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Factors Associated with Resilience and Sense of Coherence in Adult Transgender Persons: Identifying Predictors to Reduce Health Disparities in a Vulnerable Population

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FACTORS ASSOCIATED WITH RESILIENCE AND SENSE OF COHERENCE IN ADULT TRANSGENDER PERSONS: IDENTIFYING PREDICTORS TO REDUCE HEALTH DISPARITIES IN A VULNERABLE POPULATION

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ABSTRACT

National studies revealed the transgender population has barriers to positive health outcomes, but also showed evidence of resilience. A focus on health strengths such as resilience may help mitigate health barriers. This work focused on the sociodemographic predictors of and interrelationships between resilience, sense of coherence (SOC), and health perception. There were three aims of this work. The first aim was to review the literature surrounding resilience and SOC in the adult transgender population. Results from an integrative literature review revealed three themes of resilience in the adult transgender population: social support, individual factors, and resources. Prior to the current study, only two studies investigated SOC in the adult transgender population. In the first study, SOC was measured as a psychosocial resource after gender-affirming surgery. The second study found SOC mitigated the effects of stigma. The second aim was to investigate sociodemographic factors related to resilience, SOC, and health perception in a sample of adult transgender identified persons as well as the interrelation between resilience, SOC, and health perception. The results from the current study revealed number of people in one's social support network was the exclusive statistically significant predictor of sociodemographic factors related to resilience; having a graduation education was the only sociodemographic factor predicting SOC; the sociodemographic factors did not produce a significant predictor of health perception. The third aim was to provide a methodological analysis of using Facebook as the sole recruitment method in the current study. Facebook is a feasible modern recruitment method that can generate a diverse sample from the adult transgender population inasmuch as researchers utilize ethically sound social media recruitment approaches.

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CHAPTER 1: INTRODUCTION

This work is composed of three independent manuscripts: an integrative literature review, a quantitative study, and a methodological analysis. The second chapter is comprised of an integrative review of the literature surrounding resilience and SOC in the adult transgender population. The literature review reflected several gaps. Specifically, there is a need to recruit diverse adult transgender identified samples comprising increased diversity respective of racial/ethnic background, older participants, and those residing in more rural geographic areas. Longitudinal studies could produce comprehensive insight of the capacity to maintain resilience. Subtopics should investigate intersectionality of identities, sociodemographic variations that have uncertain impacts on resilience such as age, employment and health benefits, mental health, and the role of spirituality. Additionally, no known studies have investigated the relationship between resilience and SOC.

The third chapter includes a quantitative study that investigated sociodemographic factors related to resilience, sense of coherence, and health perception in a sample of adult transgender identified persons as well as the interrelationships between resilience, sense of coherence, and health perception. This study addressed several gaps from the integrative literature review. Namely, the current study explored intersectionality differences on measures of resilience, SOC, and health perception. Secondly, the current study explored the relationship between resilience and SOC. Lastly, the current study attempted to gather a more rural representation by sampling LGBTQ and transgender community organizations associated with 18 Florida counties.

The fourth chapter provides a methodological analysis of using Facebook as the sole recruitment method in the current study. Current regulatory guidelines do not explicitly address social media as a recruitment method, yet social media has become a common tool used

adjunctly with traditional recruitment methods. The current study used Facebook as a sole recruitment method primarily related to COVID-19 and subsequent social distancing guidelines. In this study, the resulting sample had diversity comparable to a national transgender sample. Therefore, it is believed that social media is a valuable recruitment method, given researchers use ethically sound social media recruitment methodologies.

CHAPTER 2: APPLICATION OF THE SALUTOGENIC HEALTH MODEL IN THE ADULT TRANSGENDER COMMUNITY: A REVIEW OF THE LITERATURE SURROUNDING RESILIENCE AND SENSE OF COHERENCE

Abstract

The transgender population has various health risk factors that can negatively impact both physiological and psychological health outcomes. Generally, research in the health of the transgender population is limited by a pathological lens with a lack of national as well as state sexual orientation and gender identity data collection. Resilience in the transgender population promotes health, well-being, can help mitigate risk to general health, and aligns with the salutogenic health model. This literature review was conducted to examine factors surrounding resilience and sense of coherence in the transgender population. The databases searched were MEDLINE, APA PsycINFO, CINAHL Plus with Full Text, Cochrane Database of Systematic Reviews, and GenderWatch. Initially, 234 articles were found. After duplicates were removed and exclusion criteria applied, 36 articles were analyzed. The three main themes were social support, individual factors, and resources. Pursuing research targeted at investigating individuals' health strengths and sustainability (i.e., a salutogenic health model) is not only a holistic health approach but can also help illuminate paths to counter negative health risks.

Keywords: transgender, resilience, factors

Introduction

Transgender persons have a range of experiences in discovering their identification, in communicating it, in receiving health care for transition, and in living through transition. Additionally, intersectionality, an interconnection of identities such as race and gender identity, also contribute to a transgender-identified persons lived experience (Greenfield, 2015). It is estimated 0.1%-0.5% of the population identifies under the transgender umbrella (Keatley et al.,

2015). Table 2-1 provides an alphabetical list of terms and corresponding definitions operationalized in this work. The purpose of this manuscript is to describe the experience of resilience and sense of coherence (SOC) within the transgender population.

A complete depiction of transgender health outcomes would be remiss without a presentation of ill health outcomes. To date scientific investigation in the transgender community has largely centered around mental health outcomes, sexually transmitted infections, and substance use. Compared to the general population, transgender specific health disparities include increased higher rates of substance abuse, experience of violence and harassment, increased suicide (Grant et al., 2011; James et al., 2016; Keatley et al., 2015), and increased rates of HIV infection, especially for transgender women of color (Grant et al., 2011; James et al., 2016). Most of these health disparities can be explained by the Minority Stress theory (Meyer, 1995, 2015) along with subsequent use of maladaptive coping mechanisms. However, a comprehensive understanding of health disparities in the LGBTQ population has been limited by a general lack of sexual orientation and gender identity (SOGI) national data collection (U.S. Department of Health and Human Services, n.d.). In fact, four of the specific LGBT population objectives for Healthy People 2030 relate to increased SOGI data collection on national and state surveys (U.S. Department of Health and Human Services, n.d.). Optimal health outcomes would include improved mental health and management of psychological distress.

The transgender population has stressors and patterns of distress, but members of the community also possess resources that contribute to positive health outcomes. Antonovky (1979, 1996) introduced the Salutogenic Model of Health as a proposed framework for health promotion. One of the model's core concepts, SOC describes an individual's world view on a continuum as comprehensible, manageable, and meaningful. An individual's resources and life

experiences can help facilitate improved health (Antonovsky, 1979, 1996). Resilience as an individual characteristic can be understood as generalized resistance resource (GRR) (Antonovsky, 1979, 1996). A GRR is a quality of the individual, group, or environment that can improve stress management (Antonovsky, 1979,1996). Resilience can provide strength to face challenges and barriers. Resilience can be defined as the possessing an ability to survive and thrive despite adversity (Meyer, 2015).

Despite health disparities, the transgender community continues to persevere and show evidence of resilience through social support connections and educational advancements. The work of Deutsch et al. (2019) suggested many transgender individuals who have social support networks do not have mental health issues; this is despite increased mental health concerns in the transgender community. In addition, the experience of social and familial support has a robust beneficial impact on transgender individuals (Deutsch et al., 2019). National surveys (Grant et al., 2011; James et al., 2016) reported a higher level of educational attainment among transgender individuals. James et al. (2016) reported 38% held a bachelor's degree or higher. A health strengths focus, including resilience and SOC formation, could have a positive impact on overall health and help mitigate negative factors to health.

Whittemore and Knafl (2005) provided guidelines to increase rigour of an integrative review. The authors discussed various strategies coinciding with problem identification, literature search, data evaluation, data analysis, and presentation. These guidelines will be addressed as they are applicable. The first guideline is clear identification of the problem and the review's purpose (Whittemore & Knafl, 2005). The research question that directed this review was: What are the factors related to resilience and sense of coherence in the transgender-identified individuals? The goals of this integrative literature review were (a) to summarize the

development of resilience and SOC in transgender identified individuals' and (b) provide a summary of future research needs related to resilience and SOC in the transgender community.

Methods

Whittemore & Knafl's (2005) second guideline is to present well-defined search strategies. For this integrative literature review, the MEDLINE, PsycINFO, CINAHL Plus with Full Text, Cochrane Database of Systematic Reviews, and GenderWatch databases were searched. Initially, the search was limited to adult samples. However, to provide a thorough presentation, both adult and child samples were included. Specific keywords used were (resilien* or "sense of coherence" or soc) AND (factors or causes or influences or reasons or determinants or predictors) AND (transgender or transsexual or transexual or gender variant or gender non-conforming or gender queer). Evidence level and quality of the studies were evaluated using the John Hopkins Nursing Evidence-Based Practice guide (Dang & Dearholt, 2017).

Inclusion Criteria

Eligibility criteria included peer-reviewed published studies in the English language that related to resilience within the adult transgender population. Because the science in this area is evolving, no date ranges were specified to increase the comprehensive focus of the review.

Exclusion Criteria

Editorials, opinion-based works, and dissertations were excluded from this review. Additionally, works specific to a particular sample specific characteristic were excluded as this would limit generalizability to the broader adult transgender population.

Conceptual Framework

Antonovsky's Salutogenic Model of Health (1979, 1996) framed this review. Antonovsky (1979) coined the term salutogenesis to indicate the beginnings of health. In his earlier research, Antonovsky (1979, 1996) shifted his thinking from a pathogenic health model to one that focused on health origination, adaptation and maximizing health outcomes despite pathology (i.e., salutogenesis). He proposed health is on a continuum, anchored by opposing ends of health/ease and dis-ease (Antonovsky, 1979, 1996). The salutongenic health model, grounded by the core concepts of life experiences, GRRs, and SRRs, and SOC, frames health maintenance and health promotion or movement towards the health/ease pole on the health continuum (Antonovsky, 1979, 1996).

An individual's life experiences, starting in childhood, begin the formation of a SOC (Antonovsky, 1979). SOC describes an individual's world view, where the world is perceived on a continuum encompassing a perception of being comprehensible, manageable, and meaningful (Antonovsky, 1979, 1996). By adulthood, one's SOC is in a relatively steady state, but can be affected by unexpected circumstances (Antonovsky, 1979). These circumstances often create tension and stress that can negatively impact SOC or generate subsequent opportunities to improve SOC (Antonovsky, 1979). An individual with a strong SOC would be motivated to cope, understand the challenge at hand, and believe he, she, or they possess/possesses the resources to cope (Antonovsky, 1979, 1996).

Antonovsky (1979, 1996) stated individuals could use GRRs and specific resistance resources (SRRs) to help cope with this tension and stress management. A GRR is defined on a general level as a characteristic of the individual, group, or environment that can aid stress management (Antonovsky, 1979,1996). A SRR is used to combat a specific stressor (Antonovsky, 1979). He proposed eight categories for GRRs:

- Physical
- Biochemical
- Artifactual-material
- Cognitive
- Emotional
- Valuative-attitudinal
- Interpersonal-relational
- Macrosociocultural (antonovsky, 1979)

However, it was not his intent to imply that the categories were exhaustive or to delineate all potential GRRs (Antonovsky, 1979). More so, the purpose of the categories was to provide organization and to promote consideration other GRRs other than the ones discussed in his book (Antonovsky, 1979). In general, the salutogenic health model relates to health promotion and therein encompasses an exploration of both SOC and resilience.

Synthesis of Findings

Search Results

The initial search yielded 234 articles. After removal of duplicates, 133 articles were screened with the exclusion criteria, 70 articles were removed following title and abstract review, 29 excluded following full-text review. Articles with a central focus on HIV status along with those that had combined inseparable LGBTQ samples, editorials, opinion-based works, and dissertations were excluded. Two additional articles were found by ancestral search. Thirty-six full-text articles were analyzed that encompassed 15 countries and spanned years 2012-2020. Twenty-four studies used a quantitative methodological approach. Nine studies used a qualitative

methodological approach. Three studies used a mixed methods approach. Only one study (Lee et al., 2020) used random sampling. All other studies in this review used non-probability sampling techniques. The samples were n= 18 trans adults/youths, n= 5 comparison of trans with sexual minority group, n=4 trans Latina or Mexican women, n=4 trans women, n= 3 trans men, n = 1 trans Muslim n=1 trans healthcare providers. of comparison of cisgender males to trans males. No studies were identified that used Antonovsky's (1996) SOC with a transgender identified sample.

Whittemore and Knafl's (2005) third guideline relates to data evaluation with consideration of quality of resources. The John Hopkins Nursing Evidence-Based Practice allows for evaluation of both quantitative and qualitative study designs (Dang & Dearholt, 2017). Studies are evaluated by level of evidence and quality rating. Most studies were ranked at a Level III (i.e., Nonexperimental Study) and good quality rating, which could be rated at high, good, or low quality, based on John Hopkins Nursing Evidence-Based Practice guide (Dang & Dearholt, 2017). Four studies (Fredriksen -Goldsen et al., 2014; Perez-Brumer et al., 2017; Testa et al., 2014; Yang et al., 2016) were given a high rating based on large sample size and/or large geographic representation as well as of consistent findings and recommendations that were grounded in a comprehensive literature review (Dang & Dearholt, 2017). Four themes emerged from this review: social support, individual factors, resources, and health. See Figure 2-1 for a PRISMA diagram detailing search results.

Results

Whittemore and Knafl's (2005) fourth guideline relates to data analysis where data from primary sources are extracted and categorized with iterative comparison between studies. To assist with data analysis a matrix was created to organize study details by authors, aims, sample

and setting, design and data collection, and findings. A second matrix was structured to evaluate each study's strengths and limitations. Research investigating resilience factors in the adult transgender population was predominantly approached by quantitative methods with cross-sectional designs and electronic surveys for data collection. The main factors that were related to resilience were social support, individual factors (self-awareness, personal characteristics, gender identity affirmation, spirituality) and resources (education and higher income). Resilience related to positive mental health outcomes was the major conclusion from prior studies. The results are presented based on the themes of social support, individual factors, resources, and health. See Table 2-2 in for an overview of the studies characteristics and Table 2-3 for a review of the strengths versus limitations of the studies.

Resilience through Social Support

In this review, social support was the most reported factor related to resilience. For example, there was small to moderate association between family support and resilience (0.25, $p0<0.01$) (Puckett et al., 2019). Similarly, Scandurra et al. (2018) reported a small bivariate correlation between both being in a relationship and belonging to a transgender association to resilience (0.20, $p<0.05$). In addition, Bariola et al. (2015) reported frequency of contact with LGBT friends and acquaintances was a significant univariable regression factor associated with resilience ($F1, 148 = 7.33$; $P = .01$). Social support helped generate a sense of connection or community which led to resilience (Hwahng et al., 2019; Wagaman et al., 2019). Resilience was also generated by participants' use of an adaptive means of coping wherein participants reported a benefit of having someone to confide in related to gender identity development or struggles (Glick et al., 2019). Peer-to peer and intergenerational knowledge exchange also facilitated resilience (Perez-Brumer et al., 2017). Social support was also measured as an indicator of

resilience and explored as factor in mental health (Edwards et al., 2019; McDowell et al., 2019). For example, social support networks could serve as an adaptive coping mechanism and decreased use of maladaptive coping mechanisms (e.g., substance use) (Hwangh et al., 2019; Lee et al., 2020.

Nature of Relationship and Resilience

Studies examined various types of social support relationships and their contribution as whole to participants' resilience (Moody & Smith, 2013). The sources of social support were family of origin, alternative family, and LGBT peer/community connection. Some investigators sought to differentiate between the sources of social support and resilience. For example, reported family support, as opposed to support from friends or LGBT community connection, was correlated with resilience (Puckett et al., 2019). To a lesser degree, committed relationships were investigated and showed support for fostering resilience (McDowell et al., 2009; Scandurra et al., 2018)

Quantity Versus Quality of Social Support and Resilience

Other studies attempted to distinguish between the benefits of social support quantity (i.e., frequency of contact with social support network or number of people in the person's social support network) vs quality (e.g., sense of belonging or connectedness). To this end, there was support for both quantity and quality factors related to resilience. For example, Bariola et al. (2015) reported results from the multivariate regression analysis to predict resilience, where frequency of contact with LGBT peers was a contributor to resilience. In another study, Bockting et al. (2013) supported the measure of family support, peer support, and identity pride as indicators of resilience. Only at high levels of peer support was the relationship between enacted

stigma (i.e., actual experiences of rejection and discrimination such as verbal harassment, problems getting a job, problems getting health, and substance abuse services) and psychological distress moderated by peer support (Bockting et al., 2013). Logie et al. (2020) measured social support by users' Likert scale ratings of two subscales for quantity and quality of social support. The authors reported both quantity and quality of social support was related to increased resilience, but only quality of social support enhanced the buffering ability of other protective factors. Similarly, in a study that examined the physical and mental health of older transgender identified adults Fredriksen-Goldsen et al. (2014) reported older transgender identified adults reported lower levels of social support and community belonging, despite having larger social support networks, than cisgender lesbian, gay, or bisexual older adults. Therefore, the specific combination of quantity versus quality of social support or feelings of belonginess and connection and subsequent resilience need further exploration.

From these studies related to resilience attained through social support or social support measured as an indicator of resilience, there seems to be strong evidence for the positive relationship between social support to resilience, irrespective of the source of the social support. However, there are other details of social support related to resilience that warrant further exploration. Two of these areas include the roles of the quantity versus quality and intersectional identity (e.g., race/ethnicity, culture, LGBTQ, age groups).

Individual Factors Related to Resilience

The second theme from the existing literature was individual factors related to resilience. The most cited individual factors were self-awareness, personal characteristics such as courage and determination (Reisner et al., 2013), gender identity affirmation, and spirituality. Participants cultivated a sense of self-awareness, self-acceptance, and self-accountability through reflection

on the concept of gender and making sense of experiences (Reicherzer & Spillman, 2012; Reisner et al., 2013; Wagaman et al., 2019). Self-acceptance was demostrated in a qualitative study exploring resilience factors with transgender identified youth and young adults in attempts to understand how the participants made sense of their experiences (Wagaman et al., 2019). In a small sample of four transgender-identified men, who were healthcare providers, resilience was described as process that could be achieved by performing gender in their own niche way (Macdonnell & Grigorovich, 2012). Collectively, these healthcare providers had professional roles in social work, medicine, nursing, midwifery, naturopathy, massage therapy, and teaching. These healthcare providers believed their personal and professional trans identities were intertwined together in a positive way (Macdonnell & Grigorovich, 2012) . They indicated their professional trans identities may have facilitated challenging patient-healthcare provider discussion, where patients may not have been comfortable communicating with heterosexual or cisgender healthcare providers (Macdonnell & Grigorovich, 2012). These results suggest self-awareness and self-acceptance is positively associate with resilience.

Gender Identity Affirmation and Resilience

Gender identity affirmation is the concept related to having one's gender identity or inner sense of gender confirmed. Gender affirmation was commonly cited in the literature to occur in the context of others or by others such as family (Lelutiu-Weinberger et al., 2020). Participants felt a sense of gender affirmation using medical/surgical and social gender affirming interventions. Although, it is not clear if there is a specific type of gender affirming intervention such as medical/surgical or social gender affirming interventions that generates resilience. For example, Crosby et al. (2016) reported medically based gender affirmation interventions (i.e., use of hormones, silicone injections, or surgical interventions to align sex assigned at birth with

gender identity) were not associated with mental health outcomes. However, all social factors of gender affirmation interventions (e.g., legal name change and legal photo ID reflecting gender identity) were associated with resilience (Crosby et al., 2016). In another example of social gender affirmation, gender affirmation was felt by presenting in public consistent with one's gender identity and feeling as sense of peer or public acceptance (Hwahng et al., 2019; Reicherzer & Spillman, 2012).

The concept of intersectionality of identities and its relationship to resilience was not well explored. In Yang et al. (2016) for Chinese transgender identified women physical health had a positive association with not using hormones. The authors discussed the prominent role of Confucianism in China along with the potential unmonitored use of hormone therapy due to China not having legal hormone therapy for gender affirmation (Yang et al., 2016); these two concerns may affect the relationship between physical health and hormone use. Meaning, underlying conflict between participants' cultural identity and cultural beliefs with their gender identity may have affected other relationships. Glick et al. (2019) explored housing insecurity causes and coping of trans adults in New Orleans. The study's Black participants discussed additional vulnerabilities related to race that were not discussed by the White participants (Glick et al., 2019). The relationship between gender affirmation and resilience is complex. There may be other confounding variables such as cost of interventions, cultural context, and legal/regulatory oversight concerns that influence the relationship between gender identity affirmation and resilience. Therefore, the evidence suggest these confounding variables along with type of gender affirmation intervention require further consideration.

Spirituality and Resilience

Spirituality may help transgender adults be resilient through use of adaptive coping mechanisms such as prayer and theological reflection (Etengoff & Rodriguez, 2020).Etengoff and Rodriguez (2020) explored transgender-identified Muslims use of religious coping strategies to help with intersectional identity challenges. They found that 53% of the participants reported using religion and spirituality as a path to resilience. In another study, Mexican transgender identified women reported finding resilience through spirituality and expressed a profound understanding of God and the universe (Reicherzer & Spillman, 2012). These results propose spirituality has a positive relationship to resilience.

From these studies related to individual factors associated with resilience, there seemed to be evidence for the positive relationship between self-awareness and self-acceptance, gender affirmation, and spirituality to resilience. However, this evidence is not conclusive. Future studies could provide clarity for the role of specific types of gender affirming interventions and respective relationships to resilience. Additionally, only one study indicated age, specifically older age, was protective for mental health (McDowell et al., 2019). Therefore, age related to resilience might be a relationship for future examination. Lastly, studies typically collected some form of intersectionality data (e.g., race/ethnicity and sexual orientation) but samples were generally too small or lacked racial diversity to make any comparisons. Therefore, more studies should attempt to clarify the relationship between intersectionality of identities and resilience.

