic relationships in direct relation to their TGD identity leading to mixed messages of support or being told directly they would not find a healthy

relationship. Given that many parents may have limited opportunities to observe TGD individuals in healthy, long-term sexual/romantic relationships in their social circles, a potential avenue to address this gap is through popular media, as was suggested by one of participants. Media narratives have an influential effect on the attitudes of their audience (Braddock & Dillard, 2016). A recent study tested the influence trans-positive media narratives could have on an audience, finding that audiences' attitudes toward transgender people became increasingly positive the more trans-positive media they consumed (Gillig et al., 2018). As applicable to the findings of this study, representation of TGD people in healthy, long-term sexual/romantic relationships in popular media may provide significant benefit for TGD youth and their families. Providing families with these examples, in addition to referrals to resources like community and mental health support groups and family therapists as appropriate, may help alleviate parental concerns and promote strong parent-youth relationships. This measure may be particularly beneficial for families who have limited access to other forms of support (e.g. small communities without family support groups) and/or are struggling to support youth's gender identity. Future studies may wish to explore the impact positive TGD sexual/romantic relationship narratives in media have on parental anxiety related to their TGD child's future long-term sexual/romantic relationship potential.

The well-defined value of personal autonomy in sexual health decision-making was ultimately among the strongest messages youth relayed in this study. This finding is interesting in light of work linking autonomy-supportive parenting with lower levels of internalized homophobia among lesbian, gay, and bisexual adults (Legate et al., 2019) and greater self-efficacy among youth (Reed et al., 2016). In the conceptual model used

to describe how parent-youth communication about sexuality and sexual/romantic relationships impacts health outcomes that has been tested among general youth populations, youth self-efficacy in condom use and communication about safe sex is one of the factors linking the two main concepts (Rogers, 2017). Integrating the model described by Rogers (2017) with Minority Stress Theory (Hendricks & Testa, 2012; Meyer, 1995)—to account for the specific experiences of TGD young people—may support effective intervention development. Further studies should approximate combined theoretical models and test hypotheses to determine validity.

Because they are a vulnerable population at risk for victimization, TGD young people are at increased risk of experiencing sexual assault and intimate partner sexual violence compared to cisgender peers (Hoxmeier, 2016). This disparity was reflected in participants' histories of sexual abuse or assault. Although history of sexual violence was not assessed systematically, a number of participants disclosed past events spontaneously. As discussed briefly in the third theme, some of these youth directly attributed parental messages of long-term sexual/romantic relationship uncertainty to remaining in abusive situations because youth did not believe they had other relationship options. For youth who hear these messages from parents, counter-narratives from multiple sources including healthcare providers and other trusted adults as well as inclusive sexuality education in schools may help challenge negative messaging. Messages should encourage TGD youth who experience sexual assault to report it and to seek safe adult support to leave ongoing abusive situations. Future studies should test if inclusive sexuality education that provides youth with models of LGBTQ sexuality and discusses enthusiastic consent counters cisnormative messaging or impacts sexual assault rates.

Limitations

As with all research, our study was characterized by some limitations. These include participants' difficulty recalling non-verbal or indirect messages about sexuality and relationships compared to direct communication, so often participant discussion of indirect messages came after a probe describing an example of an indirect message following the fifth question on the interview guide. This probe mentioned a parent responding to a gay couple holding hands, this may have led participants to discuss parental viewpoints on LGBTQ sexuality in more detail in some cases adding emphasis to that theme. Notably, many participants had already discussed LGBTQ sexuality before this probe was put forward. An additional limitation is that participants did not identify who they would consider their *parent(s)* at the time of the interview so a protocol for the study team to make that determination had to be created after interviews were complete. In future similar studies, asking participants to define who they would define as their parents at the time of their interview would be recommended.

Conclusion

Findings from this study underscore the importance of parental messaging around sexuality and sexual/romantic relationships for TGD youth. It is clear youth retain and integrate the messages they receive from parents about sexuality and sexual/romantic relationships. The lack of positive messaging about TGD sexual/romantic relationships in society has perhaps contributed to parental fears and the messages parents send their TGD children about sexuality and future relationships. The youth in this study ultimately embraced a message of autonomy in sexual decision-making. Healthcare providers are tasked with supporting and encouraging this sense of autonomy in sexual health decision-

making by TGD young people. This can be accomplished by ensuring that young people know where to access safe and affirming health care from providers committed to promoting TGD youth health and well-being.