Resources

Studies in this review provided evidence that resource access had a relationship to participants' resilience. For example, higher education was associated with resilience (Akhtar & Bilour, 2020; Bariola et al., 2015). In addition, employment and higher income were related to

resilience (Bariola et al., 2015). Prior studies did not show a lack of resources to have an inverse relationship. Nevertheless, it is worth noting there were two studies that presented evidence of a lack of housing (Glick et al., 2019) or participation in employment that jeopardized safety (Logie et al., 2017). In Logie et al. (2017), for every point increase in resilience, there was 16% reduced odds of transactional sex (i.e., sex in exchange for survival needs, drugs/alcohol, or money). Another study reported participants' decreased resources. Bauermeister et al. (2016) reported the transgender identified men participants were less likely: to have completed high school or be enrolled in school, report working and receiving benefits. In addition, 73.1% of the transgender identified men had incomes below the poverty line (Bauermeister et al., 2016). These studies supported the need of future inquiry into the relationship between resources (e.g., income, education, employment, and health benefits) and resilience. Future studies could further explore intersectional differences and urban versus rural resource access.

Resilience Related to Health

A few studies examined resilience directly related to mental health or quality of life with components of physical and mental health. Resilience related to positive mental health outcomes. For example, Brennan et al. (2017), who investigated relationships between gender-related stressors, resilience factors, and mental health, found that one unit increase in resilience was associated with 6.6% decreased odds in suicide attempt. Resilience was also negatively related to depression and anxiety (Chakrapani et al., 2017; Lacombe-Duncan et al., 2020; Scandurra et al., 2018), stigma (Chakrapani et al., 2017), and lower PTSD scores (Lacombe-Duncan et al., 2020). These findings support the positive relationship between improved mental health and resilience. Future studies could expand the knowledge on the nature of the relationship between health and resilience with including perceptions of health, measures of both physical and mental health as

well as holistic measures of health. Additionally, studies should attempt to gather larger more diverse samples to provide insight into disparities among groups.

Discussion

Whittemore and Knafl's (2005) fifth guideline indicates the presentation of results should include a comprehensive description of conclusions supported by a logical chain of evidence along with implications and limitations to the integrative review. Therefore, the discussion below will parallel the main themes presented in the preceding results (i.e., social support, individual factors, resources, and health). Each theme below provides additional discussion within the context of Antonovsky's Salutogenic Health Model (Antonovsky, 1979). Last, implications and limitations of this review are presented.

These studies had similar limitations such as a cross-sectional design with a lack of longitudinal studies, small sample, lack of sample diversity related to participants' race/ethnicity, age, and rural representation. Participants' social support, individual characteristics, and resources are the primary influences associated with their resilience. Resilience related factors could also be considered GRRs. Use of GRRs can improve health status on the Antonovsky's health continuum (1979, 1996). Resilience was also related to mental health outcomes. Overall, the studies in this review supported the Salutogenic Health Model (Antonvosky, 1979, 1996).

Social Support

The relationship between social support and resilience had some inconsistencies related to the source, quantity, and quality of social support. From this review, family social support, especially from mothers, had a critical role in participants' resilience. Transgender individuals also found support in alternative kinship structures, from peers and role models within the

transgender community, and intimate partners. Alternative kinship structures may result from families having difficulty accepting their loved one's gender identity. Greenfield (2015) discussed the complex nature of coming out to self or others with an LGBTQ identity and forming a positive identity. Substance use declined with peer connection, which provided a subsequent outlet to share gender identity experiences with others. Social support from family, LGBTQ community, and positive intimate relationships were noted to be beneficial (Greenfield, 2015). The Institute of Medicine (IOM, 2011) also remarked on the protective nature of support from family and friends. Transgender individuals having difficulties with family acceptance of their gender identity should consider allowing their family a similar amount of time to process their gender identity, as was needed for self-acceptance (Greenfield, 2015). Healthcare providers could refer transgender mentors or transgender identified youth (Torres et al., 2015). LGBTQ organizations at the national and regional levels (e.g., PFLAG) can be valuable social support resources for transgender individuals and their families to help with coping and acceptance. In general, nurses and other healthcare providers can promote resilience in the transgender community by assessing transgender-identified client's social support quality and availability in addition to providing information on community and national social support resources (e.g., live or virtual transgender support groups, Websites, social media groups tailored to sexual and gender minorities). Some of the studies in this review explored the distinctions of support quantity and quality. Social support quantity did not always relate to increased resilience and, instead, was related to the quality of the social support received by transgender individuals.

Interpersonal-Relational and Macrosociocultural GRRs Related to Resilience

Within Antonovsky's Salutogenic Model of Health social support can be classified a type of interpersonal-relational GRR or a macrosociocultural GRR if there is a focus on the broader

cultural context of social support role (Antonovsky, 1979). Most of the studies discussed in the preceding paragraph provided support for social capital as a GRR that facilitated participant's movement to the health/ease pole of the health continuum (Antonovsky, 1979). A few studies (Aaron & Rotsky, 2019; Akhtar & Bilour, 2020; Glick et al., 2019; Hwang et al., 2019) provided support for the macrosociocultural nature of social support as a GRR. For example, in Aaron and Rotsky's (2019) qualitative inquiry of maternal support set in Central Appalachia, participants reported both supportive and unsupportive interactions with their mothers, that eventually evolved to an overall positive relationship with their mothers (Aaron & Rotsky, 2019). Their mothers had a primary influential role steering the support of other family and community members (Aaron & Rotsky, 2019). Participants gave meaning to the interactions related to the presence of strong cultural beliefs signified by distinct gender roles, family loyalty, religious conservatism, and pride of place (Aaron & Rotsky, 2019). Another study (Akhtar & Bilour, 2020) in Pakistan reported participants, who had resided with their gurus (i.e., the leader of the transgender group who cared for unwanted children) as opposed to living alone or with friends, had significantly increased resilience and self-esteem. Both studies (Aaron & Rotsky, 2019; Akhtar & Bilour, 2020) findings support the macrosociocultural GRR category and the use of the GRR to help propel one to the health/ease end of the health continuum.

Individual Factors

Collectively, individual factors' impact on resilience is inconclusive and requires further exploration. Transgender individuals who exhibited personal characteristics such as confidence, persistence, and empowerment were resilient. Furthermore, resilience was associated with transgender individuals' feelings of gender affirmation or authenticity and pride in their identity. Individuals' spirituality may positively affect their inclination to resilience as well. However,

given limited previous investigation on spirituality and specific gender-affirming types or interventions, this relationship is not definitive. Increased age was also associated with resilience. Yet, this may be associated with other variables (e.g., life experience or crisis competence) that provide a more comprehensive reason for resilience. The IOM (2011) reported LGBT elders might possess crisis competence as a protective factor. Older LGBT adults have likely lived a life characterized by discrimination, isolation, and invisibility, with a lack of protection generally garnered from social support resources and healthcare/public policy and legislation (Simone et al., 2015).

Nurses and other healthcare providers can help facilitate transgender patients' resilience. Initially, nurses can assess clients' gender identity, feelings of gender affirmation, identity pride, and authenticity. Clients questioning personal gender identity or those expressing negative sentiments towards gender affirmation may benefit from the aforementioned social support resources as well as a mental health or case management consultation to explore personal needs. Greenfield (2015) acknowledged healthcare providers' crucial role to LGBTQ patients and indicated specific strategies for providers to offer guidance and support. These guidelines were organized into two headings (i.e., Attitudes and Awareness; Skills and Practices). Some of these guidelines include: 1) healthcare providers' practicing with an openness to nonbinary models of gender and sexuality; 2) avoiding assumptions of LGBTQ presentation and behavior; and 3) developing knowledge of the coming out process and LGBTQ identity formation, along with factors that can influence this process (e.g., intersectionality of identities and stigma encountered by LGBTQ patients and families) (Greenfield, 2015).

Emotional and Valuative-Attitudinal GRRs Related to Resilience

Within the literature surrounding individual characteristics related to resilience, there were two concepts that aligned with Antonovsky's Salutogenic Model of Health. Specifically, gender affirmation with attention to the affirmation of one's gender identity and spirituality both seeming to have positive association with resilience provide support to the Salutogenic Model of Health. In consideration of affirming one's gender identity, gender affirmation could be characterized as an emotional GRR (Antonovsky, 1979). Antonovsky (1979) noted development of a positive ego-identity was a lifelong process, where one has a sense of their inner being. An individual's ego identity can be related to social and cultural realties (Antonovsky, 1979). Specific types of gender affirming interventions such as exogenous hormones, top surgery or bottom surgery, wearing attire consistent with one's gender identity could be considered SRRs.

Spirituality could be considered an valuative-attitudinal GRR. Antonovsky (1979) noted that valuative-attitudinal GRRs relate to individual characteristics of copying styles. He did caution of cultural bias and the tendency of erroneously assuming a mastery coping style consistent with one's cultural values. It is worth noting that according to Antonovsky (1979) religion could be considered a macrosociocultural GRR as it relates to group beliefs that create personal values. In sum, gender affirmation and spirituality support movement towards the health/ease pole of the health continuum and, in essence, support the Salutongenic Health Model.

Resources

In this review, resilience was related to the access to resources (i.e., education and higher income). Other studies noted the elements of decreased resources but did not explore the relationship between decreased resources to resilience. For example, participants were able to gain access to housing and additional resources with LGBTQ peer or community connection.

Type of employment, such as sex work, could expose transgender individuals to increased safety and health risk. Nurses can assess transgender clients' resource availability. The IOM (2011) also indicated working in supportive environments as a protective factor.

Artifactual-Material, Cognitive, and Interpersonal Resources Related to Resilience

Prior literature's resources such as employment, housing, and income are artifactual-material GRRs (Antonovsky, 1979). Benefits and education would be considered interpersonal and cognitive GRRs, respectively (Antonovsky, 1979). While only two studies in this review included a resource focus as part of their exploration, GRRs impact individuals' ability to move towards the health/ease pole on the health continuum (Antonovsky, 1979). Antonovsky (1979) mentioned wealth had a unique relationship to other GRRs in that wealth provided potential access to other resources (e.g., safe housing). These studies supported the Salutogenic Health Model.

Health

From these studies, resilience was associated with overall positive mental health outcomes. Depression, anxiety, psychological distress, and suicide risk or suicide attempt were common foci of studies. Depression, psychological distress, and suicide were typically negatively associated with resilience. However, the relationship between anxiety resilience is not as clear.

The relationship between health and resilience is reflected in the Salutogenic Health Model. Improved health, albeit specific to mental health, supports movement to the health/ease pole of the health continuum. Antonovsky (1979), a sociologist, was aligned with a holistic definition of health, one that was comprised of multiple components (e.g., physical, mental,

social). However, instead of attempting to define health by its quintessential ingredients, he proposed a focus on movement along the health ease/dis-ease continuum (Antonovsky, 1979). Resilience itself could be considered a type of GRR. Increased resilience supports individuals' ability to move toward the health/ease pole of the health continuum.

Limitations and Future Investigation

The main limitation of this review is related to alternate or additional conclusions and implications not explored in this work. Another limitation is the possibility of relevant studies not captured by this search strategy.

Several areas warrant future investigation in resilience within the transgender community. Future research should include research recruitment strategies to increase sample diversity that will increase the likelihood of recruiting older participants, more representation from racial and ethnic minorities, and participants residing in rural areas. Participants identifying with multiple minority identities (e.g., gender, sexual, racial, ethnic, religious, and geographic) (Wheeler, 2015) and those from the older generations may help investigators explore the relationships between intersection of identities and crisis competence to subsequent resilience; both of which have not been comprehensively investigated. Although difficult with the hidden nature of the transgender population, longitudinal studies would provide a better understanding of the ability to sustain resilience. Specific resilience subtopics should explore intersectionality of identities, sociodemographic differences that have inconclusive effects on resilience such as age, employment and health benefits, mental health, and the role of spirituality.

Conclusion

Prior studies related to resilience and associated factors in the transgender community have revealed the three key themes of social support, individual factors, and resources. Social support contributes to resilience by connecting transgender identified individuals to vital resources such as sense of community, peer connections, coping, housing, and networking. Individual factors related to resilience include improved mental health outcomes, age and spirituality, although the latter two need further exploration. Resource availability that contributes to gainful employment and housing access is also associated with resilience. It is essential to continue resilience exploration and interventions to combat health disparities in the transgender community.

Chapter 2 Tables and Figures

Table 2-1: Chapter Two Definition of Terms

Term	Definition
Cisgender	Cisgender refers one whose sex assigned at birth and gender identity are matched (Keatley et al., 2015).
Resilience	Resilience is defined as possessing an ability to survive and thrive despite adversity (Meyer, 2015)
Sense of Coherence (SOC)	SOC pertains to stressors and the person's subsequent wish to cope, understanding of the stressor, and belief of availability of coping resources (Antonovsky, 1979, 1996)
Transgender	The term transgender conveys a mismatch in the sex assigned at birth and an individual's gender identity or internal sense of gender (Keatley et al., 2015).
Transgender Umbrella	Transgender umbrella is used in this review to encompass those individuals who feel a mismatch or do not identify with a gender binary (i.e., male/female)

Note. This table reflects the working definitions of terms used in this paper.

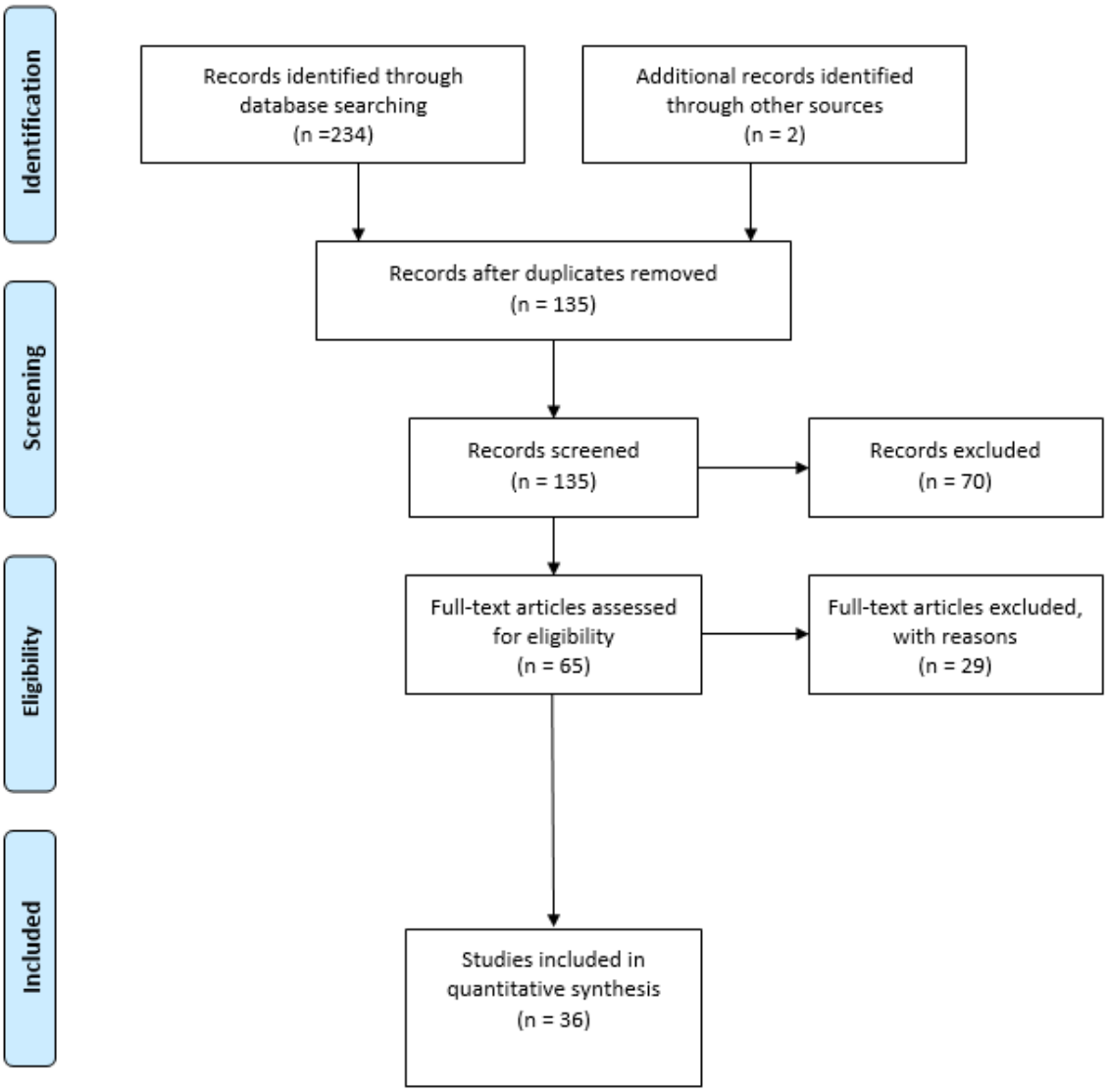

Figure 2-1: Prisma Flow Diagram (from Moher Et Al., 2009)

Table 2-2: Overview of Study Characteristics

Authors	Aim	Sample & Setting	Research Design/Data Collection	Findings
Aaron & Rostosky, (2019)	To investigate role of maternal social support to experience of community social support	n = 25 trans adults; age 19-64; 88% White 12% Native American Central Appalachia	Qualitative; Interviews	Transgender participants reported: Both supportive/unsupportive interactions with their mothers; Mothers had primary role in other family and community members interactions; a meaning of mothers interactions related to strong cultural beliefs (distinct gender roles, family loyalty, religious conservatism, pride of place); Mothers' interactions typically developed to positive.
Akhtar & Bilour (2020)	To explore mental health	n = 100 trans adults; age 19-50 Pakistan	Mixed methods; Cross-sectional; Survey; Interviews with gurus (the leader of the transgender group who cared for unwanted children); Connor-Davison Resilience Scale; Self-Esteem Scale	Significant correlation between: resilience and self-esteem, education and resilience, participants residing with their gurus had significantly increased resilience as well as self-esteem, as opposed to living with friends or alone
Bariola et al. (2015)	To identify and compare factors related to psychological distress and resilience in transgender men and women	n = 169 trans adults; age 18-77; 72.2% trans women; 27.8% trans men Australia	Quantitative; Cross-sectional; Online Survey; Kessler Psychological Scale; Brief Resilience Scale	For univariable regression: resilience scores higher for: heterosexual, had a university education, currently working, higher income, turned to family for support, frequent contact with LGBT friends and acquaintances; For multivariate regression: income, sexual orientation, and frequency of contact

Authors	Aim	Sample & Setting	Research Design/Data Collection	Findings
				with LGBT peers were independently associated with resilience
Bauermeister et al. (2016).	To explore differences in lived realities and psychosocial outcomes of trans men versus young men who have sex with men (YMSM)	n = 26 trans; n = 123 cisgender males; mean age 22.57 years; 81.9% Black or African-American; 11.4% Latino; mixed race 6.7% Detroit, Michigan	Quantitative; Cross-sectional; Online survey; Connor-Davidson Scale of Psychological Well-being to measure resilience	Trans participants and YMSM had similar scores for self-esteem, purpose in life, and resilience; trans compared to YMSM: less likely to completed high school or be enrolled in school, less likely to report working and receiving work-related benefits; 73.1% of trans had incomes below the poverty line
Bockting et al. (2013).	To examine association between minority stress, mental health, and potential mediating factors	n = 1093 trans adults; 57.5% male to female; 42.5% female to male; age 18-70; mean age 33.01; 79.4% White	Quantitative; cross sectional; online survey; Resilience measured by factors: family support item, peer support item, and identity pride (Transgender identity survey)	Family support, peer support, and identity pride were negatively associated with psychological distress, confirming these resources are protective; peer support moderated relationship between enacted stigma and psych distress, but only at high levels of peer support; no difference related to gender identity (trans men vs trans women comparison) and family support
Brennan et al. (2017).	To explore relationships between gender-related stressors, resilience factors, and mental health	n = 83 trans adults; 41% trans women; 29% trans men; 31% other gender-nonconforming; age 19-70; 44% 19-24; 84.3% White; 8.4% multiracial, 7.2%	Quantitative; cross-sectional; online survey; Gender Minority Stress and Resilience used to measure resilience factors (pride and	Resilience was: weak negative predictor of anxiety; marginal negative predictor of suicide attempt; not predictor of depression, suicidal ideation, or NSSI; moderate negative correlated to depression and anxiety; protective of suicide attempt for each 1

Authors	Aim	Sample & Setting	Research Design/Data Collection	Findings
		Hispanic; 52% hormones for gender-affirmation Nebraska and other Midwestern states	community connectedness)	unit increase in resilience was 6.6% decrease in odds of suicide attempt No significant difference in resilience between gender identity groups
Chakrapani et al. (2017).	To examine relationships between sexual and gender minority stigmas, social support, resilient coping, and depression	n = 600 trans adults; n = trans women; n = MSM; mean age 29.7 India	Quantitative; cross-sectional; face-to-face survey; Resilient Coping measured by the Brief Resilient Coping Scale	Both mediating variables (resilient coping and social support) were significantly negatively correlated depression and stigma
Cook et al. (2013).	To explore if gender nonconforming (GNC) is related to depression and if the relationship is mediated or moderated by discrimination	n = 353 Black gay and bisexual men; n = 141 gender nonconforming; n = 197 cisgender men; age 16-49 Africa	Quantitative; cross-sectional community survey; delivery not described	Two resilience factors (outness and gay community involvement) did not buffer the relationship between GNC and depression; possible explanation from authors: there may be other resilience factors that were not assessed in study, or GNC may have higher self-esteem that mitigates effects of discrimination; or GNC may have other social support connection that mitigates effects of discrimination
Crosby et al. (2016)	To examine if medical versus social based gender affirming factors are equally important in mental health	n = 77 Black trans adults; age 18-65; mean age 34.5; 62.3% reported HIV positive; 35.1%	Quantitative; cross-sectional; face-to-face survey. Wagnild and Young Resilience Scale-was used to measure resilience	Medically based gender affirmation not related to positive mental health outcomes, including resilience; all social factors of gender affirmation had strong association with resilience

Authors	Aim	Sample & Setting	Research Design/Data Collection	Findings
	outcomes; if HIV status is independently associated with the same mental health outcomes	reported last HIV test negative Atlanta, GA	based on two subscales of Personal Competence in Everyday Life and Acceptance of Self and Life	
Edwards et al. (2019)	To explore resilience paths and suicide risk	n = 106 trans adults; age 18-65, mean age 39.17; 77.4% White; 41.5% single; 25.5% living with partner; 13.2% married; 10.4% dating; 3.8% divorced Western State U.S.	Quantitative; cross-sectional; Survey-completed in person; Emotional stability measured as an individual indicator of resilience using the emotional stability of the Suicide Resilience Inventory; Relational support measured as an indicator of community-based resilience using the Perceived Social Support from Family and Friends	Perceived relational support was positively associated with emotional stability and negatively associated with suicide risk
Etengoff & Rodriguez (2020)	To explore transgender identified Muslims' use of religious coping strategies to help with intersectional identity challenges	n = 15 trans Muslim adults, mean age 29.7; n = 12 trans men; n = 2 trans women	Mixed methods; cross-sectional; online survey; interviews; Religious coping and resilience was measured with four open-ended questions related to participants'	8 of the 15 (i.e., 53%) participants used religion and spirituality as a path to resilience and coping; they used religious tools such as prayer and theological reflections

Authors	Aim	Sample & Setting	Research Design/Data Collection	Findings
		Indonesia, U.S., France, England, Philippines, Egypt	outlooks about Islam, relationship with Allah, Islamic sect affiliation, Muslim community views of the LGBTQ community, and thoughts on if the Quran attends to their sexual/gender orientation	
Fredriksen-Goldsen et al. (2014).	To examine the physical and mental health of trans older adults and to identify modifiable factors that relate to health risks	n = 174 trans adults; 79.07% White U.S.	Quantitative; Cross-Sectional Print and electronic surveys; measured resilience through protective factors; abbreviated Social Support Instrument; Social network size measured by asking how many people interacted with in typical month; Religious and spiritual activities measured by asking how often in prior 30 days attended spiritual or religious services/activities; Community belonging measured by asking	Differences in protective factors for transgender older adults: reported lower levels of social support and community belonging than cisgender LGB older adults despite having larger social network size; no difference in the levels of participation in spiritual and religious activities by gender identity

Authors	Aim	Sample & Setting	Research Design/Data Collection	Findings
			agreement to statement related to belonging to LGBT community	
Freese et al. (2018)	To compare coping styles for gender related stress and compare coping styles to mental health	n = 316 trans adults; age 18-73; mean age 32.5; 79.4% assigned female at birth; 76.3% White; 89.2% had at least some college or college degrees U.S.	Quantitative; Cross-sectional; online survey; measured resilience based on Brief COPE-self report of strategies to manage stress associated with gender	42% of participants used adaptive coping profiles (High functioning/low dysfunctional) to combat gender-related stress (mainly used functional individual strategies to see support/advice of others, develop new strategies, took action) and low dysfunctional strategies (denial, self-blame, substance use)
Glick et al. (2019)	To explore housing insecure experiences, cause, and coping	n = 17 trans/gender nonconforming adults; age 23-39; one participant was 70 y/o; n = 10 White or White/Hispanic; n = 7 Black or African American or African Indigenous; half lower or working class; half middle class; more than half had some college or attended trade school New Orleans U.S.	Qualitative; interviews	Coped with housing insecurity by queer family structure (i.e., their chosen family); find housing by living with each other and verbally sharing experiences of coping which in turn related to resilience; some also found housing through social support network Black participants discussed additional vulnerabilities related to race that were not discussed by White participants

Authors	Aim	Sample & Setting	Research Design/Data Collection	Findings
Hwahng et al. (2019).	To explore how support group participation eases stress experienced by trans Latina immigrants	n = 13 low-income male to female trans Latina adults; age 22-50; average age 38 y/0 New York City U.S.	Qualitative; three focus groups one interview	Factors associated with resilience were: alternative kinship structure (pre-existing informal social network with trans-identified Latinas; connections were easily made related to ethnocultural background); gender-transition affirmation (felt validated and supported related to their sexuality, presenting in public as women, and social support settings that increased self-esteem; access to education and skills training through membership to social support group; participants informally discussed decreasing use of substances related to replacement of coping mechanism of support group
Jackman, et al. (2018)	To explore factors related to non-suicidal self-injurious (NSSI) behavior	n = 332 trans participants; age 16-87; mean age 34.56; 50.3% trans feminine; 49.7% trans masculine; 44.1% Non-Hispanic White; 21.9% Hispanic; 15.2% African-American; 18.8% Other; 58.2% ≤ 23,999 annual income; 79% some college or college degrees	Quantitative, data collected by train interviewers, face-to-face; Family support measured by asking how supported participant felt by family; subscale of Multidimensional Scale of Perceived Social Support used to measure support from friends; Transgender Community Connectedness	Resilience factors of family support, support from friends, connectedness to trans community were not related to prior year NSSI

Authors	Aim	Sample & Setting	Research Design/Data Collection	Findings
		U.S.	measured by subscale from Gender Minority Stress and Resilience measure; resilience measured by family support, support from friends, trans community connection	
Lacombe-Duncan et al. (2020)	To explore prevalence of depression and PTSD symptoms and to assess relationships of factors related to depression and PTSD symptoms	n = 54 trans adult women; mean age 41; 51.9% heterosexual; 37% Indigenous; 9.3% African, Caribbean, or Black; 35.2% White; mostly single (79.6%); 90.6% had annual income <$20, 000 Canada	Quantitative; cross-sectional; online survey; resilience measured by Resilience scale	Resilience and social support were associated with lower depression and PTSD scores
Lee et al. (2020)	To assess risk and resilience related to smoking status	n = 453 sexual and gender minority (SGM) adults; n = 26 trans adults; randomly recruited from national tobacco survey; approx. 70% had some college or college degree;	Quantitative; cross-sectional telephone survey; universal resilience measured by concepts of advertising skepticism; measured SGM resilience having identity centrality (comfortable with	Young adults: social support (i.e., having people to talk to about sexual gender minority identity) significant association with non-smoking; for all participants identity centrality (comfortable with LGBTQ identity and LGBTQ identity was central to their identity) was not related to smoking

Authors	Aim	Sample & Setting	Research Design/Data Collection	Findings
		mean age 35.6; 74% age 18-44; age 18-65+; 67.5% White; 20.8% Black; stratified sample by age groups U.S.	LGBTQ identity and LGBTQ identity was central to their identity), social support, and community participation	
Lelutiu-Weinberger et al (2020)	To explore factors of latent gender affirmation and the relationship to health	n = 17,188 participants a subset from 2015 United States Transgender Survey; 54% trans women; 46 trans men; age 18-65+; 78% age 18-44; 83% White; 3% Black; 5% Latino; 86% some college or college degree U.S.	Quantitative; Retro data analysis resilience measured by concept of latent gender affirmation (legal documentation of gender identity, use of surgery or hormone, and family support of gender identity)	Families that affirm gender had a positive impact on health; no differences in race related to family affirmation; gender affirmation was significantly related to: increased odds of prior year healthcare engagement, HIV-testing, and decreased odds of prior year suicidal ideation as well as psychological distress
Logie et al. (2017)	To examine factors related to sex work participation	n = 137 adult trans women; age 18-44; mean age 24.0; 25.2% HIV positive Jamaica	Quantitative; cross-sectional; face-to-face survey Resilience measured by the Brief Resilience Scale; Social support measured with Brief social support subscale	Resilience may be protective for sex work involvement; for each point increase in resilience, there was 16% reduced odds of transactional sex (sex in exchange for survival needs, drugs/alcohol, or money)

Authors	Aim	Sample & Setting	Research Design/Data Collection	Findings
Logie et al. (2020)	To examine the use of the psychological mediation framework	n = 871; n = 97 trans women; n = 569 cisgender sexual minority men; n = 205 cisgender sexual minority women; age 15-55; mean age 25.51 Jamaica	Quantitative; cross-sectional; online survey; measured resilience with Brief Resilience Scale; measured social support quantity (how much social support was needed in last month) and quality (satisfaction with social support)	Increased resilience was related to both interpersonal factors (i.e., social support quantity and quality) and intrapersonal factors (i.e., empowerment); quality of social support enhanced the buffering ability of the protective factors (i.e., social support quantity, resilience, empowerment)
Macdonnell, & Grigorovich, (2012)	To explore how transmen, who are healthcare providers achieve meaning via their careers	n = 4 trans adult men, who were healthcare providers; age 20's-50's Canada	Qualitative; Face-to-face or telephone interviews	Resilience is a process; resilience achieved by fit/fitting in or performing gender in their on niche way, which at times, could result in male patients feeling a greater sense of comfort to discuss tough issues that the patient may not feel comfortable to discuss with a straight male or female provider; resilience was also achieved by having a personal and professional trans identity, how these two identities are woven together and can result in positive ways such as participating in open LGBTQ-positive education.
Mcdowell et al. (2019)	To investigate socio-demographic characteristics, discrimination,	n = 150 transmasculine adults; 76.7% binary gender identity; 74.7% White; 25.3%	Quantitative; cross-sectional; face to face survey; secondary analysis from a previous	Being in a relationship independently associated with lower odds of PTSD; being in current committed relationship was protective of mental health; older

Authors	Aim	Sample & Setting	Research Design/Data Collection	Findings
	violence, resilience, social support	person of color; mean age 27.5 years; 72% had age 21-30; age range 21-50 U.S.	survey; Resilience measured by Brief Resilience Scale; Social support measured by Medical Outcomes Study Social Support Survey; self-acceptance measured by single item from Rosenberg Self-Esteem scale	age as well as personal resilience were protective for mental health
Moody & Smith (2013)	To explore suicide protective factors via investigating factors negatively related to suicide behavior	n = 133 trans adults; age range 18-75; 82.2% White; 77% had some college or college degree; 59.4% had annual income <$30, 000; 75.2% lived in urban area Canada	Quantitative; cross-sectional; online survey; Optimism measured by Life Orientation Test Revised; Perceived social support measured by Perceived Social Support Scale from Friends and Family; Suicide Resilience measure by the Suicide Resilience Inventory 25	Social support from friends, social support from family, and optimism negatively predicted 33 % participants' variance for suicidal behavior when controlling for age
Perez-Brumer et al. (2017)	To explore intersection among social marginalization, social capital, and HIV risks	n = 48 trans adult women; age 18-44 Peru	Qualitative; focus group discussions	Resilience strategies: peer-to-peer and intergenerational knowledge exchange, supportive clinical services (e.g., group-based attendance), and gaining emotional support via social unity (i.e.,

Authors	Aim	Sample & Setting	Research Design/Data Collection	Findings
				participants felt membership to a community
Puckett et al. (2019)	To explore types of social support on mental health and resilience	n = 695 trans individuals; age 16-73; mean age 25.52; 75.7% White; 75% <$30, 000 annual income; 72% some college or college degree U.S.	Quantitative; cross-sectional; online survey; Social support from family and friends measured by the Multidimensional Scale of Perceived Social Support; Community connection was measured by subscale of the Gender Minority Stress and Resilience Scale ; Resilience measured by the Brief Resilience Scale	Social support from family was the only type of social support related to resilience (i.e., small to moderate positive association); social support from friends and community connection were not associated with resilience
Reicherzer & Spillman (2012)	To explore resilience in lives of transgender identified women of Mexican ethnicity	n = 3 Mexican trans women; age 30's-40's Texas U.S.	Qualitative; case study approach; used observations, interviews, and artifacts	Resilience was related to: accountability (i.e., accountable for self-actions, but not actions of others); self-acceptance; family cohesiveness (in this study, r/t parents, particularly mothers); spirituality (i.e., expressed deep understanding of God and universe); integrating womanhood with transsexual identity, felt gender affirmation with public presentation and public receiving of presentation

Authors	Aim	Sample & Setting	Research Design/Data Collection	Findings
Reisner et al. (2013)	To investigate health, correlates of health indicators, health needs and health-promotion factors	n = 73 trans men for quantitative; n = 19 trans men for qualitative; mean age 32.0, age range 18-62; 72.6% White; 27.4% Racial minority; 91% had some college or college degree; 15.1% no health insurance; 74% used hormones for gender affirmation; 50.7% used top surgery for gender affirmation; 5.5% used bottom surgery for gender affirmation-demographics are for quantitative sample; did not collect demographics for qualitative sample U.S.	Mixed methods; cross-sectional interviews; Resilience only assessed qualitatively	Related to Perceived Resilience-there were four themes: community connection and cohesiveness; activism/advocacy/spiritedness; awareness-related to self-awareness, observing others with reflection, willingness to break down gender, courage, determination; diversity-related to the diversity within the transgender community
Remien et al. (2015)	To explore the system, social, and individual barriers and facilitators of	n = 80; 4 groups; last group was adult trans women; mean age 32; age range	Qualitative; Interviews	Resilience related to accounts of personal strength and accountability that was facilitated by HIV care participation; For all groups: HIV care

Authors	Aim	Sample & Setting	Research Design/Data Collection	Findings
	HIV care participation	23-49; 75% Black; 40% Hispanic New York City U.S.		participation was primarily a personal choice affected by drive to sustain health, personal strength, accountability, and self-reliance
Testa et al. (2014)	To explore how trans individuals' risk and resilience is related to connection with other trans individuals	n = 3087 trans adults; 4 gender groups (i.e., MTF, FTM, female to different gender/FTDG, male to different gender/MTDG); age 18-53+; approximately 80% White Represented all 50 states U.S.	Quantitative, online survey; secondary data analysis from prior study; resilience (comfort) was measured by community connection; interaction with LGBT community peers supported in background to promote emotional well-being	Participants with prior awareness of other trans identified individuals when first feeling trans were: less likely to report feeling fearful, suicidal, and more likely to feel comfortable, compared to other MTF and FTM participants who did not have prior awareness of trans people; This relationship was not evaluated for MTDG and FTDG related to insufficient sample size or the relationship was not significant relationship; MTF participants were significantly less likely to feel fearful, compared to MTF individuals who had not met another trans individual. This relationship was not significant for FTM, MTDG, FTDG participants
Torres et al. (2015)	To explore health care needs and qualities of transgender youth that help generate resilience	n = 11 providers of trans youth; n = 2 psychiatrists; n = behavioral health clinicians; n = 1 nurse; n = 1 epidemiologist; n = 1 advocacy expert; n	Qualitative; interviews	Providers credited resilience to degree of social support, role models/mentors, family acceptance, and goals and aspirations of the trans identified youth; Mentor/model connections for trans youth by hosting a trans panel of those who had overcome difficulties

Authors	Aim	Sample & Setting	Research Design/Data Collection	Findings
		= 4 trained community educators; from the entire sample n = 5 identified as trans Boston U.S.		
Scandurra et al. (2018)	To explore the role of internalized transphobia as a mediator to the relationship between anti-transgender discrimination and mental health with resilience as a buffer	n = 149 trans or gender non-conforming Italian adults; age 18-63; mean age 33.18; n = 75 male to female; n = 74 female to male; 98% White; 28.9% college education Italy	Quantitative; cross-sectional; online survey; Resilience measured by Resilience Scale	Bivariate correlations: negative association between resilience and shame, alienation, depression, as well as anxiety; resilience was positively associated with being in a romantic relationship and belonging to a trans association
Valente et al. (2020)	To explore influence of gender-related discrimination and resilience dynamics on mental health	n = 330 transgender and gender nonbinary identified individuals; age 16-87; mean age 34.4; stratified by age groups; 43.6% White; n = 169 transfeminine; n = 161 trans masculine	Quantitative; cross-sectional; online survey; completed by face-to-face; resilience factors measured family support, transgender community connectedness, gender literacy, and transgender activism;	For bivariate analysis: family support and transgender community connectedness was negatively associated with psychological distress; result was not consistent in multivariate analysis

Authors	Aim	Sample & Setting	Research Design/Data Collection	Findings
		New York City, San Francisco, and Atlanta U.S.	family support measured by subscale of Multidimensional Scale of Perceived Social Support; Gender literacy measured by subscale of the Genderqueer Identity (theoretical awareness of genderqueer identity) scale; Transgender activism measured by two created items; Transgender community connection measured by adapted scale with 4 items that ask about feelings of connection and belonging	
Wagaman et al. (2019)	To explore ways of making sense of experiences to gather insight into factors related to resilience	n = 85 trans and gender expansive youth and young adults; age 13-24; did not collect race/ethnicity U.S.	Qualitative; secondary data analysis	Factors related to resilience: a sense of belonging and acceptance (i.e., from others or self-acceptance)
Yamanis et al. (2018)	To explore depressive	n = 38 Latina/Hispanic	Quantitative; cross-sectional;	From multivariate analysis, depressive symptoms were inversely related to

Authors	Aim	Sample & Setting	Research Design/Data Collection	Findings
	symptoms, minority stressors, coping resources and resilience associated with immigration status	adult trans women; age range 22-50; 24% had some college or college degree Washington, D.C. U.S.	completed an interviewer-administered survey; Resilience measured by Brief Resilience Scale	being documented (i.e., having legal authority to live/work in the U.S.), having income above federal poverty level, increased friends' social support, increased resilience
Yang et al. (2016)	To investigate the quality of life	n = 209 Chinese trans women; mean age 26.7; age range 18-45 China	Quantitative; cross-sectional design; face to face interviews; Quality of life was measured by 36-item Short-form Health Survey (physical and mental components); Levels of hope were measured by the Adult Dispositional (Trait) Hope Scale; Resilience was measured by the EGO Resilience Scale	Physical health positive association with not using hormones, hope, and resilience; authors discussed prominent role of Confucianism; also no legal hormone therapy in China

Table 2-3: Study Strengths and Limitations

Authors	Strengths and Support for Salutogenic Health Model (SHM) (Antonovsky, 1979)	Limitations to Generalizability
Aaron & Rostosky, 2019	12% Native American sample; investigate specific social support type; provides insight into cultural beliefs influence-could relate to Antonovsky's (1979) macrosociocultural category of GRR	Non-probability sample; Small sample; Sample diversity; mostly White
Akhtar & Bilour (2020)	Sociodemographic factor of education (GRR) related to resilience; support for SHM; self-esteem & resilience correlations support positive mental health outcome supports positive movement in SMH health continuum	Non-probability sample; Small sample size; Cross-sectional design
Bariola et al. (2015)	Correlations between resilience and income (GRR) and university education (GRR) support SHM; family support and frequent contact with LGBT peers shows support for social support (GRR)	Non-probability sample; Small sample size; cross-sectional design; no power analysis; sample diversity for trans men representation
Bauermeister et al. (2016)	Majority of sample was racially diverse; does provide a comparison for cisgender versus transgender	Non-probability sample; Small sample; cross-sectional design; lack of diversity for age; did not stratify by sexual orientation
Bockting et al. (2013).	Social support (GRR) through family and peers as well as identity pride (GRR) support for SHM; study was able to make a comparison of trans men versus trans women	Non-probability sample; Sample diversity; mostly White; no power analysis; cross-sectional design
Brennan et al. (2017).	Resilience related to improved mental health outcomes (decrease in suicide attempts) supports positive movement in SMH health continuum	Non-probability sample; Small sample; lack of sample diversity for race, mostly White and most lived in an urban area; cross-sectional; would be helpful if could show difference in rural vs urban
Chakrapani et al. (2017).	Resilience negatively correlation to depression and stigma supports positive movement in SMH health continuum; large sample size	Non-probability sample ; Cross-sectional; sample from community organizations-so may already have increase resilience related to

Authors	Strengths and Support for Salutogenic Health Model (SHM) (Antonovsky, 1979)	Limitations to Generalizability
		community connection; face to face survey may contribute to response bias
Cook et al. (2013).	Large sample size; compares gender non-conforming to cisgender men	Non-probability sample; Cross-sectional; does not distinguish between gender non-conforming and other gender identities
Crosby et al. (2016)	Does capture a minority voice with all Black sample; does examine gender affirmation intervention (SRR) differences contributing to resilience	Non-probability sample; Cross-sectional design; face-to-face survey could contribute to response bias; no power analysis
Edwards et al. (2019)	Perceived relational support (GRR) positively related to emotional stability and in turn negatively related to risk of suicide shows positive movement in SMH health continuum	Non-probability sample; Sample from major metropolitan area; lack of sample diversity, mostly White; no power analysis; survey was completed in person; do not know if completed independently or if were asked survey questions; potential response bias
Etengoff & Rodriguez (2020)	Provides very rich narratives for the role of spirituality and ability to be resilient	Non-probability sample; Small sample; limited to Muslim viewpoints; could expand to other religions and provide a thorough review of spirituality's contribution to resilience
Fredriksen-Goldsen et al. (2014)	This study was part of a larger study with a n = 2560 participants; large sample size; represented 11 different community orgs across the U.S; does show comparison of social support (GRR) to size of social support network to feeling a sense of belonging from social support	Non-probability sample; no power analysis; cross-sectional; did not relate spiritual activities to resilience, maybe they didn't pursue this because there was no reported difference in involvement between trans and cis participants
Freese et al. (2018)	Has a large trans men sample that is typically not captured; reported frequent use of positive coping strategies (GRR) to gender-related stress; shows positive movement in SMH health continuum	Non-probability sample; Sample diversity; mostly White; most of sample had higher education which limits findings; higher education could lead to increased cognitive ability to process challenges; higher education could also relate to higher income