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Chapter 6: Discussion

Few studies in the literature examine parent-youth relationships and sexual health among transgender and gender diverse (TGD) youth. A detailed literature review (Chapter 2) found no published studies using multi-methods to explore youth perspectives on how parent-youth relationships and communication impact the sexual health of TGD young people. This dissertation sought to address this gap by (1) testing associations between parent connectedness and eight sexual health variables in a large sample of TGD youth—quantitative phase (Chapter 4)—and (2) exploring TGD youth perspectives on parent messages they received about sex and relationships—qualitative phase (Chapter 5).

Summary of Results

Quantitative Results

The quantitative portion of the study relied on a secondary data analysis of the 2016 Minnesota Student Survey (MSS). Among the MSS sample of 9th and 11th grade youth, descriptive statistics indicate TGD young people in Minnesota endorse risky sexual behaviors and outcomes—such as using substances at last sex—at higher rates than their cisgender peers. Conversely, TGD youth in the MSS sample endorsed lower rates of sexual health promoting behaviors—such as talking to every partner about sexually transmitted infection (STI) prevention—than their cisgender peers. The 2,168 TGD participants in the MSS also reported lower parent connectedness on average than their cisgender counterparts. Findings from this population-based sample of TGD youth are unique and innovative contributions to the field.

To address Specific Aim 1, the relationship between parent connectedness and eight sexual health indicators among TGD youth was examined in models stratified by sex assigned at birth. In final multivariate models testing associations between parent connectedness and sexual health variables, eight of sixteen models were statistically significant. Regardless of birth assigned sex, TGD youth who endorsed higher parent connectedness were **less likely** to have ever had sex. Sexually experienced youth assigned male at birth with higher parent connectedness were **less likely** to have gotten someone pregnant and to have had multiple sexual partners in the prior year than their counterparts with lower parent connectedness. Sexually experienced youth assigned male at birth with higher parent connectedness were **more likely** to have used condoms the last time they had sex and **more likely** to use an effective method of contraception the last time they had sex than those with lower parent connectedness. Youth assigned female at birth with higher parent connectedness were **more likely** to communicate with every partner about both STI and pregnancy prevention methods than those with lower parent connectedness. These results indicate that among TGD youth, higher levels of parent connectedness are associated with certain aspects of sexual health, thus Hypothesis 1 was partially upheld. Hypothesis 2, which posited that patterns in associations between parent connectedness and sexual health indicators will differ based on sex assigned at birth, was tested by introducing interaction terms into unstratified models. Only one significant interaction was observed among the eight models. This finding suggested parent connectedness is **more** protective against having multiple sexual partners for youth assigned male at birth compared to youth assigned female at birth. These findings are aligned with prior adolescent health research that suggests parent connectedness is a

sexual health promoting factor for general populations of young people (Conner et al., 2016; Sieving et al., 2017; Taliaferro & Muehlenkamp, 2017; Williams & Chapman, 2012).

Qualitative Results

The in-depth semi-structured interviews with eight TGD young people from the Minneapolis/St. Paul area addressed the remaining specific aims for this study by: exploring TGD youth perceptions of messages they receive from their parents in relation to sex, sexuality, and sexual health (Specific Aim 2) and how those messages influence youth feelings and decision making related to youths' sexual health behaviors (Specific Aim 3). Findings resulted in four themes: (1) *messages received about parent's sexual values as context and a critical testing ground*, (2) *messages received about LGBTQ sexuality and sexual/romantic relationships*, (3) *messages about youth's futures through cisnormative and heteronormative lens*, and (4) *the impact of parental messaging on youth's sexual health*.

The first theme—*messages received about parent's sexual values as context and a critical testing ground*—youth described messages they received regarding their parents' sexual values ranging from sex positive views, to neutral views, to sex negative views. Youth critically tested these values against their own value system to determine fit and discussed how heteronormative and cisnormative framing of parents' sexual values may feel less than affirming.