Authors	Strengths and Support for Salutogenic Health Model (SHM) (Antonovsky, 1979)	Limitations to Generalizability
Glick et al. (2019)	Examined housing insecurity, which is not frequently explored; supports SMH through social support investigation; in this case alternative family (GRR); also provided discussion of intersectionality	Non-probability sample; Specific to one city; sample diversity related to age; sample was mostly young to middle age; limits ability to discuss needs of older trans adults
Hwahng et al. (2019)	Provides Latina immigrant perspective; may support macrosociocultural category of SMH; this is minority group not typically captured; alternative kinship provided by other Latina trans social support (GRR) reflects support for SMH	Non-probability sample; Specific to one city; participants were relatively young to middle age; does not capture older Latina immigrant views; face-to-face interviews may affect participant responses
Jackman, et al. (2018)	Racially diverse sample; large sample; good representation from both trans masculine and trans feminine	Non-probability sample; Cross-sectional; most participants had some college education; Face-to-face interviews may introduce response bias
Lacombe-Duncan et al. (2020)	Resilience was related to lower depression and PTSD scores; shows support for positive movement on SMH health continuum	Non-probability sample; Cross-sectional; only examined trans women; specific to HIV positive sample
Lee et al. (2020)	Random recruitment of sample; compared sexual and gender minority; usually sample size not large enough for this comparison; for young adults having social support (GRR) to talk to about sexual or gender minority related to non-smoking; supports positive movement on SMH health continuum; although not supported as a relationship, investigated identity centrality (GRR)	Cross-sectional; small trans sample compared to overall large sample; sample diversity for age; mostly young to middle age; most had some college or college degree
Lelutiu-Weinberger et al (2020)	Large sample; explored gender affirmation (SRR) related to resilience; prior studies have not typically collected gender affirmation interventions; gender affirmation related to	Non-probability sample; sample diversity related to age and race; mostly young to middle age; and mostly White; most had some college or college degree

Authors	Strengths and Support for Salutogenic Health Model (SHM) (Antonovsky, 1979)	Limitations to Generalizability
	health engagement interventions supports positive movement on SMH health continuum	
Logie et al. (2017)	Resilience may be protective for sex work involvement; shows support for positive movement on SMH health continuum	Non-probability sample; cross-sectional; specific to trans women; face to face survey may introduce response bias; mostly young to middle age sample
Logie et al. (2020)	Large sample; quality of social support (GRR) helped resilience; quality of social support may be understudied; supports SMH	Non-probability sample; cross-sectional; could explore source of social support
Macdonnell, & Grigorovich, (2012)	Focus on transmen as healthcare providers; this is population not represented as frequently as trans women; this topic is not a common focus; Resilience is a process, supports and mirrors the idea of a health continuum of the SMH; addressed trans identity (GRR) formation and how personal/professional identities are intertwined	Small sample; did not discuss any limitations of their study; young to middle age sample
Mcdowell et al. (2019)	Focus on transmen; this population not represented as often as transwomen; relationship related to positive mental health supports positive movement on SMH health continuum; older age related to resilience	Non-probability sample; cross-sectional; no power analysis; lack of sample diversity for race/age; mostly White and young
Moody & Smith (2013)	Social support from friends & family was related to negative prediction of suicide; shows support for positive movement on SMH health continuum	Non-probability sample; cross-sectional; no power analysis; sample diversity for race; mostly White; majority of sample had some college or college degree
Perez-Brumer et al. (2017)	Peer to peer knowledge (SRR) exchange and emotional support through feelings of unity support macrosociocultural GRR of SMH	Small sample; lack of sample diversity for age; sample mostly young to middle age; majority of sample had some college or college degree

Authors	Strengths and Support for Salutogenic Health Model (SHM) (Antonovsky, 1979)	Limitations to Generalizability
Puckett et al. (2019)	Large sample; Social support from family (GRR) was the only type of social support related to resilience supports SMH	Non-probability sample; cross-sectional; no power analysis; sample diversity for race; mostly White;
Reicherzer & Spillman (2012)	Resilience related to self-accountability and family cohesiveness (GRR) (particularly mothers), spirituality (GRR); all support SMH	Small sample; specific to Mexican American trans women
Reisner et al. (2013)	Resilience related to community connection (GRR) and cohesiveness macrosocioculural GRR category of SMH; self-awareness, determination, courage, break down concept of gender support ego identity category of SMH; collected Gender affirming interventions (SRR); this information is not typically collected	Non-probability sample; cross-sectional; no power analysis; sample diversity for race; mostly White; majority of sample had some college or college degree
Remien et al. (2015)	Large sample for qualitative design; resilience was related self-accountability for personal health choices; supports cognitive category of GRR in SMH	Specific to HIV care participation; does not capture those who are not participating in HIV care; this could help explore differences between these two groups
Testa et al. (2014)	Large sample; represents all 50 states; LGBT community/peer connection (SRR) related to resilience; supports SMH; awareness of another trans related to resilience related to less suicidal, fearful, and feel more comfortable supports positive movement on SMH health continuum	Non-probability sample; cross-sectional; sample diversity related to race and age; mostly White; mostly young to middle age
Torres et al. (2015)	Provides provider perspective; resilience related to social support that can provide role models/mentors; family acceptance related to gender affirmation (GRR)	Small sample; limited to Boston area; integration of provider and patient could have added to discussion of resilience
Scandurra et al. (2018)	Resilience negatively associated poor mental health supports positive movement on SMH health continuum; resilience related to romantic	Non-probability sample; cross-sectional; sample diversity related to race; mostly White

Authors	Strengths and Support for Salutogenic Health Model (SHM) (Antonovsky, 1979)	Limitations to Generalizability
	relationship and belonging to transgender association	
Valente et al. (2020)	Racially diverse sample; sample from multiple metropolitan U.S. cities; Family support and transgender community connectedness was negatively associated with psychological distress	Non-probability sample; cross-sectional; venue based sampling; participants may already be connected to resources that would help their ability to be resilient
Wagaman et al. (2019)	A sense of belonging (GRR) and acceptance (GRR) was related to participants' resilience; self-acceptance was also related to resilience (GRR) may be related to ego-identity GRR category of SMH; large sample for qualitative design	Did not collect race/ethnicity data; sample diversity for age; sample was young
Yang et al. (2016)	Physical health related to resilience; supports positive movement on SMH health continuum	Non-probability sample; cross-sectional; sample diversity for age; sample mostly young to middle age
Yamanis et al. (2018)	Depressive symptoms inversely related to social support (GRR) and resilience; supports positive movement on SMH health continuum	Non-probability sample; cross-sectional; sample diversity for age; sample mostly young to middle age; limited to Washington D.C.

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CHAPTER 3: FACTORS ASSOCIATED WITH RESILIENCE AND SENSE OF COHERENCE IN ADULT TRANSGENDER PERSONS: IDENTIFYING PREDICTORS TO REDUCE HEALTH DISPARITIES IN A VULNERABLE POPULATION

Abstract

Health disparities in the transgender community are associated with higher rates of substance use, experiences of violence and harassment, and increased risk for suicide. An individual's health strengths can help mitigate health disparities. This study used a quantitative approach to evaluate gender identity, race/ethnicity, age, educational level, transition status, annual income, health insurance status/perception, sexual orientation, HIV serostatus, social network size/perception, and Florida county of residence as predictors of resiliency, sense of coherence (SOC), health perception, and the relationship among these three outcome variables. A sample of adult transgender participants (N = 56) completed an online survey that collected sociodemographic factors, and measured resilience, SOC, and health perception. Results indicated social support size was a significant predictor of resilience. Having a graduate education was a significant predictor of SOC. The final model for predicting health perception was not statistically significant. Several other sociodemographic factors correlated with resilience, SOC, and health perception within the regression models. SOC and resilience had a strong positive correlation. SOC and health perception had a medium positive correlation. Resilience and health perception had a medium positive correlation. The findings provided a holistic strategy for health enrichment within the transgender community using the nursing process and a renewed attention to health promotion in this vulnerable population.

Introduction

Compared to the general population, transgender specific health disparities result in a higher rate of substance use, experiences of violence and harassment, increased risk for suicide (Makadon et al., 2015) and increased HIV risk (Centers for Disease Control and Prevention [CDC], 2019). As a group, transgender identified adults may possess internal strengths to help mitigate these health disparities. Scientific inquiry of health strengths and protective factors in the adult transgender community is limited. Personal resilience can be considered a protective factor. Resilience is defined as possessing an ability to survive and thrive despite adversity (Meyer, 2015). Table 3-1 provides the operational definition of terms used in this study. Studies related to resilience in the transgender population are limited in that they mostly focus on psychosocial factors (e.g., social support).

The Salutogenic Health Model (Antonovsky, 1979, 1993, 1996) provided the theoretical framework for this study. The Salutogenic Health Model (Antonovsky, 1979, 1993, 1996) pertains to health creation. Antonovsky (1979,1996) proposed health could be envisioned on a continuum, where one end was anchored by the ease/health pole and the opposite end by dis-ease. An individual's ability to propel to the health/ease end of the continuum is affected by the individual's SOC and generalized resistance resources (GRRs) (Antonovsky, 1979, 1996) as well as specific resistant resources (SRRs) (Antonovsky, 1979). Sense of coherence is an individual's assessment of the world and potential stressors as comprehensible, manageable, and meaningful (Antonovsky, 1979, 1993, 1996). Resilience is an overlapping concept within the Salutogenesis umbrella (Eriksson & Mittelmark, 2017). Antonovsky (1979) indicated GRRs are characteristics of a person, group, or environment that can enable tension management. GRRs can be classified by type (e.g., physical, cognitive, emotional). Antonovsky does not specifically define SRRs; he proposed they could be used for particular stressors (Antonovsky, 1979). GRRs have a two-fold

purpose of creating life experiences that lead to increased SOC and serve as potential resources to mitigate tension (Antonovsky, 1979). Examples of GRRs applied in the literature include resilience, wealth, education, social networks, ego identity, and culture (Antonovsky, 1979; Eriksson & Mittelmark, 2017). Health perception is one's personal views on their overall health.

The objective of this research was to measure the resilience, SOC, and health perception within a sample of transgender adults and evaluate the correlation of sociodemographic factors among the sample that related to resilience, SOC, and health perception. The central hypothesis asserted measurable differences would exist between transgender adult individuals' resilience, SOC, and health perception and that these would be associated with certain sociodemographic factors. Findings in prior studies indicated further need to examine individual transgender adult differences related to resilience. Additionally, there was a paucity of scientific investigation related to SOC in the transgender community and the relationships among resilience, SOC, and health perception in these persons.

To test this central hypothesis, the following research questions were addressed:

- **Research Question 1**: How do the independent variables (i.e., gender identity, race/ethnicity, age, educational level, transition status, annual income, health insurance status/perception, sexual orientation, HIV serostatus, social network size/perception and Florida county of residence) relate to degree of resiliency, SOC, and health perception?
- **Research Question 2**: How does transgender individuals' SOC relate to their degree of resiliency?
- **Research Question 3**: How does transgender individuals' SOC relate to their perception of health?

- **Research Question 4**: How does transgender individuals' resilience relate to their perception of health?

Background and Significance

To determine the extent of knowledge related to resilience and sense of coherence in the transgender population, a comprehensive review of the literature was conducted (Bush et al., 2021). Evidence level and quality of the studies were evaluated using the John Hopkins Nursing Evidence-Based Practice guide (Dang & Dearholt, 2017). Two studies were found that investigated SOC in the adult transgender population (Beidenstein, 2019; Veldorale-Griffin & Darling, 2016). In addition, the Minority Stress theory was the most common theoretical framework associated with these inquiries. This theory reviewed unique stressors and subsequent psychological distress experienced by sexual and gender minorities as well as their use of resilience in overcoming these stressors (Meyer, 1995, 2015). The four major themes found within the literature on resilience in the transgender population were social support, individual characteristics, resources, and health.

Social Support and Resilience

Prior literature suggests social support is a major predictor for resilience in transgender-identified persons. Family (Bockting et al., 2013; Lelutiu-Weinberger et al., 2020; Puckett et al., 2019; Torres et al., 2015; Valente et al., 2020) or chosen family (Akhtar & Bilour, 2020; Glick et al., 2019; Hwahng et al., 2019) as well LGBTQ peer connection and LGBTQ community connection (Wagaman et al., 2019; Bariola et al., 2015; Bockting et al., 2013; Perez-Brumer et al., 2017; Reisner et al., 2013; Scandurra et al., 2018; Torres et al., 2015; Valente et al., 2020) were found to be significant exemplars of social support. Although social support size might be

considered a factor related to increased resilience, its effect was not conclusive (Fredriksen-Goldsen et al., 2014). Additionally, transgender individuals' sense of belonging and acceptance within their social network was associated with resilience (Wagaman et al., 2019).

Individual Characteristics and Resilience

Individual characteristics have also been a strong focus in prior studies. These include self-awareness, personal attributes, gender affirmation, and spirituality. Of these, gender affirmation and identity authenticity have been found to have a strong relationship with resilience (Wagaman et al., 2019; Crosby et al., 2016; Hwahng et al., 2019; Lelutiu-Weinberger et al., 2020; Reicherzer & Spillman, 2012). Gender affirmation was supported through examples of applied changes in living as an authentic self. These included public appearance consistent with gender identity (Hwahng et al., 2019; Reicherzer & Spillman, 2012) and legal identification of sex on legal documents consistent with gender identity (e.g., drivers license) (Crosby et al., 2016;). A significant limitation found in studies assessing relationships between individual characteristics and resilience included narrow group stratification and inadequate sample diversity and size.

Resources and Health

Resource availability and health were also associated with resilience. Some of these resources included education (Akhtar & Bilour, 2020; Bariola et al., 2015; Hwahng et al., 2019) and income (Bariola et al., 2015). Data supported having some college education as a significant predictor of resilience (Akhtar & Bilour, 2020; Bariola et al., 2015). Although researchers have yet to define specific income stratifications' relationship with resilience, higher income levels in general have positively correlated with resilience (Bariola et al., 2015). Resilience has been

associated with positive mental health outcomes. Specifically, rates of depression and suicidality are lower in transgender persons with greater resilience (Brennan et al., 2017; Chakrapani et al., 2017; Lacombe-Duncan et al., 2020; McDowell et al., 2019; Perez-Brumer, et al., 2017; Puckett et al., 2019; Scandurra et al., 2018; Testa et al., 2014; Yamanis et al., 2018; Yang et al., 2016). Impedances to resilience cultivation identified in the literature were type of work (Logie et al., 2017) and lack of employment or benefits (Bauermeister et al., 2016).

SOC in the Adult Transgender Population

Two cross-sectional studies investigated SOC in the adult transgender population (Breidenstein, 2019a; Breidenstein et al., 2019b; Veldorale-Griffin & Darling, 2016). The first study employed a cross-sectional approach to explore various psychosocial resources and quality of life among 158 German transgender women following gender-affirming surgery in varying post-operative time intervals (Breidenstein, 2019a; Breidenstein et al., 2019b). The mean age of participant was 49.78 years, SD=11.16. Race/ethnicity of participants was not reported. Approximately 50% of the sample had a college degree or reported having some college. The study compared three groups of participants' resource availability pre-gender-affirming and post-gender-affirming surgery. The study determined transgender women who had surgery most recently showed a higher number of resource availability. Those who had surgery within 3 years reported greater resource availability than those who reported surgery within either 3.1-10 years or 10.1-21 years. There were no group differences in SOC scores between the groups. Overall findings of this analysis suggested counseling could provide support and help cultivate resources. This could consequently increase quality of life. The researchers identified the cross-sectional design and a response rate of 42% as limitations. An additional limitation is reliance of self-recall; some participants' surgeries were greater than two decades ago which could have

threatened their abilities to accurately recall resource availability at the time. Investigating the impact of GRRs on SOC (Antonovsky,1979,1996) could have also augmented their exploration.

Veldorale-Griffin and Darling (2016) authored the second study examining resilience in transgender persons found in this review. These researchers assessed the impact of resources on stress and family functioning in transgender parents, who transitioned after having children. The sample included 73 transgender parents, aged 26 to 68. The sample consisted of mostly White participants (82.6%) who reported having some college education (92.6%). The Comprehensibility and Manageability subscales of the SOC scale were used to measure participants' perceptions related to their disclosure and transition. Participants' SOC was a significant predictor for family functioning and was found to be a possible protector against stigma effects. In addition to a non-diversified and well-educated sample, this study was limited in that other gender diverse identities were not included. Also, exploring the impact of divorce on transgender parents' families, including parents who had children after transitioning could advance the topic. Finally, employing the Meaningfulness subscale of the SOC could have informed the researchers on how participants formed meaning of their lived experience.

Limitations and Conclusions of Current Literature

Cross-sectional design and small sample size both limited the studies evaluated in this review. However, it is significant to indicate that transgender populations are difficult to access when conducting research. This is secondary to ongoing systemic stigma associated with being a member of a sexual and/or gender minority. This creates inherent challenges to recruitment of large diverse samples from this population. Both studies also presented limitations of data interpretation. In the first study, participants were asked to give a retrospective rating resource availability before having gender affirming surgery, for some participants this was 21 years prior

(Breidenstein, 2019a; Breidenstein et al., 2019b). Veldorale-Griffin and Darling (2016) used SOC as a measurement of participants' perception of resilience. These authors may have benefited from using the full SOC tool (1979, 1993, 1996). In addition, their inclusion of GRRs and SRRs could have broadened the analysis and identified statistically significant relationships among these factors, resilience, and SOC. Another major issue identified was a need to increase sample size and diversity. A significant lack of data on the cognitive impetus for resilience in the adult transgender population is also evident. Additionally, only two studies identified in this review used the SOC scale. Data have indicated significant differences in risks for health disparities in rural versus urban gay/bisexual men and women. However, current research has failed to determine differences in resilience and SOC among transgender persons living in varying populated areas; thus, there are no data assessing variability in transgender individuals residing in more rural versus more urban environments. Transgender individuals from rural versus urban areas may have less or different resources, experiences, and subsequent variation in resilience, SOC, and health perception. The current study addressed these limitations by using all subscales of the SOC-13 and recruiting from LGBTQ and transgender community organizations across 18 Florida counties to increase the likelihood of rural representation. Additionally, the current study measured both resilience and SOC to evaluate the differences between the two corresponding to the aforementioned sociodemographic variables.

Purpose of Study

The purpose of this study was to measure the resilience, SOC, and health perception within a sample of transgender adults and evaluate the correlation of sociodemographic factors among the sample that related to resilience, SOC, and health perception. The central hypothesis asserted measurable differences would exist between transgender adult individuals' resilience,

SOC, and health perception, and that these would be associated with certain sociodemographic factors.

Research Design and Methods

This study followed a quantitative approach. The Institutional Review Board of the University of Central Florida approved the study. Data were collected via instruments chosen to measure resilience, sense of coherence, and health perception, along with a sociodemographic survey. Sociodemographic information collected included gender identity, race/ethnicity, age, educational level, transition status, annual income, health insurance status/perception, sexual orientation, HIV serostatus, social network size/perception, and Florida county of residence. Table 3-2 provides a detailed explanation of these sociodemographic variables measured. This study required approximately 3 months for completion. Data collection occurred in the first month. Data analysis and interpretation occurred in the last 2 months.

Sample

Purposeful and snowball sampling were used. Participants were recruited from two sources. First, participants were recruited through community support groups' social media pages (Facebook), facilitated by a partnership fostered between key community leaders. Due to the COVID-19 pandemic, there were no opportunities to attend live support meetings. A professional Facebook page served as a source of recruitment and survey link distribution. This Facebook's social media Web address was shared on community support groups' social media pages. Potential participants were included if they identified as transgender male (FTM), transgender female (MTF), gender nonconforming, or gender queer. In addition, participants had

to indicate they were ≥ 18 years of age, were competent in reading the English language, and were a Florida resident. Participants were excluded if unable to independently consent.

Instruments

The Brief Resilience Scale (BRS) (Smith et al., 2008) was used to measure participants' resilience. The BRS has been used in prior studies to measure resilience in the transgender community (Bariola et al., 2015; Logie et al., 2020; McDowell et al., 2019; Puckett et al., 2019). The BRS is a 6-item scale that measures participants' resilience by having participants use a 5-point Likert scale (i.e., 1=strongly disagree, 2= disagree, 3=neutral, 4=agree, 5= strongly disagree) to rate six statements that positively and negatively word phrases related to recovery from stress (Smith et al., 2008). A participant's overall score on the BRS is calculated by first reverse coding items that are negatively worded statements (items 2, 4, 6 -- a rating of 5 strongly disagree would be scored as a 1). Then, the final score is calculated and interpreted based on the mean score of the six items. A higher mean score indicates increased resilience. The BRS has high internal consistency with a Cronbach's alpha ranging from .80-.91 and test-retest reliability of .62 and .69 (Smith et al., 2008). Validity, evaluated with convergent validity and discriminant predictive validity, had positive outcomes (Smith et al., 2008).

SOC was measured using Anotonvsky's (1993) Sense of Coherence Scale (SOC-13). When confronted with a stressor, an individual with a strong SOC demonstrates a strong desire to cope, comprehends the challenge at hand, and has confidence in the availability of coping resources (Antonovsky, 1996). Collectively, the longer version, SOC-29, and the SOC-13 has been used in approximately 32 countries and translated into 49 languages (Eriksson & Mittelmark, 2017). Versions of the SOC have been utilized when studying various populations (e.g., middle-aged women, the general population, immigrants, students, health professionals,

elite athletes, adults, children with learning disabilities, retirees, and hospital patients). While, the SOC-13 scale has not been used extensively in transgender populations, Veldorale-Griffin and Darling (2016) used a version of the SOC in a sample of transgender parents in their study investigating stress and resilience. In addition, Breidenstein et al. (2019) used the SOC-13 to examine quality of life, psychosocial resources, and psychological strain in transgender women. Other studies, using LGB samples, have also used versions of the SOC (Fish et al., 2019; King & Noelle, 2005; Lyons et al., 2014; Szymanski & Chung, 2003; Waller, 2001). The SOC is comprised of 13 total items and 3 subscales relating to the three components of SOC (i.e., comprehensibility, meaningfulness, and manageability). For each item, the users rate their response to each question based on a 7-point Likert scale. Some of the items are negatively worded and need to be reverse scored. The total score is calculated by summing each item's score. Higher sums translate to increased SOC. The final calculated score on the SOC-13 ranges from 13-91. Internal consistency has been supported with significant Cronbach's alpha scores ranging from 0.74-0.91(Antonovsky, 1993). Antonovsky (1993) supported content, face, and consensual validity of the tool through self-evaluation as well as colleagues' use and acceptance.

The Duke Health Profile (The DUKE) is used to measure participants' health perception (Parkerson et al., 1990). The DUKE is comprised of 17-items, addresses six health measures (physical, mental, social, general, perceived health, and self-esteem), and four dysfunctional measures (anxiety, depression, pain, and disability) (Parkerson et al., 1990). Each measurement is considered separately; thus, there is no overall score from The DUKE. The Cronbach's alpha for each individual measurement has shown a range of 0.55 to 0.78. Test-retest reliability ranged from 0.30 to 0.78 (Parkerson et al., 1990). The authors have confirmed convergent, discriminant, and clinical validity (Parkerson et al., 1990). Scoring on the DUKE for each health category is

tallied for a raw categorical score and multiplied by ten for a final score. Scores for physical, mental, social, general, perceived health, and self-esteem range from 0.0 = poorest health to 100.0 = best health for each category (Parkerson et al., 1990); scores for anxiety, depression, pain, and disability range from 0.0 = best health status to 100.0 = poorest health for each category (Parkerson et al., 1990). While only one study had employed use of the DUKE in gender diverse individuals, its findings supported its use in measuring health perception among these populations (Levant et al., 2020). Permission to use all measurement scales was granted. See Appendix A for permission communications.

Lastly, a sociodemographic survey was created to gather participants' sociodemographic information: (a) gender identity, (b) race/ethnicity, (c) age, (d) educational level, (e) transition status, (f) annual income, (g) health insurance status/perception, (h) sexual orientation, (i) HIV serostatus (j) social network size/perception and (l) Florida county of residence. See Table 3-2 for the demographic data collected.

Data Collection Procedures

The participants completed a Qualtrics survey containing the elements of the sociodemographic survey, BRS, SOC, and The DUKE. Participants' completion of the sociodemographic survey and measurement tools implied consent for participation. Participants received a $5 Amazon gift card for participation. Participants were directed to an external source to provide their email address to receive the electronic gift card. A disclaimer notified participants if they used email addresses containing identifying information, as this information could inadvertently provide their identity. However, no email addresses were linked to any survey responses. The data were stored on a password protected flash drive. De-identified data will be kept for a minimum of five years, per the University of Central Florida policy.

Data Analysis Procedures

The Statistical Package for the Social Sciences (SPSS) version 24 was used to perform statistical analysis. The sociodemographic characteristics of gender identity, race/ethnicity, educational level, transition status, health insurance status/perception, sexual orientation, HIV serostatus, social network perception and Florida County of residence were coded as categorical level data. Dummy variables were created for any categorical variable having more than a dichotomous representation. Participants' age, social network size, income, as well as scores for the BRS, SOC, and DUKE provided continuous level data. Fifty-six participants' data were analyzed. The level of significance was set at α=.05. Missing data were coded as "999" (Knapp, 2017). Erroneous data were coded as "888" (Knapp, 2017). Missing and erroneous values were excluded from statistical analysis using pairwise deletion. Additionally, several sociodemographic variable categories were collapsed in attempts to limit overfitting risk in the regression models (Babyak, 2004).

Statistical analyses used in this study included multiple regression and ordinal logistic regression to assess sociodemographic factors as predictor variables of resilience, SOC, and health perception. Multiple regression allows the researcher to analyze the correlational nature of the relationship between multiple independent variables as well as the predictive ability of these independent variables of an outcome variable measured at the interval level (Polit and Beck, 2011). Treatment of Likert scale data as continuous was supported by Polit and Beck (2011). Therefore, multiple linear regression was chosen for resilience and SOC analysis. Hierarchical multiple linear regression modeling was selected to explore the resilience outcome variable due to prior evidence concerning the relationship between social support and adult transgender identified individuals' resilience. Prior literature has shown income and education as being related to resilience. Therefore, the first block of independent variables included income and

educational level. The second block of independent variables included gender identity, race/ethnicity, age, transition status, health insurance status, sexual orientation, social network size and social network perception.

Multiple linear regression analysis was performed to determine if an association between the independent variables and SOC existed. Limited scientific evidence was identified that investigated SOC in the adult transgender population. Therefore, multiple linear regression was used with the Enter method (i.e., all independent variables entered simultaneously).

Ordinal logistic regression best suited the health perception outcome variable related to the nonparametric data. Ordinal logistic regression is appropriate for ordinal dependent variables (e.g., Likert scale items) (Laerd Statistics, 2015). Therefore, ordinal logistic regression was selected to determine the relationship between the predictor variables of gender identity, race/ethnicity, age, educational level, transition status, income, health insurance status, sexual orientation, social network size and social network perception with the health perception outcome variable.

Pearson r and Kendall's Tau was used to examine the correlation between measurements of resilience, SOC, and health perception. Pearson r and Kendall's Tau provide the magnitude and direction of a relationship between two variables (Polit and Beck, 2011). Pearson r was used to assess the relationship between resilience and SOC. Kendall's Tau was the appropriate nonparametric statistical test to assess relationships between resilience, SOC, and health perception.

Results

Sample

For the purpose of this study, snowball and purposeful were employed. Participants were recruited from two sources. First, participants were recruited through community support groups' social media pages (Facebook), facilitated by a partnership fostered between key community leaders. Due to the COVID-19 pandemic, there were no opportunities to attend live support meetings. A professional Facebook page served as a source of recruitment and survey link distribution.

This Facebook's social media Web address was shared on community support groups' social media pages. Potential participants were included if they identified as transgender male (FTM), transgender female (MTF), gender nonconforming, or gender queer. In addition, participants had to indicate they were ≥ 18 years of age, were competent in reading the English language, and were a Florida resident. Participants were excluded if unable to independently consent. Sixty-one participants attempted to complete the survey. Five respondents' data were removed due to lack of survey completion beyond the sociodemographic survey segment. This resulted in a total sample of 56 participants who completed all survey elements.

Statistical consultation regarding sample size necessary to achieve statistical significance supported the sample size recruited was adequate. A sociodemographic survey was created to gather participants' sociodemographic information, which included: (a) gender identity, (b) race/ethnicity, (c) age, (d) educational level, (e) transition status, (f) annual income, (g) health insurance status/perception, (h) sexual orientation, (i) HIV serostatus (j) social network size/perception and (k) Florida county of residence. The participants mostly identified as male to female (MTF 51.8%) or female to male (FTM 25.0 %), White (85%), had a mean age of 37.71

years (SD = 13.329), and had at least some college education (78.6%); yet, they had lower incomes (66.1%). Most participants identified as bisexual (26.8%) and indicated the use of attire as a gender-affirming intervention (92.9%). The most frequently indicated social support network size was 0-5 people (64.3%) and felt a sense of belonging from their social support network (76.8%). Most participants had health insurance (80.4%), but did not feel adequately insured (53.6%). Most participants indicated an HIV negative serostatus (94.6%). Eighteen Florida counties were represented, with the most frequently cited Florida county of residence as Escambia (16.1%). Using the Florida Department of Health's rural counties map (n.d.), only one participant qualified as residing in a rural county for primary residence (Hamilton County). The HIV serostatus and Florida county of residence variables did not have adequate diversified representation. Therefore, they were not used in any of the regression models of the study. See Table 3-2 for the demographic data collected and Table 3-3 for a complete frequency distribution of the sociodemographic characteristics of the sample.

Instruments

The BRS measured participants' resilience (Smith et al. 2008). The BRS is a 6-item scale that measures participants' resilience by having participants use a 5-point Likert scale (i.e., 1=strongly disagree, 2= disagree, 3=neutral, 4=agree, 5= strongly disagree) to rate six statements that positively and negatively word phrases related to recovery from stress (Smith et al., 2008). A participant's overall score on the BRS was calculated by first reverse coding negatively worded items (items 2, 4, 6 -- a rating of 5 strongly disagree were scored as a 1). Then, the final score was calculated and interpreted based on the mean score of the six items. A higher mean score indicated increased resilience. The BRS has high internal consistency with a Cronbach's alpha ranging from .80-.91 and test-retest reliability of .62 and .69 (Smith et al., 2008). Validity,

evaluated with convergent validity and discriminant predictive validity, had positive outcomes (Smith et al., 2008). The calculated Cronbach's alpha for the BRS in this study was 0.889, indicating a high level of internal consistency.

Anotonvsky's SOC (SOC-13) (1993) measured sense of coherence. The SOC is comprised of 13 total items and 3 subscales relating to the three components of SOC (i.e., comprehensibility, meaningfulness, and manageability). For each item, users rated their response to each question based on a 7-point Likert scale. Negatively worded items need to be reverse scored (items 1,2,3,7,10 -- a rating of 7 was scored as a 1). The total score was calculated by summing each item's score. Higher sums translated to increased SOC. The final calculated score on the SOC-13 ranged from 13-91. Internal consistency has been supported with significant Cronbach's alpha scores ranging from 0.74-0.91(Antonovsky, 1993). Antonovsky (1993) supported content, face, and consensual validity of the tool through self-evaluation as well as colleagues' use and acceptance. The calculated Cronbach's alpha for the SOC-13 in this study was 0.834, indicating a high level of internal consistency.

The Duke Health Profile (The DUKE) is used to measure participants' health perception (Parkerson et al., 1990). The DUKE is comprised of 17-items, addresses six health measures (physical, mental, social, general, perceived health, and self-esteem), and four dysfunctional measures (anxiety, depression, pain, and disability) (Parkerson et al., 1990). Each measurement is considered separately; thus, there is no overall score from The DUKE. The Cronbach's alpha for each individual measurement has shown a range of 0.55 to 0.78. Test-retest reliability ranged from 0.30 to 0.78 (Parkerson et al., 1990). The authors have confirmed convergent, discriminant, and clinical validity (Parkerson et al., 1990). Scoring on the DUKE for each health category was tallied for a raw categorical score and multiplied by ten for a final score. Scores for physical,

mental, social, general, perceived health, and self-esteem ranges from 0.0 = poorest health to 100.0 = best health for each category (Parkerson et al., 1990); scores for anxiety, depression, pain, and disability range from 0.0 = best health status to 100.0 = poorest health for each category (Parkerson et al., 1990). Cronbach's alpha values for the individual measurements within The DUKE in this study ranged from 0.11 to 0.70. Measurement of Cronbach's alpha for the mental health and social health subscales in this study did not produce strong internal consistency as both subscales had negative scores. Professional statistical consultation attributed to the study's overall small sample size.

Independent Variables Relationship to Resilience

The mean score of resilience from the BRS was 3.0, SD = 0.9. The BRS scale's actual mean range is 1.00-5.00, where higher means indicate increased levels of resilience. The outcome variable indicated BRS score as a measure of resilience. See Table 3-4 for the details on the resilience regression model. The results did not reveal any assumption violations (Field, 2005; Laerd Statistics, 2015). Linearity was assessed by partial regression plots and a plot of studentized residuals against the predicted values. A Durbin-Watson statistic of 1.932 indicated independence of residuals. There was homoscedasticity, as assessed by visual inspection of a plot of studentized residuals versus unstandardized predicted values. There was no evidence of multicollinearity, as assessed by VIF values greater than 10. There were no studentized deleted residuals greater than ±3 standard deviations, there were leverage values greater than 0.2, but no values for Cook's distance above 1, indicating minimal influence. The histogram was assessed for normality assumption.

First Hypothesis

- H_1: The independent variables gender identity, race/ethnicity, age, educational level, transition status, income, health insurance status, sexual orientation, social network size and social network perception have an association with degree of resiliency.

The first model of annual income, educational level, and social support size (Model 1) was statistically significant, $R^2 = .195$, $F(4, 49) = 2.961$, $p = .029$; adjusted $R^2 = .129$. Number of people in social support network was the only statistically significant predictor of resilience (p=.025). However, the addition of gender identity, race/ethnicity, age, transition status, health insurance status, sexual orientation, and social network perception (Model 2) was not statistically significant for prediction of resilience R^2 of .446, $F(17, 32) = 0.853$, $p < .628$. Annual income (Pearson R=.269, p=.024), having a graduate education (Pearson R=.231, p=.043), and the number of people in one's social support network (Pearson R=.326, p=.007) significantly correlated with BRS scores. Number of people in one's social support network remained the only statistically significant predictor of resilience in the hierarchical regression model. The null hypothesis was rejected. In summary, annual income, educational level, and social support network size collectively showed statistical significance as a predictor model, while social support network size was the only significant individual predictor.

Independent Variables Relationship to SOC

The mean score of SOC was 48.0, SD = 12.4. The SOC scale's actual range is 13-91, where higher scores translate to higher levels of SOC. The outcome variable of interest was SOC. The results did not reveal any assumption violations (Field, 2005; Laerd Statistics, 2015). Linearity was assessed by partial regression plots and a plot of studentized residuals against the predicted values. A Durbin-Watson statistic of 2.064 indicated independence of residuals. There was

homoscedasticity, as assessed by visual inspection of a plot of studentized residuals versus unstandardized predicted values. There was no evidence of multicollinearity, as assessed by VIF values greater than 10. There were no studentized deleted residuals greater than ±3 standard deviations; there were leverage values greater than 0.2, but no values for Cook's distance above 1, indicating minimal influence. The histogram was assessed for normality assumption.

Second Hypothesis

- H_1: The independent variables gender identity, race/ethnicity, age, educational level, transition status, income, health insurance status, sexual orientation, social network size and social network perception have an association with degree of SOC.

The model was statistically significant, $R^2 = .557$, $F(21, 32) = 1.915$, $p = .047$; adjusted $R^2 = .266$. Having a graduate degree was the only individual statistically significant predictor of resilience (p=.011). See Table 3-5 for details on this regression model. As a predictor model, age, having a graduate education, feeling adequately insured, gender identity affirming intervention-makeup, and having a gay, lesbian, or homosexual sexual orientation collectively had statistically significant positive correlations to SOC scores. Having less than a bachelor's degree and having a pansexual sexual orientation had significantly negative correlations with SOC scores. See Table 3- 6 for these statistically significant correlations. The null hypothesis was rejected.

Independent Variables Relationship to Health Perception

The mean score on The DUKE health perception subscale (item 3) was 55. 4, SD = 31.2. The scores can range from 0-100, where 0 indicates worst health and 100 signifies best health. Frequency data indicated 60.7% of participants selected "somewhat describes me" with the

statement “I am basically a healthy person.” See Table 3-7 for the means of the other subcategories of health. The results did not reveal any assumption violations (Laerd Statistics, 2015). There was no evidence of multicollinearity, assessed by VIF values greater than 10. The assumption of proportional odds was met and assessed by a full likelihood ratio test comparing the fit of the proportional odds location model to a model with varying location parameters, $\chi^2(21) = 7.423$, p = .997.

Third Hypothesis

- H_1: The independent variables gender identity, race/ethnicity, age, educational level, transition status, income, health insurance status, sexual orientation, social network size and social network perception have an association with health perception.

The final model did not significantly predict the health perception dependent variable over and above the intercept-only model, $\chi^2(21) = 25.961$, $p = .208$. A review of the parameter estimates indicated the gender affirming intervention of surgery, as well as annual income, were statistically significant. Participants’ not having surgery as a gender affirming intervention was related to lower scores on the health perception outcome variable. Participants not having gender affirming surgery were 11.76 times odds of having a poor health perception rating (95% CI. .009, .797), corresponding to a statistically significant effect, Wald $\chi^2(1) = 4.661$, p = .031. Having a higher income was associated with a 1.000031 times odds of having an increased health perception rating (95% CI.1.00, 1.00) and an associated Wald $\chi^2(1) = 4.023$, p = .045. See Table 3-8 for the details on this regression model.

SOC Related to Resilience

The second research question was assessed by using Pearson's correlation for hypothesis testing. Pearson R assumptions verified normality, linearity, homoscedasticity (Knapp, 2017).

Hypothesis

- H_1: Transgender identified participants' SOC is correlated with their degree of resiliency.

Data from 54 completed survey respondents revealed statistically significant strong positive correlation ($r = .53$, $p<.001$, $\alpha=.01$, 2-tailed) (Field, 2005) between SOC ($\mu = 48.04$, $SD = 12.4$ and degree of resilience ($\mu = 17.75$, $SD = 5.4$). Two respondents' who had erroneous data for income and age were coded to 888 and were not included in analysis. Therefore, the null hypothesis was rejected.

SOC Related to Health Perception

Pearson correlation parametric data assumptions were violated. Therefore, the third research question was assessed by Kendall's tau correlation for hypothesis testing.

Hypothesis

- H_1: Transgender identified participants SOC is correlated with their health perception.

Data from 54 complete survey respondents revealed statistically significant medium positive correlation ($\tau = .32$, $p=.003$, $\alpha=.01$, 2-tailed) (Field, 2005) between SOC ($\mu = 48.04$, $SD = 12.4$) and health perception ($\mu = 55.36$, $SD = 31.2$). Two respondents' who had erroneous data for income and age were coded to 888 and were not included in analysis. Therefore, the null hypothesis was rejected.

Resilience Related to Health Perception

Pearson correlation parametric data assumptions were violated. Therefore, the fourth research question was assessed by Kendall's tau correlation for hypothesis testing.

Hypothesis

- H_1: Transgender identified participants resilience is correlated with their health perception.

Data from 56 completed surveys revealed statistically significant medium positive correlation ($\tau = .29$, $p=.008$, $\alpha=.01$, 2-tailed) (Field, 2005) between degree of resilience ($\mu = 17.75$, $SD = 5.4$) and health perception ($\mu = 55.36$, $SD = 31.2$). Therefore, the null hypothesis was rejected.

Discussion

The purpose of this study was to measure the resilience, SOC, and health perception within a sample of transgender adults and evaluate the correlation of sociodemographic factors among the sample that related to resilience, SOC, and health perception. The central hypothesis asserted measurable differences would exist between transgender adult individuals' resilience, SOC, and health perception, and that these would be associated with certain sociodemographic factors.

Sample

For the purpose of this study, snowball and purposeful were employed. Participants were recruited from two sources. First, participants were recruited through community support groups' social media pages (Facebook), facilitated by a partnership fostered between key community leaders. Due to the COVID-19 pandemic, there were no opportunities to attend live support meetings. A professional Facebook page served as a source of recruitment and survey link

distribution. While this could be seen as a novel approach to recruiting, and engaging with, transgender samples, there are no standardized methodological recommendations for using social media to recruit transgender samples in the literature. Therefore, future studies and scholarly works should aim to provide more proscriptive guidance in using social media as a recruitment method with these populations.

Fifty-six participants completed all survey elements. The participants mostly identified as male to female, White, had a mean age of 37.71 years (SD = 13.329), and had at least some college education; yet, they had lower incomes. Most participants identified as bisexual and indicated the use of attire as a gender-affirming intervention. The most frequently indicated social support network size was 0-5 people, from which most felt a sense of belonging. Most participants had health insurance but did not feel adequately insured. Most participants indicated an HIV negative serostatus. Eighteen Florida urban counties were represented with the most frequently cited Florida county of residence as Escambia County. Hamilton County was the only one rural county represented (Florida Department of Health, n.d.) The sample recruited in this study closely mirrors the sociodemographic characteristics of samples from other studies focusing on transgender persons. For example, studies from prior literature frequently cited mostly White samples, who identified as transgender women, and lacked representation from older participants (Aaron & Rotsky, 2019; Bockting et al., 2013; Brennan et al., 2017). Additionally, transgender participants in prior studies related to resilience have frequently reported having at least some college education (Freese et al., 2018; Glick et al., 2019; Jackman et al., 2018; Lee et al., 2020). Reporting of bisexuality as the sexual orientation by the majority of participants in this study highlights a divergent finding and could suggest greater diversity within this sample compared to established data (Cook et al., 2013; Lee et al., 2020).

In this study, HIV serostatus and Florida county of residence did not have adequate diversified representation. Therefore, they were not used in any of the regression models of the study. Studies that intended to research resilience in a transgender sample may have used specific purposeful recruitment strategies that increased the likelihood of having more HIV-representative samples (Logie et al., 2017; Remien et al., 2015). For example, Logie et al. (2017) examined sex work involvement among transgender women and had a sample of 25.2% HIV infected participants. The researchers used peer research assistants (PRAs), who were HIV outreach workers, to help gather participants (Logie et al., 2017). The participants received compensation for identifying up to 5 other participants (Logie et al., 2017). Therefore, the PRAs and the participants may have increased the ability to achieve an HIV infected representative sample. Future scholarship should examine optimal strategies to capture HIV infected participants at numbers that more closely reflect the overall infection rate within the transgender population. Brennan et al. (2017) intentionally sampled a more rural region, noting rural samples are often understudied and could help form a more complete picture of transgender health. Because county of residence could not be used in analyses, future studies should diversify sampling to capture potential differences in transgender persons residing in more rural versus more urban dwellings.

Independent Variables Relationship to Resilience

Gender identity, race/ethnicity, age, educational level, transition status, income, health insurance status, sexual orientation, social network size and social network perception (i.e., feelings of belonging and acceptance from social support network) were assessed for association with degree of resiliency. Results indicated social support size was the only statistically significant sociodemographic contributor to resilience. This result affirms prior literature's

findings of social support relationship to resilience. Prior literature indicated social support from family, chosen family, or LGBTQ community/peer connection has a key role in adult transgender individuals' resilience (Akhtar & Bariola et al., 2015; Bilour, 2020; Bockting et al., 2013; Glick et al., 2019; Hwahng et al., 2019; Lelutiu-Weinberger et al ., 2020; Perez-Brumer et al., 2017; Puckett et al., 2019; Reisner et al., 2013; Scandurra et al., 2018; Torres et al., 2015; Valente et al., 2020; Wagaman et al., 2019). The effect of social support size has not been well investigated (Fredriksen-Goldsen et al., 2014). Therefore, the finding of social support size as being the only significant contributor in the predictor model for resilience is significant. A larger social support network could equate to more resources and potential social support capital. This in turn could reduce stressors, increase coping resources, and bolster capacity for resilience and SOC.