In the second theme—*messages received about LGBTQ sexuality and sexual/romantic relationships*—youth described messages they received from their parents regarding sex and relationships directly related to LGBTQ individuals. Again, a

range of descriptions from affirming, to value neutral, to harmful were discussed with youth.

The third theme—*messages about youth's futures through cisnormative and heteronormative lens*—described messages youth received from parents regarding the youths' own future relationships and sexuality. While some parents were encouraging in these descriptions, many parents were characterized as concerned that youth would not be able to find and maintain fulfilling relationships due in part or entirely to their gender identities.

The fourth theme--*the impact of parental messaging on youth's sexual health*—explored how youth incorporated parent messages into their feelings and decision making related to sexuality and relationships. Participants described a range of ways parent messages deeply impacted their feelings about sexuality but strongly indicated that decision making was ultimately something they controlled for themselves.

Limitations

When interpreting the results from this dissertation, certain important limitations should be considered. For clarity, these limitations have been sorted by *threats to external validity (quantitative) or transferability (qualitative)* and *threats to internal validity (quantitative) or credibility (qualitative)*.

Threats to external validity or transferability.

Two major threats to external validity or transferability were identified: (1) quantitative sample is limited by MSS sampling frame and (2) difficulty recruiting youth assigned male at birth for the qualitative portion of this dissertation. As discussed in Chapter 4, participants who were included in quantitative analyses were 9th and 11th grade

students attending public schools in Minnesota. As such, the results of this study cannot be generalized to youth who do not regularly attend public schools, or to students outside of Minnesota or similar sociocultural areas. As TGD students are more likely to frequently miss school or drop out of school than cisgender students (Kosciw et al., 2018) this limitation may be particularly noteworthy.

While efforts were made to maintain approximately even distribution of youth assigned male and youth assigned female at birth among the qualitative study participants, recruiting youth assigned male at birth proved to be difficult. Only two youth assigned male at birth contacted the study team, were eligible for the study, and maintained interest in the study through to the point of the interview. As such, qualitative findings may have less transferability among youth assigned male at birth. This could be particularly noteworthy as youth socialized as masculine are likely provided with different types of messages regarding sex and relationships from parents than are youth socialized as females (Goldfarb et al., 2018; Velazquez et al., 2017).

Threats to internal validity or credibility.

Three major threats to internal validity or credibility were identified: (1) in the quantitative analysis several confounding variables were not controlled for, (2) bias in the available data due to participant drop-off related to survey fatigue, and (3) limited data sources for triangulation in the qualitative data.

As with all statistical analyses, the potential confounders were considered carefully in quantitative analyses. However, as the analysis was not conducted on primary data, certain confounding factors could not be accounted for because they were not measured by the original survey. Factors that may have had confounding impact but could not be

included in the models included: whether participants had reliable access to sexual and reproductive healthcare, supplies, and education; whether participants were open about their gender identity with their parents; and perceived parent attitudes towards youths' sexual activity, condom and other contraceptive use.

Another limitation with this dissertation is that the dependent variables in the quantitative portion of this dissertation were situated near the end of a long survey instrument. Of the original 2,168 TGD participants who completed the 7th item in the survey (measuring gender identity), 287 had dropped out of the survey by the 228th possible item (the first independent variable for this analysis). Unfortunately, the survey design of the MSS has multiple skip patterns wherein youth who endorse riskier behaviors are presented with additional questions. This significantly lengthens surveys for youth who endorsed riskier behaviors and may encourage drop out, due to survey fatigue or time limitations, at higher rates compared to youth who do not endorse risky behaviors. This may have obscured the effects of the independent variable by systematically biasing types of participants who were contributing.

The study's qualitative data were limited to eight individual interviews collected in a consistent method. Utilizing greater variation in triangulation sources in the qualitative phase of this dissertation to gain a more complete understanding of the phenomenon of interest may have improved credibility. For instance, multiple sessions with participants or having participants discuss their experiences in online anonymous focus groups in addition to individual interviews may have provided more evidence of consistency in the findings. Alternatively, collecting data from a larger number of young people could have achieved this goal.