Additionally, past studies indicated transgender individuals' sense of belonging and acceptance were associated with resilience (Wagaman et al., 2019). Gathering participants' perception on having a sense of belonging and acceptance from their social support network attempts to clarify a difference, if any, in the quantity versus quality of their social support systems. In this study, annual income, having a graduate education, and social support size were statistically significant correlates with resilience. However, the role of adult transgender identified individual's feelings of belonging/acceptance was not supported. Increased resiliency related to having increased income, education, and social support network may be related to a broader, more encompassing factor of resource availability and/or resource access. Data from previous studies have also indicated education (Akhtar & Bilour, 2020; Bariola et al., 2015; Hwahng et al., 2019) and income (Bariola et al., 2015) as being positive correlates with resilience.

Independent Variables Relationship to SOC

Gender identity, race/ethnicity, age, educational level, transition status, income, health insurance status, sexual orientation, social network size and social network perception (i.e., feelings of belonging and acceptance from social support network) were assessed for association with SOC. This model explained approximately 56% of the variance in SOC. Having a graduate degree was the only statistically significant predictor of participants' SOC. Perhaps, participants with greater levels of education have increased cognitive ability to understand and successfully manage stress. This explanation would support the findings of Veldorale-Griffin & Darling (2016) who reported SOC had a mediating role between stigma and family functioning. Because attaining graduate education requires access to greater financial resources, these participants may also have higher incomes and access to more dollars compared to participants with less than graduate degrees. Positive correlations between age, graduate education, feeling adequately insured and SOC may also relate to resource availability. While, Breidenstein (2019a) and Breidenstein et al. (2019b) explored SOC as a psychosocial resource, they did not find any group differences in SOC. Therefore, this study's focus on individual variables as correlates with SOC augments what little data exist on this phenomenon.

A positive relationship was also found between identifying as being gay, homosexual, or lesbian to SOC; these participants had greater overall SOC scores. This contrasts with the finding of a negative association between a pansexual sexual orientation and SOC; these participants had overall lower SOC scores. However, due to the small sample size these findings should be interpreted with caution. Although pansexual is not a new concept, its contemporary use may resonate more with younger participants. Perhaps, those participants who identified as pansexual may have less or different resources, such as social capital, than those identifying as gay, homosexual, or lesbian. Finally, only the use of makeup as the sole gender-affirming intervention

had a significant relationship with SOC. Perhaps, more qualitative approaches could ascertain the rationale for why this variable was such an important predictor.

Independent Variables Relationship to Health Perception

Gender identity, race/ethnicity, age, educational level, transition status, income, health insurance status, sexual orientation, social network size and social network perception (i.e., feelings of belonging and acceptance from social support network) were assessed for association with health perception. Overall, the model including all these independent variables was not a good predictor of health perception. However, the gender affirming intervention of surgery and annual income were associated with health perception. Participants without gender-affirming surgery had increased odds of lower scores on the health perception outcome variable. This finding could be related to participants' motivation to care for self, subsequent to gender dysphoria. Gender dysphoria is a DSM-5 diagnosis that denotes an incongruence between one's internal sense of gender or gender identity and sex assigned at birth (American Psychiatric Association, 2013). Yang et al. (2016) examined quality of life for Chinese transgender identified women as a cumulative concept related to both physical and mental components. The researchers reported use of hormone therapy was positively related to quality of life (Yang et al., 2016). Similarly, Lelutiu-Weinberger et al. (2020) found gender affirmation (e.g., using hormones and surgery as a means of gender affirmation) was related to increased odds of prior year healthcare engagement, HIV testing, decreased odds of prior year suicidal ideation, and psychological distress. An increased annual income was also a significant variable in the regression model and was associated with an increased health perception. Fredriksen-Goldsen et al. (2014) reported financial barriers to health services (i.e., unable to see a provider in the last year due to cost) was significantly associated with poorer physical health among older

transgender adults. Consequently, increased incomes could translate to affordability of healthier food choices, better or additional healthcare options, prescription medications, and self-care opportunities (e.g., gym memberships, massage therapy, vacations).

SOC Related to Resilience

Resilience and SOC had a strong positive correlation. This echoes some of the findings in previous research (Breidenstein et al., 2019b; Veldorale-Griffin and Darling, 2016). While Breidenstein et al. (2019b) measured and operationalized SOC as an individual resource that contributed to participants' ability to be resilient following gender-affirming surgery, they did not find any group differences for SOC scores. Veldorale-Griffin and Darling (2016) measured participants' SOC as an indicator for resilience that contributed to mediating the relationship between stigma and family functioning. However, their study was limited in that it only included transgender parents and had a strong focus on family functioning.

SOC Related to Health Perception

SOC had a medium positive correlation to health perception. SOC has been likened to having an internal locus of control (Antonovsky, 1979). Individuals with higher SOC scores are more likely to perceive potential stressors as comprehensible, manageable, and meaningful (Antonovsky, 1979, 1993, 1996). This suggests these persons may be more proactive in managing their health and the stress associated with it. However, because cultural inputs affect locus of control, more data are needed to examine the relationship between SOC and health perception more precisely. This recommendation could also be derived from the work of Breidenstein et al. (2019b). These authors used the SOC-13 to measure SOC as a personal

psychosocial resource that could contribute to quality of life; however, they did not find any group differences for participants' SOC (Breidenstein et al., 2019b).

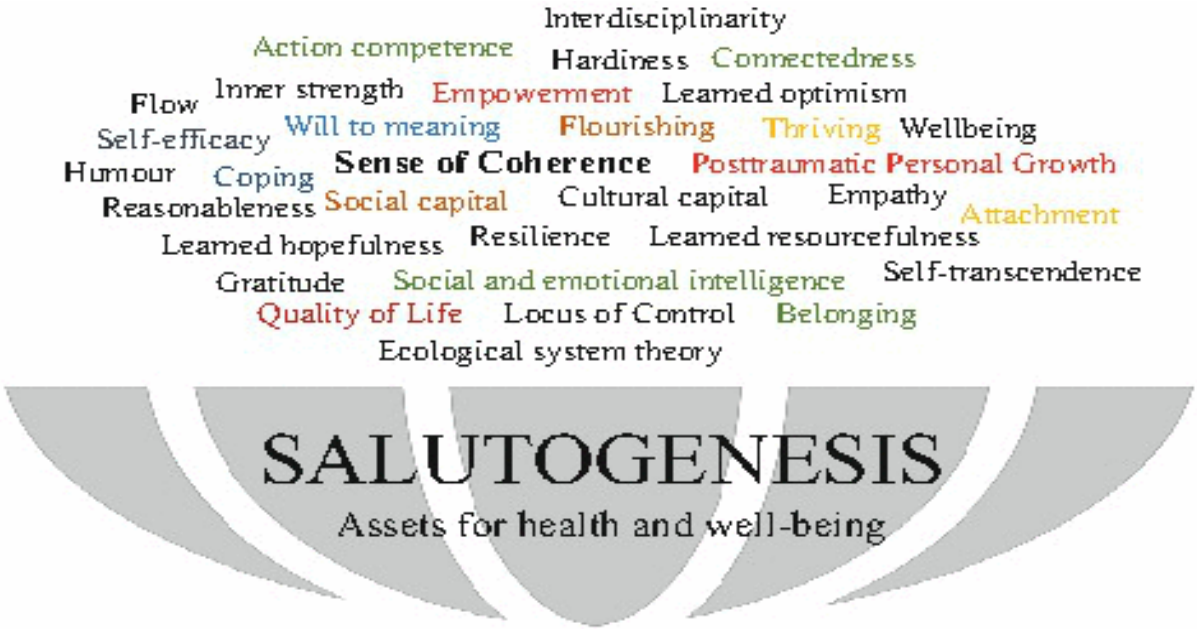
Resilience Related to Health Perception

Similar to SOC, resilience also had a medium positive correlation to health perception; and social support network size was a significant predictor of resilience. This suggests the more interactions participants had available positively contributed to their resilience. Having greater social interactions could increase exchange of health literacy among transgender persons and make positive impacts on their perception of health. This finding is unique. Prior studies have shown increased resilience or SOC as being associated with positive mental health outcomes. For example, Brennan et al. (2017) found increases in resilience related to decreased odds in suicide attempts. Additionally, resilience was negatively associated with depression (Chakrapani et al., 2017; Lacombe-Duncan et al., 2020; Scandurra et al., 2018) and stigma (Chakrapani et al., 2017). In conclusion, greater social support network size enhances resilience, which in turn, might increase health perception and contribute to positive mental health outcomes.

Theoretical Implications of Findings

Positive correlation of SOC and resilience, as well as health perception, was not unexpected. Salutogenesis includes both resilience and SOC (see Figure 3-1). However, there is a lack of prior scientific investigation exploring SOC in the adult transgender population. Furthermore, no studies have established the relationship between SOC to resilience and health perception. Therefore, this study sought to explore these explicit relationships as a necessary first step. Additionally, SOC and GRRs are the two of the main concepts of Antonovsky's (1979,1996) Salutogenic Health Model. As previously noted, GRRs influence one's SOC

(Antonovsky 1979,1996). Sociodemographic factors (i.e., education, social support size, annual income, feeling adequately insured) that were associated with resilience, SOC, or health perception could all be characterized as GRRs or influence one's GRRs. The relationships between increased age, identifying as gay, homosexual, or lesbian, use of makeup or surgery as a gender-affirmation intervention to resilience, SOC, or health perception may also indicate better or increased resources (i.e., GRRs or SRRs); but these relationships need further exploration. Overall, this study supported use of the Salutogenic Health Model in investigating resilience, SOC, health perception, and their interrelationships in transgender persons.



Note. "The salutogenic umbrella, salutogenesis as an umbrella concept" from Eriksson M., & Mittelmark M.B. (2017) The salutogenic umbrella, salutogenesis as an umbrella concept [Figure]. In: Mittelmark M. et al. (eds) The Handbook of Salutogenesis. Springer, Cham. https://doi.org/10.1007/978-3-319-04600-6_12

Figure 3-1: *Salutogenesis Umbrella*

Implications of Findings

Nurses can use the nursing process as a foundation for integrating sociodemographic factors that contribute to adult transgender identified individuals' resilience, SOC, and health perception. In this population, previously discussed health disparities are likely influenced by minority stress (Meyer, 1995, 2015) and coping mechanisms. A strong SOC and increased resilience could help transgender-identified individuals manage both psychological distress and health disparities. Nurses could create care plans related to identified health risks/problems but with a renewed focus towards individual strengths and sociodemographic factors to potentiate these health strengths. For every problem-focused nursing diagnosis, the nurse would create a nursing diagnosis focused on health promotion with related outcomes, interventions, and evaluations. Inclusion of both independent and collaborative interventions can provide a rich support network translating as a GRR for transgender-identified individuals. For example, nurses, acting as change agents, could organize opportunities for cultivating and/or increasing resilience and SOC. A nurse could reach out to the local transgender community as well as other vested community organizations and offer a resilience or SOC building course. Additionally, a specific referral (e.g., nurse case manager connects transgender-identified client to low-income housing resource) could be classified as a SRR. Thus, nurses are not only identifying health strengths, but they are also an integral part of the Salutogenic Health Model. This intentional health strengths refocus will support integration of Antonovsky's Salutogenic Health Model (1979,1996) and help cultivate positive health outcomes.

Limitations

There were several general limitations in this study. Quantitatively, statistical tests have inherent error (type I and type II error) (Polit & Beck, 2011). Type I and Type II errors can be

minimized through level of significance (Polit & Beck, 2011), which in this study was set at $p<.05$. Another limitation relates to the use of nonprobability sampling, which increases risk of sampling bias. Similarly, recruiting a sample already connected to LGBTQ community organizations has the potential to result in inflated SOC and resilience measures. This is because these persons are already actively engaged in some type of psychosocial support system. Small sample size and lack of sample diversity limits the ability to generalize results to the broader transgender identified population. However, the transgender population tends to be difficult to reach due to stigma and prejudice associated with gender minorities (Eliason, & Chinn, 2018). The COVID-19 pandemic also presented unique recruiting limitations related to decreased opportunities for face-to-face interactions and recruitment efforts. This could have negatively impacted sample size. Using online recruitment methods could also be perceived as a limitation because not all individuals have online access. Additionally, response bias may have been a limiting factor (Polit & Beck, 2011). Specifically, given the nature of the measured concepts, participants may have provided socially desirable responses or acquiescence response sets to the survey. Lastly, an underpowered sample may be a limitation to the regression models due to overfitting (Babyak, 2004).

Summary

This study provided an opportunity to explore resilience, SOC, and health perception in the transgender community. Measurement tools provided quantifiable evidence of sociodemographic relationships to health strengths. The transgender community is not homogenous. Continued exploration of variances in health strengths within the transgender community is crucial to achieving positive health outcomes. Sociodemographic characteristics may be associated with an increased ability for resilience, sense of coherence, and health

perception. Highlighting these differences can help inform educational, social, political, and economical strategies to improve the overall health outcomes of the transgender community.

Chapter 3 Tables

Table 3-1: Operational Definition of Terms

Term	Definition
Gender Identity	An internal sense of one's gender, which may or may not be in accordance with the individual's sex assigned at birth
Health Perception	An individuals' subjective ratings of health
HIV Serostatus	An individual's classification of HIV infectivity, defined as being HIV-seronegative, HIV-seropositive, or of unknown serostatus
Resilience	Resilience is defined as possessing an ability to survive and thrive despite adversity (Meyer, 2015)
Sense of Coherence (SOC)	SOC pertains to stressors and the person's subsequent wish to cope, understanding of the stressor, and belief of availability of coping resources (Antonovsky, 1996)
Transgender	The term transgender conveys a mismatch in the sex assigned at birth and an individual's gender identity or internal sense of gender (Keatley et al., 2015).

Table 3-2: Sociodemographic Questionnaire

Variable	Categories
Gender Identity • Please indicate your gender identity. o Select Most Appropriate	• Male to Female/MTF • Female to Male/FTM • Gender Nonconforming • Gender Queer • Other: (with free text box)
Race/Ethnicity • Please indicate your race/ethnicity. o Select Most Appropriate	• American Indian or Alaska Native • Asian • Black or African American • Hispanic or Latino • Native American or Other Pacific Islander • White • Other: (with free text box)
Age • Please indicate your age.	• Free numerical entry
Educational Level • Please indicate your highest level of education. o Select One	• No High School Diploma or Equivalent • High School Diploma • Associate Degree • Some College • Baccalaureate Degree • Graduate Degree
Transition Status • Please indicate which, if any, interventions you use or have used to align your sex assigned at birth with your gender identity. o Select All That Apply	• Use of clothing/attire to align sex assigned at birth with gender identity • Use of make-up to align sex assigned at birth with gender identity • Use of hormones to align sex assigned at birth with gender identity • Use of silicon injections to align sex assigned at birth with gender identity • Use of surgery to align sex assigned at birth with gender identity • None of These
Annual Income • Please indicate your annual income.	• Free numerical entry
Health Insurance Status • Do you have health insurance? o Select One o Do you feel adequately insured? o Select One	• Yes • No • Yes • No
Sexual Orientation	• Asexual

• Which best describes your sexual orientation? ○ Select One	• Bisexual • Gay • Heterosexual • Homosexual • Lesbian • Pansexual
HIV Serostatus • Please indicate your HIV status. ○ Select One	• HIV Positive • HIV Negative • I don't know my HIV status • I prefer not to answer
Social Network Size • Please indicate the number of people who provide you social support (e.g., those who provide you a comfort in times of stress or need) ○ Select One	• 0-5 • 6-9 • 10-14 • 15-20 • >20
Social Network Perception • Please indicate if you feel a sense of belonging and acceptance from your social network. ○ Select One	• Yes • No
Florida County of Residence • Please Indicate your primary residential county.	• Free text entry

Table 3-3: Sociodemographic Characteristics of Participants

Characteristic	n	%
Gender Identity		
Male to Female/MTF	29	51.8
Female to Male/FTM	14	25.0
Gender Nonconforming	1	1.8
Gender Queer	5	8.9
Other [a]	7	12.5
Race/Ethnicity [b]		
Asian	1	1.8
Black or African American	2	3.6
Hispanic or Latino	4	7.1
White	48	85.7
Other	1	1.8
Sexual Orientation		
Asexual	6	10.7
Bisexual	15	26.8
Gay	4	7.1
Heterosexual	12	21.4
Lesbian	5	8.9
Pansexual	14	25.0
Education		
No High School or Equivalent	4	7.1
High School Diploma	8	14.3
Some College	17	30.4
Associate Degree	10	17.9
Baccalaureate Degree	11	19.6
Graduate Degree	6	10.7
Annual Income [c]		
Low Income Range (<$38,900 Annually)	37	66.1
Middle Income Range ($38,900-$116, 800)	18	32.1
High Income Range (>$116,800)	1	1.8
HIV Serostatus [d]		
HIV Negative	53	94.6
I Don’t Know My HIV Status	3	5.4
Has Health Insurance	45	80.4
Felt Adequately Insured	26	46.4
Uses Gender Affirming Interventions		
Attire	52	92.9
Make Up	30	53.6
Hormones	40	71.4
Silicone Injections	5	8.9
Surgery	18	32.1
None	3	5.4

Note. N=56. Participants had a mean age of 37.71 years (SD = 13.329). Most participants indicated a primary residential county corresponding to a Florida urban county (87.5%) (Florida Department of Health, n.d.)

[a] In the Other category for Gender Identity three participants indicated a non-binary gender identity. One participant indicated Agender as their gender identity. One participant indicated, "my gender identity is just "male" [*sic*] but I am a man of trans experience (ftm) [*sic*]. One participant indicated non-binary transman.

[b] In the Race/Ethnicity categories no participants selected American Indian or Alaska Native. No participants selected Native American or Other Pacific Islander. In addition, in the category Native American or Other Pacific Islander, Native American should have read Native Hawaiian. Lastly, in the Other category for Race/Ethnicity, one participant indicated biracial as their race/ethnicity.

[c] Annual income was gathered as a free text entry and analyzed as a continuous variable. However, to illustrate a national context for the purpose of frequency distribution, these categories were created from the Pew Research Center (Pew Research Center, n.d.).

[d] For the HIV Serostatus categories, no participants indicated an HIV positive status or Prefer Not To Answer status.

Table 3-4: Sociodemographic Predictors of Resilience

	Unstandardized Coefficients		95% CI for B		β	R^2	ΔR^2	t	Sig.
	B	SE B	LL	UL					
Step 1						.20	.20		
Intercept	13.09	1.76	9.55	16.63				7.44	.000
Annual Income	4.13	.00	.00	.00	.20			1.54	.131
Education-Less Than Bachelor Degree [a]	-.12	1.85	-3.84	3.59	-.01			-.07	.947
Education-Graduate Degree [a]	1.96	1.54	-1.15	5.06	.18			1.27	.211
Number of People in Social Support [b]	1.64	.71	.21	3.08	.30			2.31	.025*
Step 2						.45	.25		
Intercept	7.76	10.51	-13.65	29.17				.74	.466
Annual Income	1.16	.00	.00	.00	.06			.33	.746
Education-Less Than Bachelor Degree	.53	2.43	-4.42	5.49	.04			.22	.828
Education-Graduate Degree	1.64	2.04	-2.52	5.79	.15			.80	.428
Number of People in Social Support	2.44	.97	.47	4.41	.44			2.52	.017*
Age	.09	.08	-.08	.26	.23			1.09	.282
Gender Identity-FTM [c]	-4.86	2.92	-10.81	1.09	-.40			-1.66	.106
Gender Identity-Other [c]	-1.59	2.63	-6.95	3.77	-.13			-.60	.550
Health Insurance [d]	-.45	2.81	-6.18	5.29	-.03			-.158	.875
Health Insurance-Feel Adequately Insured [d]	-.64	.61	-1.88	.61	-.18			-1.040	.306
Gender Identity Affirming Interventions-Attire [e]	11.25	6.85	-2.71	25.21	.55			1.642	.110
Gender Identity Affirming Interventions-Make Up [e]	-3.68	2.56	-8.90	1.55	-.35			-1.43	.161
Gender Identity Affirming Interventions-Hormones [e]	-2.53	2.59	-7.81	2.75	-.22			-.98	.336
Gender Identity Affirming Interventions-Silicone Injections [e]	-.77	3.40	-7.69	6.15	-.04			-.23	.822

	Unstandardized Coefficients		95% CI for B		β	R^2	ΔR^2	t	Sig.
	B	SE B	LL	UL					
Gender Identity Affirming Interventions-Surgery [e]	.64	2.33	-4.10	5.39	.06			.28	.785
Gender Identity Affirming Interventions-None [e]	4.28	8.42	-12.86	21.43	.18			.51	.614
Race-Non-White [f]	-3.79	3.00	-9.89	2.32	-.25			-1.26	.215
Sexual Orientation-Asexual [g]	-.38	2.98	-6.46	5.69	-.02			-.13	.898
Sexual Orientation-Gay, Lesbian, Homosexual [g]	-1.21	2.89	-7.10	4.68	-.08			-.42	.678
Sexual Orientation-Heterosexual [g]	.32	2.52	-4.82	5.46	.03			.13	.900
Sexual Orientation-Pansexual [g]	2.46	2.55	-2.74	7.65	.20			.96	.342
Sense of Belonging From Social Support Network [h]	-1.26	2.25	-5.85	3.32	-.10			-.56	.579

Note. CI = confidence interval; LL = lower limit; UL = upper limit

[a] The Education independent variable was collapsed into three categories for data analysis: those participants with less than a bachelor degree, the control group of those with a bachelor degree, and those with a graduate degree.