Implications

Implications for Future Research

This study provided youth perspectives on aspects of parent-youth relationships, namely connectedness and communication. Future research should seek perspectives from parents of TGD young people as well. Youth and parent perceptions of relationship quality and communication can often be significantly mismatched (Korelitz & Garber, 2012). However, findings specific to TGD youth and their parents are not available in the literature. To facilitate future work related to this study, researchers might seek to explore parent perspectives of relationship qualities (e.g. connectedness) between their TGD children and themselves and test for alignment with youth perspectives. To build on this study's qualitative findings, further studies could examine specific facilitators and barriers parents find when talking to TGD youth about sex and relationships. As some youth from this study discussed parental concerns that TGD identity would interfere with youths' ability to establish and maintain meaningful intimate relationships, exploring parental expectations and concerns about their TGD children's future relationships may provide additional insight related to this finding.

The youth in this study discussed several messages about sex and relationships they heard from their parents and how those messages impacted their feelings and decision making. Developing survey items based on discussion content may provide researchers with information about TGD youth experiences more broadly. For instance, participants in this dissertation discussed receiving messages about LGBTQ sexuality and relationships from parents covering a variety of content (e.g. attending a wedding between men while I was growing up; information about how two cisgender women

might have sex, etc.). Survey items developed from interview data could provide information about how specific types of messages about LGBTQ sexuality discussed in interviews might influence sexual health outcomes on a population level among TGD individuals.

Taken together, findings suggest while parental caring and parent-youth communication may provide TGD youth with some sexual health promoting benefits, other factors (e.g. peer and partner beliefs) may play pivotal roles in shaping youth's sexual values and experiences. This aligns with both the Minority Stress Theory (Hendricks & Testa, 2012; Meyer, 1995, 2010) and Social Cognitive Theory (Bandura, 1986). Both theories discuss additional factors as influential. The Minority Stress Theory suggests that factors including coping ability and social support from others impact health outcomes. Social Cognitive Theory suggests additional personal/internal factors and additional environmental factors impact sexual behaviors. Future studies should consider testing these additional variables including how relationships with other people in youth's lives (e.g., peers, siblings, other caring adults) interact with parent relationships or how internal assets may influence outcomes. Qualitative studies could ask youth to define factors they believe influence their sexual health or describe the ways in which factors influence sexual health among TGD youth.

In both quantitative and qualitative portions of the dissertation, findings suggested centering of cisgender and heterosexual perspectives in the larger society is directly impacting TGD sexual health. In the quantitative phase of the dissertation, some of the dependent outcome variables were potentially less valid for TGD participants than cisgender participants (e.g. using a condom at last sex if neither partner has a penis is not

a useful measure of sexual health). These outcome variables may be more inclusive if survey items are framed from a perspective that does not assume participants are cisgender and heterosexual. For instance, instead of asking participants about condom use which inherently suggests all sex includes a penis, using more neutral language by inquiring about use of a barrier method (e.g. condom or dental dam) to prevent STIs may be less cisnormative and heteronormative. Relatedly, parents being unable to see their children in fulfilling, long-term relationships outside of cisgender models, reflects a similar centering of cisgender perspectives. Future population research should aim for broader representation and closer consideration in item development to avoid such biases.

Implications for Nursing Practice

Parents of TGD youth may not be aware of their children's gender identity in childhood and early adolescence as they begin to convey messages about sex and relationships. As discussed above, many of those messages center cisgender perspectives. This ciscentrism may contribute to ambiguity about parent-youth relationships and harm feelings of connectedness among TGD youth (Catalpa & McGuire, 2018); although generational growth among parents may lessen ciscentrism and reduce the effect. Preemptive steps can be taken to avoid centering cisgender perspectives. Nurses working with families with young children might provide recommendations to avoid centering cisgender perspectives when possible, regardless of a child's presumed gender identity. For instance, discouraging discussions of topics based on gender stereotypes or avoidance of adhering to strict gender roles. Youth should be encouraged to explore gender as they wish to and introduced to concepts like the difference between gender identity and sex assigned at birth at early ages. It is important to acknowledge, that while some parents are

struggling with this framing, other parents are facilitating inclusive communication about sex with their children. Encouraging or facilitating parent support groups (e.g. PFLAG or local TGD specific groups) may help struggling parents connect with parents who have built these communication skills who may be willing to share their knowledge and expertise. Additional formal interventions based on existing educational and relationship-skill building programs, like those discussed in a review written by Althea Akers and colleagues (Akers, Holland, & Bost, 2011), could be adapted to be more inclusive and provide parents and youth the tools necessary to promote sexual health.

Among TGD youth in particular, nascent literature suggests specific aspects of sexual health may be difficult for parents to discuss with their children (Newcomb et al., 2018). Similarly, the study's qualitative findings suggest parents may be unsure how to conceptualize healthy relationships for their TGD children, which resulted in feelings or experiences that were often painful for study participants. Nurses may help guide parents and youth as they navigate difficult conversations, including conversations with uncomfortable topics and where parents may lack basic knowledge, either as a family group or as individuals. This might include supporting TGD youth struggling with parent ciscentrism, providing education resources for parents (e.g. GLSEN's Inclusive Sexual Health Education for LGBT students), or facilitating conversations between family members. These actions by nurses may promote open and supportive parent-youth communication and parent connectedness, which may further improve sexual health outcomes. It is key to note that many nurses may require additional training on their own ciscentrism or heterocentrism before providing effective support for TGD youth and their families.

The results of this dissertation show TGD youth who feel their parents care about them and communicate with them—generally or about sexuality in a sex-positive way in particular—are more prepared to avoid risky sexual behaviors. Unfortunately, findings also suggest that the opposite is true, and TGD youth who have lower-quality relationships with their parents may be at risk for poorer outcomes. Poor relationships may be exacerbated if youth with difficult parent relationships also hear messages about sex and relationships that do not align with their own experiences and values. Nurses working with TGD youth should assess family relationships early in their interactions with youth, to help determine if resources are needed to promote supportive parent-youth communication, parental attitudes and values regarding adolescent sexuality, and high-quality parent-youth relationships. For instance, nurses could provide youth with difficult parent relationships with opportunities to have open conversations about sex and relationships—with a nurse and/or facilitated among youth peers—or provide trans-inclusive educational materials.

Findings from the interviews indicate that regardless of the messages youth received from their parents, participants felt autonomy in their sexual health decision making. Building on this message nurses and other health care professionals should foster this sense of autonomy and empower TGD youth they see in their practice. One way to do this might be to encourage youth to build specific sexual health promoting skills like "how to talk to a partner about STI prevention." Another way to foster a sense of autonomy could be to provide TGD youth who need vaginal swab tests the option to self-collect samples, as is recommended among general populations of adolescents (Holland-Hall et al., 2002). By providing these types of encouragement, nurses are not only

providing culturally sensitive care, but promoting independence which may build coping ability, a key factor in moderating minority stress.

Conclusions

To continue moving TGD adolescent population health and the science forward, it is vital to combine what is measurably known from across TGD youth populations with the depth of individual experiences from the community itself. Empowering marginalized youth communities, amplifying their voices, and providing powerful data driven evidence to establish recommendations for care helps to promote meaningful outcomes. These meaningful outcomes will contribute to reducing health disparities experienced by TGD youth and strengthening a more equitable health environment.

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Appendix A: Institutional Review Board Exemption (Quantitative)

UNIVERSITY OF MINNESOTA

Twin Cities Campus

Human Research Protection Program
Office of the Vice President for Research

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Minneapolis, MN 55455

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NOT HUMAN RESEARCH

February 8, 2018

Renee Sieving

612-626-4527
sievi001@umn.edu

Dear Renee Sieving:

On 2/8/2018, the IRB reviewed the following submission:

Type of Review:	Initial Study
Title of Study:	Family connectedness as a protective factor in the sexual health of transgender and gender nonconforming young people
Investigator:	Renee Sieving
IRB ID:	STUDY00001959
Sponsored Funding:	None
Grant ID:	None
Internal UMN Funding:	None
Fund Management Outside University:	None
IND, IDE, or HDE:	None
Documents Reviewed with this Submission:	• Protocol, Category: IRB Protocol

The IRB determined that the proposed activity is not research involving human subjects as defined by DHHS and FDA regulations. To arrive at this determination, the IRB used "WORKSHEET: Human Research (HRP-310)." If you have any questions about this determination, please review that Worksheet in the HRPP Toolkit Library and contact the IRB office if needed.