[b] The Number of People in Social Support network independent variable was analyzed as a continuous variable. The categories were: 0-5; 6-9; 10-14; 15-20; >20.

[c] The Gender Identity independent variable was collapsed into 3 categories for data analysis: those participants who identified as FTM, the control group of MTF, and Other. Those participants in the Other category of the gender identity included the categories Gender Nonconforming, Gender Queer, and previously defined Other group in Table 3-2.

[d] Participants were asked if they had health insurance and if they felt adequately insured. These were dichotomous variables. So, there was no need to create dummy variables.

[e] For the Gender Identity Affirming Interventions, participants were asked to select which interventions they used (attire, makeup, hormones, silicone injections, surgery) or select none, if they did not use interventions to align their gender identity with their sex assigned at birth.

[f] The Race/Ethnicity variable was collapsed into two categories for data analysis: White and Non-White. The White category served as the control group.

[g] The Sexual Orientation variable was collapsed into 5 categories for data analysis: asexual, homosexual (i.e., lesbian, gay, or homosexual), heterosexual, pansexual, and the control group bisexual.

[h] For the Sense of Belonging from Social Support variable, participants were asked if they felt a sense of belonging and acceptance from their social support network.

*p<.05

Table 3-5: Sociodemographic Predictors of SOC

Variable	Unstandardized Coefficients		95% CI for B		β	t	Sig.
	B	SE B	LL	UL			
Intercept	32.44	19.34	-6.96	71.84		1.68	.103
Age	.26	.17	-.09	.61	.28	1.53	.136
Annual Income	-3.63	.00	.00	.00	-.08	-.50	.624
Gender Identity-FTM [a]	-.56	6.04	-12.87	11.75	-.02	-.09	.927
Gender Identity-Other [a]	-.35	5.44	-11.42	10.73	-.01	-.06	.950
Education-Less Than Bachelor Degree [b]	-4.24	5.03	-14.49	6.01	-.14	-.84	.406
Education-Graduate Degree [b]	11.39	4.21	2.81	19.98	.45	2.70	.011*
Health Insurance [c]	-8.31	5.82	-20.16	3.54	-.27	-1.43	.163
Health Insurance-Feel Adequately Insured [c]	4.73	3.79	-2.99	12.45	.19	1.25	.221
Gender Identity Affirming Interventions-Attire [d]	7.47	14.17	-21.40	36.34	.16	.53	.602
Gender Identity Affirming Interventions-Make Up [d]	.64	5.30	-10.16	11.44	.03	.12	.905
Gender Identity Affirming Interventions-Hormones [d]	-.95	5.36	-11.87	9.97	-.04	-.178	.860
Gender Identity Affirming Interventions-Silicone Injections [d]	-4.84	7.02	-19.14	9.47	-.11	-.690	.496
Gender Identity Affirming Interventions-Surgery [d]	.75	4.82	-9.06	10.56	.03	.16	.877
Gender Identity Affirming Interventions-None [d]	3.18	17.41	-32.27	38.64	.06	.18	.856
Race-Non-White [e]	-.92	6.20	-13.54	11.71	-.03	-.15	.884
Sexual Orientation-Asexual [f]	3.44	6.17	-9.12	16.00	.09	.56	.581
Sexual Orientation-Gay, Lesbian, Homosexual [f]	5.50	5.98	-6.69	17.68	.17	.92	.365
Sexual Orientation-Heterosexual [f]	2.29	5.22	-8.34	12.93	.08	.44	.663
Sexual Orientation-Pansexual [f]	-3.46	5.27	-14.20	7.28	-.12	-.66	.517
Number of People in Social Support [g]	1.46	2.00	-2.61	5.54	.12	.73	.470
Sense of Belonging From Social Support Network [g]	-1.14	4.66	-10.62	8.34	-.04	-.25	.808

Note. CI = confidence interval; LL = lower limit; UL = upper limit

[a] The Gender Identity independent variable was collapsed into 3 categories for data analysis: those participants who identified as FTM, the control group of MTF, and Other. Those participants in the Other category of the gender identity included the categories Gender Nonconforming, Gender Queer, and previously defined Other group in Table 2.

[b] The Education independent variable was collapsed into three categories for data analysis: those participants with less than a bachelor degree, the control group of those with a bachelor degree, and those with a graduate degree.

[c] Participants were asked if they had health insurance and if they felt adequately insured. These were dichotomous variables. So, there was no need to create dummy variables.

[d] For the Gender Identity Affirming Interventions, participants were asked to select which interventions they used (attire, makeup, hormones, silicone injections, surgery) or select none, if they did not use interventions to align their gender identity with their sex assigned at birth.

[e] The Race/Ethnicity variable was collapsed into two categories for data analysis: White and Non-White. The White category served as the control group.

[f] The Sexual Orientation variable was collapsed into 5 categories for data analysis: asexual, homosexual (i.e., lesbian, gay, or homosexual), heterosexual, pansexual, and the control group bisexual

[g] The Number of People in Social Support network independent variable was analyzed as a continuous variable. The categories were: 0-5; 6-9; 10-14; 15-20; >20. For the Sense of Belonging from Social Support variable, participants were asked if they felt a sense of belonging and acceptance from their social support network.

*$p<.05$

Table 3-6: Sociodemographic Variables Significantly Correlated with SOC

Variable	Pearson Correlation	Sig.
1. Age	.471*	p <.001
2. Education-Less than Bachelor Degree [a]	-.402*	p =.001
3. Education-Graduate Degree [a]	.530*	p <.001
4. Health Insurance-Felt Adequately Insured [b]	.295*	p = .014
5. Gender Identity Affirming Interventions-Make-Up [c]	.271*	p =.022
6. Sexual Orientation-Gay, Lesbian, and Homosexual [d]	.260*	p =.026
7. Sexual Orientation-Pansexual [d]	-.240*	p =.037

Note. All p values are one-tailed.

[a] The Education independent variable was collapsed into three categories for data analysis: those participants with less than a bachelor degree, the control group of those with a bachelor degree, and those with a graduate degree.

[b] Participants were asked if they had health insurance and if they felt adequately insured. These were dichotomous variables. So, there was no need to create dummy variables.

[c] For the Gender Identity Affirming Interventions, participants were asked to select which interventions they used (attire, makeup, hormones, silicone injections, surgery) or select none, if they did not use interventions to align their gender identity with their sex assigned at birth.

[d] The Sexual Orientation variable was collapsed into 5 categories for data analysis: asexual, homosexual (i.e., lesbian, gay, or homosexual), heterosexual, pansexual, and the control group bisexual.

*p<.05

Table 3-7: A Comparison of Means for Subgroup Duke Health Categories

Health Category	Mean	SD	Range
Perceived Health	55.4	31.2	0-100
General Health [a]	50.2	16.4	10-86.7
Physical Health	53.9	19.6	0-90.0
Pain [b]	56.3	34.5	0-100
Disability [c]	19.6	31.2	0-100
Mental Health	48.2	25.6	0-100
Anxiety	50.1	21.2	8.3-91.7
Depression	54.1	23.3	10.0-90.0
Anxiety & Depression [d]	53.2	23.1	7.1-92.9
Self Esteem	58.8	20.7	10.0-100
Social Health	48.4	19.6	10.0-90

Note. N = 56. For physical, mental, social, general, self-esteem, and perceived health scores are 0-100, where 0 = worst health and 100 = best health. For anxiety, depression, anxiety & depression, pain, and disability scores are 100-0, where 100 = worst health and 0 = best health.

[a] General health is a combined score of participants Physical, Mental and Social Health scores.

[b] Pain is a measure of participants' pain in the last week.

[c] Disability is a measure of participants' perception on their need to physically confine due to a sickness, injury, or other health problem in the last week.

[d] The Anxiety & Depression measure is cumulative subgroup within The Duke that measure anxiety and depression.

Table 3-8: Sociodemographic Variables Associated with Health Perception

Variable	B	SE B	Wald Chi-Square	df	Sig	Exp (B)	95% Wald Confidence Interval for Exp(B)	
							LL	UL
Education-Less Than Bachelor Degree [a]	.74	1.05	.49	1	.485	2.09	.27	16.43
Education-Graduate Degree [a]	-.87	.91	.91	1	.340	.42	.07	2.51
Gender Identity-FTM [b]	1.40	1.31	1.14	1	.286	4.06	.31	53.12
Gender Identity-Other [b]	.46	1.16	.16	1	.694	1.58	.16	15.47
Health Insurance [c]	1.46	1.20	1.49	1	.222	4.31	.41	44.84
Health Insurance-Feel Adequately Insured [c]	-1.14	.80	2.03	1	.154	.32	.07	1.54
Gender Identity Affirming Interventions-Attire [d]	-22.16	34705.07	.00	1	.999	2.40	.00	.a[h]
Gender Identity Affirming Interventions-Make Up [d]	1.43	1.20	1.42	1	.234	4.17	.40	43.60
Gender Identity Affirming Interventions-Hormones [d]	.67	1.16	.33	1	.565	1.95	.20	18.98
Gender Identity Affirming Interventions-Silicone Injections [d]	.74	1.44	.26	1	.608	2.09	.12	35.35

Variable	B	SE B	Wald Chi-Square	df	Sig	Exp (B)	95% Wald Confidence Interval for Exp(B)	
							LL	UL
Gender Identity Affirming Interventions-Surgery [d]	-2.46	1.140	4.66	1	.031*	.09	.01	.80
Gender Identity Affirming Interventions-None [d]	-19.59	34705.07	.00	1	1.000	3.10	.00	.a[h]
Race-Non-White [e]	1.07	1.31	.66	1	.416	2.91	.22	38.12
Sexual Orientation-Asexual [f]	-1.22	1.34	.83	1	.363	.30	.02	4.09
Sexual Orientation-Gay, Lesbian, Homosexual [f]	-1.73	1.33	1.69	1	.193	.18	.01	2.40
Sexual Orientation-Heterosexual [f]	-.35	1.07	.11	1	.740	.70	.09	5.68
Sexual Orientation-Pansexual [f]	-.11	1.17	.01	1	.926	.90	.09	8.82
Age	-.02	.04	.46	1	.500	.98	.91	1.05
Annual Income	3.11	1.55	4.02	1	.045*	1.00	1.00	1.00
Number of People in Social Support [g]	.42	.42	.98	1	.322	1.52	.66	3.49
Sense of Belonging From Social Support Network	-.35	.96	.13	1	.714	.70	.11	4.63

Note. CI = confidence interval; LL = lower limit; UL = upper limit

[a] The Education independent variable was collapsed into three categories for data analysis: those participants with less than a bachelor degree, the control group of those with a bachelor degree, and those with a graduate degree.

[b] The Gender Identity independent variable was collapsed into 3 categories for data analysis: those participants who identified as FTM, the control group of MTF, and Other. Those participants in the Other category of the gender identity included the categories Gender Nonconforming, Gender Queer, and previously defined Other group in Table 2.

[c] Participants were asked if they had health insurance and if they felt adequately insured. These were dichotomous variables. So, there was no need to create dummy variables.

[d] For the Gender Identity Affirming Interventions, participants were asked to select which interventions they used (attire, makeup, hormones, silicone injections, surgery) or select none, if they did not use interventions to align their gender identity with their sex assigned at birth.

[e] The Race/Ethnicity variable was collapsed into two categories for data analysis: White and Non-White. The White category served as the control group.

[f] The Sexual Orientation variable was collapsed into 5 categories for data analysis: asexual, homosexual (i.e., lesbian, gay, or homosexual), heterosexual, pansexual, and the control group bisexual

[g] The Number of People in Social Support network independent variable was analyzed as a continuous variable. The categories were: 0-5; 6-9; 10-14; 15-20; >20. For the Sense of Belonging from Social Support variable, participants were asked if they felt a sense of belonging and acceptance from their social support network.

[h] Unable to obtain the exact number. SPSS coded to “a. Set to system missing due to overflow”

*p<.05

Chapter 3 References

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CHAPTER 4: SOCIAL MEDIA AS A RECRUITMENT STRATEGY WITH TRANSGENDER-IDENTIFIED INDIVIDUALS: USING AN ETHICAL LENS TO DIRECT METHODOLOGY

Abstract

Examples of traditional methods to recruit samples in research include flyers, print advertisements, Internet advertisements on Websites, and email invitations. However, researchers are limited when using traditional recruitment methods to access hidden populations, including transgender persons. Social media platforms such as Facebook can provide access to the hidden transgender population and facilitate recruitment of a representative sample. The current study generated a diverse sample of transgender-identified persons with Facebook as the sole recruitment method. Using Facebook as the singular recruitment method was largely influenced by COVID-19 and consequent inability to interact face-to-face with transgender-identified individuals. There is little regulatory guidance for using social media to recruit research participants. The Belmont report provides ethical principles that guide researchers in selecting subjects. Researchers should design social media recruitment methods with attention to privacy and transparency. Thus, using social media platforms such as Facebook to recruit transgender participants that otherwise would be challenging to reach is a viable and ethically sound alternative to traditional recruitment methods. This manuscript will review the advantages, disadvantages, risks, and ethical recommendations when using Facebook as research recruitment tool to access the transgender population. The proposed ethical guidelines aim to guide future social media recruitment.

Using Facebook for Research Recruitment of Transgender-Identified Adults

Researchers focusing on recruitment of transgender persons may struggle with access and recruitment of a diverse sample using solely traditional methods of recruitment. Traditional recruitment methods have included posting flyers and advertisements in newspapers, Websites, radio, as well as television broadcasts (Whitaker et al., 2017). In addition, researchers may mail letters, send electronic communication to professionals connected with potential participants, or directly email potential participants through listservs (Whitaker et al., 2017). The national transgender population accounts for an estimated 0.1% to 0.5% of the general population (Keatley et al., 2015). However, lack of consistent data collection and the diversity as well as hidden nature of the transgender population limits definitive knowledge of the size of the national transgender population (Keatley et al., 2015). This also contributes to lack of understanding for the population's demographics. A contributor to the hidden nature of the transgender population is minority stress. Meyer (2015) indicated minority stress is composed of stigma, internalized negative views of self, and actual experiences of violence and discrimination related to one's LGBTQ identity. Challenges with traditional methods of recruitment have shaped the impetus for supplementary recruitment methods.

Researchers have begun to employ contemporary recruitment strategies to help facilitate recruitment of a diverse transgender sample. Additionally, COVID-19 has increased challenges to research recruitment related to local and national guidelines that limited face-to-face gathering. A specific challenge has been limited opportunities for live interactions to engage potential participants. For example, many LGBTQ and transgender conferences migrated to virtual attendance in order to be compliant with social distancing guidelines. Social media offers access to the transgender population through LGBTQ and transgender social media pages and transgender specific social media groups. However, currently regulatory guidance is lacking to

help researchers ensure ethically sound social media recruitment (Bhatia-Lin et al., 2019; Gelinas et al., 2017). The objective of this manuscript is to examine the advantages, disadvantages, limitations, and ethical recommendations of using Facebook as a social media recruitment method with the transgender population.

Background

Studies with adult transgender samples tend to use both traditional and contemporary recruitment strategies. See Table 4-1 for details of the samples and recruitment methods of these studies. Traditional methods of recruitment have utilized flyers, electronic advertisements, or direct communication with potential participants. For example, researchers have posted flyers in locations frequented by LGBTQ or transgender individuals. Brennan et al. (2017) posted paper flyers in LGBT-related community organizations and health care providers' offices (Brennan et al., 2017; Yamanis et al., 2018). Another strategy was to distribute flyers at community events (Puckett et al., 2019). LGBT or transgender professional organizations featured electronic advertisements for research participation opportunities (Bockting et al., 2013; Macdonnell, & Grigorovich, 2012). Investigators send electronic research invites to potential participants through listservs (Freese et al., 2018; Macdonnell, & Grigorovich, 2012; McDowell et al., 2019; Moody & Smith, 2013; Testa et al., 2014). Lastly, direct communication with potential participants at LGBTQ or transgender community events and conferences provided researchers with recruitment opportunities (Bauermeister et al., 2016; Cook et al., 2013; Jackman et al., 2018; Reisner et al., 2013; Yamanis et al., 2018). Many studies integrated these recruitment strategies; just two studies indicated sole use of a traditional recruitment approach (see Wagaman et al., 2019 and Breidenstein et al., 2019).

Most researchers supplemented traditional recruitment methods with collaboration with community organizations, peer-to-peer referrals, and contemporary recruitment methods. Two supplemental recruitment strategies included collaboration and peer-to-peer word of mouth. Collaboration was a crucial component that provided access to the transgender population. Recruitment strategies were facilitated by connection with LGBTQ or transgender community support groups, professional networks, or outreach organizations (e.g., HIV organizations). For example, Scandurra et al. (2018) collaborated with transgender rights organizations, who in turn disseminated the survey to their contacts. Similarly, community leaders or organizational outreach workers were enlisted as research support staff to help recruit potential participants (Perez-Brumer et al., 2017). Peer-to-peer word of mouth recruitment was another supplemental recruitment strategy. Some researchers motivated enrolled participants to refer peers through incentivization. For example, Logie et al. (2017) gave participants five coupons to invite other potential participants and received approximately $4 U.S. dollars in compensation. Generally, studies did not discuss any additional recruitment details aside from recruit locations with the exception of one study that discussed safety concerns related to recruitment. Specifically, in a study set in Jamaica, Logie et al. stated print materials were not used related to a lack of legal protection and rights for transgender individuals in Jamaica (2017).

Contemporary recruitment strategies have included use of electronic advertisements or direct posts on social media platforms. Examples include Facebook, Instagram, Twitter, and Tumblr. The most cited social media platform was Facebook (Bauermeister et al., 2016; Dimant et al., 2019; Etengoff & Rodriguez, 2020; Freese et al., 2018; Jackman et al., 2018; Pucket et al., 2019; Miller-Perusse et al., 2019; Reisner et al., 2020; Salk et al., 2020; Scandurra et al., 2018; Wirtz et al., 2019). Most studies did not describe specific details of social media posts. However,

one study provided a description of the study's electronic advertisements. The electronic advertisement included photos representing a spectrum of transgender and gender variant persons and, if selected by the user, directed the person to the study's research Website (Miller-Perusse et al., 2019). Similar to traditional recruitment methods, only one study described privacy and security precautions directly related to using social media with the transgender population. In Salk et al. (2020), researchers included privacy and safety statement prompting participants to consider their current location and persons (who may be in their vicinity in the next 30 minutes) before beginning the survey. Additionally, the study included a waiver of parental consent to ensure study participation did not illicit stigmatization and rejection from family (Salk et al., 2020). Two studies seeking to enroll transgender youth indicated social media as their sole recruitment method (Miller-Perusse et al., 2019; Salk et al., 2020). Both studies illustrated success in using social media to recruit diverse transgender youth samples with the assistance of paid advertising.

Using Facebook as a Recruitment Strategy

In the current study, participants were recruited from two sources. First, community group leaders were contacted to establish a partnership. Due to the COVID-19 pandemic, there were no opportunities to attend face-to-face support meetings. Permission was requested from the community support group leaders to post on the groups' Facebook pages; these posts were pre-constructed and approved by the University of Central Florida institutional review board (IRB). Secondly, a professional Facebook page served as a source of recruitment. This Facebook's social media Web address was shared on community support groups' social media pages. Generally, group moderators reviewed the posts prior to the post to the group's Facebook

page. Compared to traditional methods of research recruitment, using social media as a sole recruitment strategy had several notable advantages, disadvantages, and limitations.

Advantages

The main advantages of using Facebook to recruit a transgender sample for the current study were access to hidden transgender population, no financial costs incurred, and an expedited recruitment process. Facebook, as one of several public social media platforms, allows anyone to create a free user profile. A user can search for LGBTQ or transgender groups on Facebook. Facebook groups can be set as public or private by the group's administrator (Facebook, 2021b). Private groups offer more protection for members as groups posts and the members list is restricted to group members (Facebook, 2021b). Most of the LGBTQ and transgender groups in this study were set as private groups, which may offer a sense of comfort and security to these groups' members, who may feel stigmatized and experience subsequent stress related to their transgender identity (Meyer, 2015). This study did not utilize any paid research advertisements on Facebook. Instead, the primary method of recruitment was direct posts to LGBTQ and transgender Facebook pages that directed potential participants back to the study's Facebook professional profile page; both Facebook recruitment strategies required no financial cost. Lastly, using Facebook as a recruitment method expedited the recruitment process. Facebook posts are immediate and user viewing is dependent on when the user logs onto the Facebook platform as well as their notification settings. Group members may set their Facebook group notifications so that they are alerted to new posts when logging into Facebook (Facebook, 2021a). Therefore, it is possible that LGBTQ and transgender Facebook group members are notified of research recruitment posts immediately. Alternatively, users may only see the research post when they visit the specific group if they declined Facebook notifications.

Disadvantages and Limitations

The main disadvantages of using Facebook as the sole recruitment method were the inability to reach potential participants with limited or no Internet access and privacy risk. For example, one of the goals of the current study was to explore differences in urban compared to rural participants. However, only one participant indicated a rural residence. Perhaps, integration of traditional methods could help recruitment of participants living in areas that are more rural. For example, combining Facebook recruitment with attending face-to-face support groups in both urban and rural areas could help generate more rural representation.

There were no known privacy breaches of participants' information in the current study. The survey was anonymous and therefore did not collect any participants' names or other identifying information. After completing the survey, participants had the option to provide an email address in an external link, not associated with survey responses, to receive a $5 Amazon gift card for participation. Despite utilizing electronic survey safety features (e.g., preventing survey indexing in Web searches), computer bots compromised the initial electronic survey. Following initial survey link distribution, two survey suspicions prompted survey and data investigation. First, in less than 24 hours there were more responses to the survey than expected. Secondly, the requests for the $5 compensation for completing the survey exceeded the actual participants who completed the survey. In the responses corresponding to this initial link, some free text responses were either non-English wording or random assembly of non-English characters. Due to survey compromise suspicion, data collection was stopped and the initial survey link was closed. These privacy risks along with mitigation strategies are discussed below.