Ongoing IRB review and approval for this activity is not required; however, this determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about

Appendix B: Institutional Review Board Approval (Qualitative)

UNIVERSITY OF MINNESOTA

Twin Cities Campus

Human Research Protection Program
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APPROVAL OF NEW STUDY

June 17, 2019

Renee Sieving

612-626-4527
sievi001@umn.edu

Dear Renee Sieving:

On 6/7/2019, the IRB reviewed the following submission:

Type of Review:	Initial Study
Title of Study:	Family Relationships, Family Messages, and Sexual Health Among Transgender and Gender Diverse Young People
Investigator:	Renee Sieving
IRB ID:	STUDY00006687
Sponsored Funding:	None
Grant ID/Con Number:	None
Internal UMN Funding:	Departmental funding : Sophia Fund; School of Nursing Foundation; University of Minnesota Other : Doctoral Dissertation Fellowship (2019-2020); University of Minnesota
Fund Management Outside University:	None
IND, IDE, or HDE:	None
Documents Reviewed with this Submission:	• Parental Consent (Revised), Category: Consent Form; • Youth Assent/Consent (Revised), Category: Consent Form; • Resource list.pdf, Category: Other; • Protocol for Handling Urgent or High Risk Issues.pdf, Category: Other;

Driven to Discover℠

	• Interview Guide.pdf, Category: Other; • Protocol for Interacting with Parents.pdf, Category: Other; • Protocol (Revised), Category: IRB Protocol; • Flier, Category: Recruitment Materials; • Demographics Form.pdf, Category: Other; • Business Associate Agreement, Category: Other; • Confidential Screener, Category: Other;

The IRB determined that the criteria for approval have been met and that this study involves no greater than minimal risk

This study was approved under Expedited Category:

• (7) Research on individual or group characteristics or behavior or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

The IRB approved the study from 6/17/2019 to 6/6/2020 inclusive. You will be sent a reminder from ETHOS to submit a Continuing Review submission for this study. You must submit your Continuing Review no later than 30 days prior to the last day of approval in order for your study to be reviewed and approved for another Continuing Review period. If Continuing Review approval is not granted before 6/6/2020, approval of this protocol expires immediately after that date.

You must also submit a Modification in ETHOS for review and approval prior to making any changes to this study.

If consent forms or recruitment materials were approved, those are located under the Final column in the Documents tab in the ETHOS study workspace.

In conducting this study, you are required to follow the requirements listed in the Investigator Manual (HRP-103), which can be found by navigating to the HRPP Toolkit Library on the IRB website.

For grant certification purposes, you will need the approval and last day of approval dates listed above and the Assurance of Compliance number which is FWA00000312 (Fairview Health Systems Research FWA00000325, Gillette Children's Specialty Healthcare FWA00004003).

Sincerely,

Cynthia McGill CIP

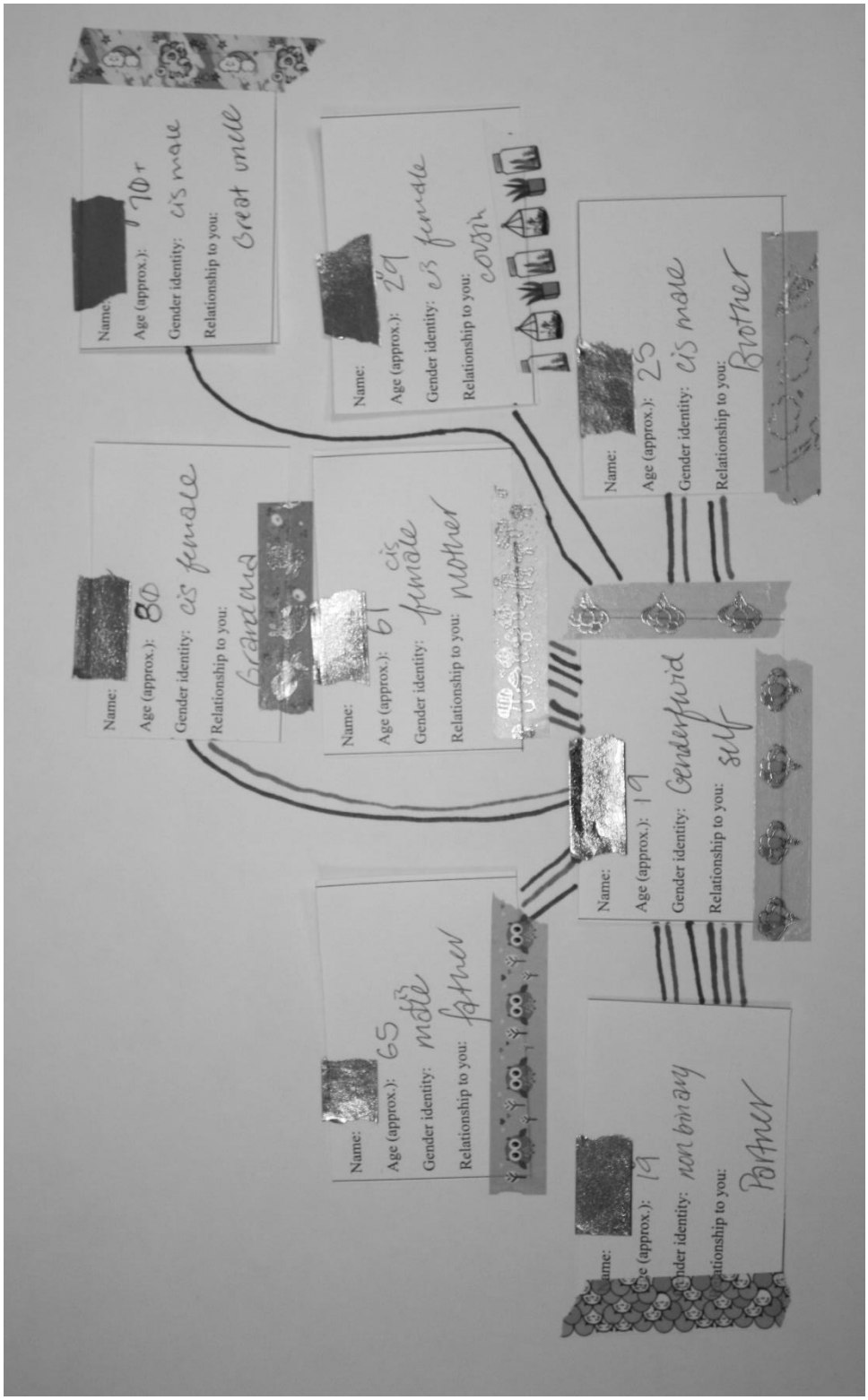
IRB Analyst

We value feedback from the research community and would like to hear about your experience. The link below will take you to a brief survey that will take a minute or two to complete. The questions are basic, but your responses will help us better understand what we are doing well and areas that may require improvement. Thank you in advance for completing the survey.

Even if you have provided feedback in the past, we want and welcome your evaluation.

http://z.umn.edu/irbsurvey

Appendix C: Example Family Chart: Riker



Appendix D: Semi-structured Interview Guide

Introduction:

Thank you for agreeing to participate in our project today. I am here as part of a study to learn about trans, genderqueer, and gender diverse young peoples' views about family, and the role family has in helping promote health, especially sexual health. We are interviewing between eight and ten young people. We hope to learn from these young people and to use what we learn to help people who work with families understand how family impacts the sexual health of trans youth.

I am going to record our conversation today because I don't want to miss anything you say. None of my notes or recordings will have your name on them.

[Review consent forms, respond to questions]

Interview questions:

1. Let's start with you helping me learn about your family. I'm going to have you make a visual representation of your family. I have these slips of paper I'll have you fill out about each of your family members. <see template below> I want you to start with yourself in the middle. Just fill in "me" in the name line. For family members you can use initials or any identifier that will keep you from getting confused as we go along. Add family members around yourself in whatever way makes sense to you. We're going to try to do this part fairly quickly but if we need to add in people as we talk that is totally okay. At the end of our discussion I will take a picture of the chart and you can choose to take it with you or I can shred it if you don't want to keep it. (Clarifying questions as needed: How are you connected to that person? Are they a parent, a sibling, a parent's sibling, a close friend you consider family?)

2. Looking at this family chart you made, who do you feel closest to overall? **(Mark with orange)** Who are you open about your gender identity with? **(Mark with purple)**

3. Who do you **feel** you can talk to about sex? **(Mark with blue)** Please share about one of these family members---what is it about that person that makes you feel like you can talk about sex with them? (Probe: What about this person? (do this for each one separately))

4. Who have you **actually** talked to about sex? **(Mark with green) [If they have never talked to their family about sex, skip to Q5]** For each of the people you indicated, how did those conversations go? (Probes: How did the first conversation start? What was said during those conversations? How did you feel about the conversations you had with that person?) [Each green mark separately]

5. As you know, we communicate a lot without words---with our actions or inactions, or behaviors. I'm curious if you have any examples of times when a family member communicated an opinion about sex, sexuality, or sexual health without necessarily talking with you directly? (example---made a comment about someone passing by, or referenced a movie scene or tv series, or other?)

6. Do you believe you have a good sense of how each of your family members thinks about sex or sexuality or sexual health? Could you share a specific example (Probes: What do you think your family members think about sex? What do they do to tell you this is how they feel?)

7. Who in your family influences **how you feel** about sex and sexual health most? **(Mark with red)** Could you share some examples of their influence? How and in what ways do they influence your feelings about sex and sexual health?

8. Who in your family **influences decisions** you make about sex and sexual health most? **(Mark with gray)** How and in what ways do they influence decisions you make about sex and sexual health?

9. Do you believe your gender identity has influenced how any of your family members communicate with you about sex or sexual health? Could you share an example? Why/why not?

10. Is there anything else you would like to add that you feel is important given what we have talked about today?

Wrap up:

Thank you, Gift card, (Recruitment of additional youth participants)

Name:
Age (approx.):
Gender identity:
Relationship to you:

Figure D.1 *Example of a 'family information label' template used to create visual representation of participants' family.*

Appendix E: Supplemental Table for Manuscript 2

Table E.1
Combined models without and with interaction terms testing associations between parent connectedness and sexual health indicators among TGD youth in the 2016 MSS (reference group: AMAB)

Ever Had Sex and Risky Sexual Behaviors				
	Ever had sex n=1817	Multiple partners in the last year n=535	Pregnancy involvement n=534	Substance use at last sex n=535
Combined models without interaction term				
Parent connectedness OR (CI 95%)	**0.68***** **(0.60-0.77)**	0.94 (0.78-1.13)	**0.64**** **(0.48-0.84)**	0.93 (0.75-1.16)
Combined models with interaction (sex assigned at birth x parent connectedness)				
Interaction OR (CI 95%)	1.20 (0.95-1.52)	**0.64*** **(0.44-0.94)**	0.84 (0.49-1.45)	1.13 (0.74-1.73)
Sexual Health Promoting Behaviors				
	Communication with partner(s) about STI prevention n=532	Communication with partner(s) about pregnancy prevention n=531	Condom use at last sex n=529	Pregnancy prevention at last sex n=520
Combined models without interaction term				
Parent connectedness OR (CI 95%)	**1.24*** **(1.03-1.49)**	**1.35**** **(1.12-1.63)**	1.15 (0.95-1.38)	**1.39**** **(1.15-1.69)**
Combined models with interaction (sex assigned at birth x parent connectedness)				
Interaction OR (CI 95%)	0.78 (0.53-1.13)	0.85 (0.58-1.24)	1.41 (0.97-2.05)	1.41 (0.95-2.11)

Note: Models combine both youth assigned female at birth and youth assigned male at birth in analytic samples. Models control for grade level, race and ethnicity, economic hardship, family structure, and sex assigned at birth.
TGD=Transgender or Gender Diverse; MSS=Minnesota School Survey; AMAB=Assigned Male at Birth
*p values ≤ 0.05; **p values < 0.01; ***p values < 0.001