Discussion

Lack of routine gender identity information limits healthcare providers understanding of the size and demography of the national transgender population (Reisner et al., 2016). Researchers tend to use a comprehensive approach by using both traditional and modern recruitment methods when recruiting a transgender sample. Examples of traditional recruitment methods include distribution of paper and electronic flyers or advertisements, while modern methods include using social media to distribute the like. Although no known studies have indicated sole use of social media to recruit an adult transgender sample, sample diversity from the current study was comparable to sample diversity from the largest national transgender survey (James et al., 2016). This national study gathered a sample of 27, 715 participants across all fifty states as well as District of Columbia, American Samoa, Guam, Puerto Rico, and U.S. military bases overseas (James et al., 2016). The recruitment methods for this survey included LGBTQ and transgender organizations, support groups, health centers, and online communities, who shared the survey with their organizational contacts and members via email and social media channels (James et al., 2016). See Table 4-2 for a comparison of the demographics of this national adult transgender sample and the current study.

Advantages

The main advantages of using Facebook to recruit an adult transgender sample in the current study included access to the hidden transgender population, no financial costs, and an accelerated recruitment process. IRB approved social media posts were shared to LGBTQ and transgender social media support group pages. There was no cost associated with these recruitment posts. The current study faced recruitment challenges related to COVID-19 that limited availability of live recruitment opportunities (e.g., conferences and face-to-face support

group meetings). Using social media alleviated these face-to-face limitations. Facebook was the sole method of recruitment and successfully generated a diverse sample of adult transgender-identified individuals comparable to the largest national transgender survey (James et al., 2016).

Using social media to recruit a sample can provide access to hidden populations, specific demographics, or rare medical conditions (Bender et al., 2017; Gelinas et al., 2017; Whitaker et al., 2017). Additionally, recruiting research samples from Facebook is associated with decreased costs and expedites the recruitment process, whereas traditional methods can be slower and more expensive (Whitaker et al., 2017). Social media users can share research advertisements and posts, which can subsequently facilitate recruitment (Bender et al., 2017). Social media can be a viable alternative to traditional methods of recruitment of an adult transgender sample, especially when researchers lack opportunities for live interaction with potential participants.

Disadvantages and Limitations

The main disadvantages of using Facebook as a recruitment method were the inability to reach prospective participants with limited/no Internet access and privacy risk. Whitaker et al. (2017) reinforced this disadvantage in a systematic review of using Facebook for recruitment of health research participants. Although the current study was a racially diverse sample, the participants were predominantly White. Whitaker et al. (2017) indicated Facebook may result in an overrepresentation of samples characterized by younger ages, White race, and females (Whitaker et al., 2017). The current study was characterized by a sample who mostly indicated a gender identity of transgender female, with at least some college; a quarter of the sample had incomes at or below poverty level. To this end, education and income are also overrepresented in Facebook samples for health research (Whitaker et al., 2017). However, higher education and

incomes are also overrepresented in traditional methods, as persons with more education may be more likely to participate in research (Whitaker et al., 2017)

Privacy risk was another potential disadvantage of using Facebook in the current study. While there were no known privacy breaches to participants, there was undoubtedly a possibility for their occurrence. Strategies to mitigate privacy risk in the current study were attaining IRB approval of social media posts and obtaining administrator/moderator of research post prior to posting on the group's social media page. Third party marketing organizations may track social media users when they click on research advertisements (Bender et al., 2017; Curtis, 2014). Additional privacy risk can arise if participants or potential participants share research advertisements (Curtis, 2014; Galinas et al., 2017). For example, social media users may share social media recruitment posts. In turn, potential participants may "like" or comment on the post (Facebook, 2021c). Potential participants, who "like" or share comments with sensitive information, may not realize or comprehend personal privacy risk. First, post viewers may interpret the individual's study eligibility or identification with study's focus. Secondly, the individual may not recognize the visibility of his, her, or their comments to others social media users, especially if the person shares sensitive information. Bender et al. (2017) recommends researchers provide participants with privacy risks associated with social media platforms.

Lastly, researchers should be aware of the potential for survey compromise through computer bots. After the need to disable the initial survey link related to the computer bot detection, a new unique survey link was distributed with careful attention to increased security efforts. For example, the initial link was shared directly to trans and LGBTQ Facebook groups. However, the second link could only be accessed through the primary investigator's professional Facebook page or sent through a private message at the participant's request. Simone (2019)

recommends several tactics to guard and identity bots. Some of these recommendations include using open-ended questions and look for unusual responses, examine time stamps for impossible dates/times and speed survey completion times, and provide unique survey links to each participant (Simone, 2019).

Social Media Ethical Guidelines

Researchers should also use social media recruitment methods in an ethically sound manner. Given there is little regulatory guidance to oversee social media recruitment, some authors have proposed the use of existing regulatory guidance as a non-exceptionalism approach to design research methodology when using social media as a recruitment strategy (Bhatia-Lin et al., 2019; Gelinas et al., 2017). The Belmont Report, a seminal work that has provided an ethical framework for research with human subjects, advised investigators to conduct research with a respect for persons, beneficence, and justice (Department of Health, Education, and Welfare, 1979). The report stipulated research participant selection should be undertaken with attention to justice (Department of Health, Education, and Welfare, 1979). Investigators should impartially offer individuals the opportunity to participate in research, but also be mindful of social injustice implications (i.e., unjust social patterns related to social, racial, sexual, and cultural biases and research with vulnerable subjects) (Department of Health, Education, and Welfare, 1979).

Previous studies rarely acknowledged the ethical considerations of using social media as a recruitment strategy. The two main proposed ethical considerations are respect for privacy and investigator transparency (Gelinas et al., 2017). These two ethical considerations were used to delineate ethically sound practice guidelines that can also mitigate privacy risks when recruiting adult transgender-identified persons through social media platforms. These ethical tenets are bulleted below.

- Prior to conducting research in the transgender community, researchers should work to establish trust, build relationships, and be visible in transgender communities (Tebbe & Budge, 2016). This pre-research collaboration with the transgender community will ensure study design and methodology are feasible and acceptable to participants (Reisner et al., 2016).
- Ask for permission from the LBGTQ or transgender group's administrator or moderator to post research recruitment posts within the group (Gelinas et al., 2017; Vincent, 2018). Contacting the social media group's administrator/moderator communicates respect (Vincent, 2018).
- Use recruitment materials with inclusive respectful language that is commonplace within the trans community comprised of various intersected identities (Tebbe & Budge, 2016; Vincent, 2018). For example, a transgender individual may have other identifies such as racial and cultural that are components of their life experience.
- Proactively disclose your presence and be transparent about your intention in the LGBTQ or transgender social media group; do not create phony or misleading profiles to gain access to the group (Gelinas et al., 2017).
- Be mindful of potential vulnerabilities (Gelinas et al., 2017). For example, while studies may use a traditional method of peer-to-peer word of mouth referrals, this practice in social media may incur unique privacy risks. If participants share the researcher's social media post on their personal social media page, potential participants may post sensitive information in the comment section below the post (Gelinas et al., 2017). Researchers should review participants posts to ensure no identifiable information is shared (Curtis, 2014). While it may be impossible or undesirable to stop other social media users from

sharing the research advertisement/post, Gelinas et al. (2017) recommends getting participant permission before sharing on the participant's page. In addition, researchers can provide participants with privacy risks, written in plain language, associated with social media platforms (Bender et al., 2017).

- Be mindful of publicly displayed information (e.g., unprotected message boards). The author may feel uncomfortable with potentially sensitive information being used for academic publication (Vincent, 2018). Do not disclose sensitive information without permission (Gelinas et al., 2017). Do not post contact/sign-up forms in social media platforms (Curtis, 2014).
- Ensure compliance with the Website's terms of use. The terms of use will describe appropriate and inappropriate behavior as well as behavior subject to legal consequences (Gelinas et al., 2017).

Conclusion

Using social media as an adjunctive recruitment method can help researchers access the hidden transgender population. In addition, if face-to-face opportunities are limited, social media platforms, such as Facebook, provide alternatives to traditional recruitment methods that can expedite recruiting a diverse sample at a reduced cost. However, recruitment samples generated solely from social media are limited by a decreased ability to reach potential participants with reduced or no Internet access. Additionally, social media samples may be overrepresented by young female participants with greater resource access. Social media as a recruitment method has inherent privacy risks. Researchers can mitigate these privacy risks with purposeful attention and inclusion of the privacy and transparency when using social media for recruitment.

Chapter 4 Tables

Table 4-1: Recruitment Strategies Used in Studies with Transgender-Identified Samples

Authors	Sample & Setting	Recruitment Methods	Discussion of Ethical or Privacy Guidelines Used in Social Media Recruitment
Aaron & Rostosky, (2019)	N = 25 trans adults; age 19-64; 88% White 12% Native American Central Appalachia	Recruited from local trans support group; word of mouth sharing by participants	N/A
Akhtar & Bilour (2020)	N = 100 trans adults; age 19-50 Pakistan	Recruitment from contact with support groups through social media	N/A
Bariola et al. (2015)	N = 169 trans adults; age 18-77; 72.2% trans women; 27.8% trans men Australia	Not described	N/A
Bauermeister et al. (2016).	N = 26 trans; N = 123 cisgender males; mean age 22.57 years; 81.9% Black or African American; 11.4% Latino; mixed race 6.7% Detroit, Michigan	Recruited online and in-person; Web advertisements posted in chat groups and Facebook; In-person recruitment via gay bars, clubs, and community events visited by the target population and by staff of community partner agencies	None described
Bockting et al. (2013).	N = 1093 trans adults; 57.5% male to female; 42.5% female to male; age 18-70; mean age 33.01; 79.4% White	Recruited via transgender community Web sites, online mailing lists, journals, and forums;	N/A

Authors	Sample & Setting	Recruitment Methods	Discussion of Ethical or Privacy Guidelines Used in Social Media Recruitment
	U.S.		
Breidenstein et al. (2019)	N = 158 trans women Germany	Recruited via mail; Participants who had received gender assignment surgery at clinic during designated time frame were sent a mail invite	N/A
Brennan et al. (2017).	N = 83 trans adults; 41% trans women; 29% trans men; 31% other gender-nonconforming; age 19-70; 44% 19-24; 84.3% White; 8.4% multiracial, 7.2% Hispanic; 52% hormones for gender-affirmation Nebraska and other Midwestern states	Recruited through paper flyers for the survey placed in local LGBT-related organizations and health care offices of providers; verbal recruitment by research team members with clinical practices; Web advertisement on social media and listservs of NE LGBT organizations	None described
Chakrapani et al. (2017).	N = 300 trans adults; mean age 29.7; 63% from urban areas, 37% semi-urban areas India	Recruited through community-based organizations in rural and urban areas that offer HIV prevention services	N/A
Cook et al. (2013).	N = 353 Black gay and bisexual men; n = 141 gender nonconforming; n = 197 cisgender men; age 16-49 Africa	Recruited via LGBT organizations, support groups, counseling centers, friendship networks, at the Gay and Lesbian Pride March, and on the Web	N/A
Crosby et al. (2016)	N = 77 Black trans adults; age 18-65; mean age 34.5; 62.3%	Recruited via community-based outreach strategies;	N/A

Authors	Sample & Setting	Recruitment Methods	Discussion of Ethical or Privacy Guidelines Used in Social Media Recruitment
	reported HIV positive; 35.1% reported last HIV test negative Atlanta, GA	venues serving trans women and word of mouth	
Dimant et al. (2019)	N = 37; 61% queer, 17% lesbian, 14% bisexual, 11% gay, 8% pansexual; 6% asexual or demisexual; 81% White, 6% African-American, 8% Asian-American, 6% Latinx, 8% multi-racial; age range 23-70; median age 32.2 U.S.	Recruited by through LGBTQ health professional groups; conferences (GLMA: Health Professionals Advancing LGBTQ Equality, Philadelphia Trans Wellness Conference); listservs; social media (Facebook, Twitter)	None described
Edwards et al. (2019)	N = 106 trans adults; age 18-65, mean age 39.17; 77.4% White; 41.5% single; 25.5% living with partner; 13.2% married; 10.4% dating; 3.8% divorced Western State U.S.	Recruited at a local community center during initial interview for clinical services.	N/A
Etengoff & Rodriguez (2020)	N = 15 trans Muslim adults, mean age 29.7; n = 12 trans men; n = 2 trans women Indonesia, U.S., France, England, Philippines, Egypt	Recruited via organizational outreach, Facebook, and Twitter	Discussed use of online survey to incorporate culturally sensitive Islamic values (privacy, honor, cultural disclosure)

Authors	Sample & Setting	Recruitment Methods	Discussion of Ethical or Privacy Guidelines Used in Social Media Recruitment
Fredriksen-Goldsen et al. (2014).	N = 174 trans adults; 79.07% White U.S.	Recruited via collaboration with community-based organizations; each agency distributed print and electronic surveys to individuals on their agency's contact list	N/A
Freese et al. (2018)	N = 316 trans adults; age 18-73; mean age 32.5; 79.4% assigned female at birth; 76.3% White; 89.2% had at least some college or college degrees U.S.	Recruited via posted electronic flyers on online message boards, listservs, and social networking sites that attracted a trans audience; also posted the study link to social networking groups (Yahoo & Facebook)	None described
Glick et al. (2019)	N = 17 trans/gender nonconforming adults; age 23-39; one participant was 70 y/o; n = 10 White or White/Hispanic; n = 7 Black or African American or African Indigenous; half lower or working class; half middle class; more than half had some college or attended trade school New Orleans U.S.	Recruited via partner organizations, trans advocacy and support groups, personal networks of participants and research staff	N/A
Hwahng et al. (2019).	N = 13 low-income male to female trans Latina adults; age 22-50; average age 38 y/0	Recruited from trans support groups; support group coordinators helped	N/A

Authors	Sample & Setting	Recruitment Methods	Discussion of Ethical or Privacy Guidelines Used in Social Media Recruitment
	New York City U.S.	recruit potential participants	
Jackman, et al. (2018)	N = 332 trans participants; age 16-87; mean age 34.56; 50.3% trans feminine; 49.7% trans masculine; 44.1% Non-Hispanic White; 21.9% Hispanic; 15.2% African American; 18.8% Other; 58.2% ≤ 23,999 annual income; 79% some college or college degrees U.S.	Recruited using venue-based sampling; venues were bars/clubs, non-bar establishments, outdoor events, community groups, online (Facebook), transgender-specific clinical care sites, and word of mouth	None described
Lacombe-Duncan et al. (2020)	N = 54 trans adult women; mean age 41; 51.9% heterosexual; 37% Indigenous; 9.3% African, Caribbean, or Black; 35.2% White; mostly single (79.6%); 90.6% had annual income <$20, 000 Canada	Recruited via online networks; venue-based recruitment through AIDS service organizations, HIV clinics, and community organizations	N/A
Lee et al. (2020)	N = 453 sexual and gender minority (SGM) adults; n = 26 trans adults; randomly recruited from national tobacco survey; approx. 70% had some college or college degree; mean age 35.6; 74% age	Recruited via dual-frame random-digit dialing tobacco survey of the noninstitutionalized U.S. adult population	N/A

Authors	Sample & Setting	Recruitment Methods	Discussion of Ethical or Privacy Guidelines Used in Social Media Recruitment
	18-44; age 18-65+; 67.5% White; 20.8% Black; stratified sample by age groups U.S.		
Lelutiu-Weinberger et al (2020)	N = 17,188 participants a subset from 2015 United States Transgender Survey; 54% trans women; 46 trans men; age 18-65+; 78% age 18-44; 83% White; 3% Black; 5% Latino; 86% some college or college degree U.S.	Secondary data analysis	N/A
Logie et al. (2017)	N = 137 adult trans women; age 18-44; mean age 24.0; 25.2% HIV positive Jamaica	Recruited via word of mouth through peer research assistants and participants; PRAs were HIV outreach workers	N/A
Logie et al. (2020)	N = 871; n = 97 trans women; n = 569 cisgender sexual minority men; n = 205 cisgender sexual minority women; age 15-55; mean age 25.51 Jamaica	Recruited via word of mouth through peer research assistants and participants; PRAs were HIV outreach workers	N/A
Macdonnell, & Grigorovich, (2012)	N = 4 trans adult men, who were healthcare providers; age 20's-50's Canada	Recruited via Web advertisements on professional and LGBTQ networks; online listservs; connection with	N/A

Authors	Sample & Setting	Recruitment Methods	Discussion of Ethical or Privacy Guidelines Used in Social Media Recruitment
		researchers' professional networks	
Mcdowell et al. (2019)	N = 150 transmasculine adults; 76.7% binary gender identity; 74.7% White; 25.3% person of color; mean age 27.5 years; 72% had age 21-30; age range 21-50 U.S.	Recruited through flyers, medical provider and staff referrals, community outreach and listserv posts, social media (not specified), word of mouth	None described
Miller-Perusse et al. (2019)	N = 202; 40.6% trans men, 18.3% trans women, 41.1% non-binary; 14.4% homosexual/gay, 23.8% bisexual, 47.0 % queer/pansexual, 14.8% other (heterosexual/straight, asexual, demisexual, polysexual, sexually fluid, questioning/unsure); 66.8% White, 33.2% Non-White; age range 15-24, 32.7% age 15-17; 46.5% age 18-21; 20.8% age 22-24 U.S.	Recruited by advertisements/posts on social media websites: Facebook, Instagram, Twitter, Tumblr, and Craigslist; Advertisements/posts included photos representing a spectrum of transgender and gender variant persons; advertisements/posts directing interested individuals to study's Website	None described
Moody & Smith (2013)	N = 133 trans adults; age range 18-75; 82.2% White; 77% had some college or college degree; 59.4% had annual income <$30, 000; 75.2% lived in urban area	Recruited via emails sent through LGBT and trans Listervs/organizations	N/A

Authors	Sample & Setting	Recruitment Methods	Discussion of Ethical or Privacy Guidelines Used in Social Media Recruitment
	Canada		
Perez-Brumer et al. (2017)	N = 48 trans adult women; age 18-44 Peru	Recruited by created a task force comprised of socially connected trans women, who were community leaders; the task force recruited the sample	N/A
Puckett et al. (2019)	N = 695 trans individuals; age 16-73; mean age 25.52; 75.7% White; 75% <$30, 000 annual income; 72% some college or college degree U.S.	Recruited via Facebook, Twitter, Tumblr, other social media sites; trans related community organizations; flyers at community events.	None described
Reicherzer & Spillman (2012)	N = 3 Mexican trans women; age 30's-40's Texas U.S.	Recruited by contact with informants to the nightclub scene, who had trans women entertainers; the researcher was given contact information for the 1st participant; word-of-mouth by the 1st participant generated the 2nd participant; the 3rd participant was encountered at a social event	N/A
Reisner et al. (2013)	N = 73 trans men for quantitative; n = 19 trans men for qualitative; mean age 32.0, age range 18-62; 72.6% White; 27.4% Racial	Recruited by hosting a booth at a trans health conference and active engagement to passersby; a trans health workshop at the conference was	N/A

Authors	Sample & Setting	Recruitment Methods	Discussion of Ethical or Privacy Guidelines Used in Social Media Recruitment
	minority; 91% had some college or college degree; 15.1% no health insurance; 74% used hormones for gender affirmation; 50.7% used top surgery for gender affirmation; 5.5% used bottom surgery for gender affirmation- demographics are for quantitative sample; did not collect demographics for qualitative sample U.S.	used to ask workshop attendees to respond to qualitative questions	
Reback et al. (2020)	Proposed sample will be N = 250 high risk trans youth; ages 15-24; Study is in process U.S.	Recruited via social media sites and Web applications	None described
Reisner et al. (2020)	N = 41; mean age 41.1; age range 21-70; 34.1% White, 34.1% Black, 4.9% Asian, Multi-racial 26.8%, Hispanic/Latina 26.8% U.S	Recruited by social media (Facebook); Craigslist; word-of-mouth from participants, research staff, and clinics	None described
Remien et al. (2015)	N = 80; 4 groups; last group was adult trans women; mean age 32;	Recruited via community-based organizations, the Internet, and word-of-	N/A

Authors	Sample & Setting	Recruitment Methods	Discussion of Ethical or Privacy Guidelines Used in Social Media Recruitment
	age range 23-49; 75% Black; 40% Hispanic New York City U.S.	mouth recommendations	
Salk et al. (2020)	N = 3318; mean age 15.9; n = 1369 cisgender, n = 1938 transgender, n = 986 trans male, n = 132 trans female, n = 723 non-binary; 65% White, 5% Black, 9% Hispanic, 4% Asian/Pacific Islander, 1 % American Indian, 15% Multiracial U.S.	Recruited by Facebook and Instagram advertisements	Advertisement included privacy and safety verbiage that prompted participant to complete the survey in a private area and also included other privacy prompts (who will be around in the next 30 minutes, concerns of revealing personal information to a person who may be in the area in the next 30 minutes)
Scandurra et al. (2018)	N = 149 trans or gender non-conforming Italian adults; age 18-63; mean age 33.18; n = 75 male to female; n = 74 female to male; 98% White; 28.9% college education Italy	Recruited from social media (Facebook); connection with trans rights organizations that disseminated the survey to contacts	None described
Sok et al. (2020)	N = 1375 trans women; mean age 25.8 Cambodia	Recruited by peer-based social recruitment; connection with community-based organizations, who each chose four seed participants to refer other participants	None described

Authors	Sample & Setting	Recruitment Methods	Discussion of Ethical or Privacy Guidelines Used in Social Media Recruitment
Testa et al. (2014)	N = 3087 trans adults; 4 gender groups (i.e., MTF, FTM, female to different gender/FTDG, male to different gender/MTDG); age 18-53+; approximately 80% White Represented all 50 U.S. states	Recruited via trans-related listserv; online support groups; persons with personal profiles on trans website; public figures in the trans community	N/A
Torres et al. (2015)	N = 11 providers of trans youth; n = 2 psychiatrists; n = behavioral health clinicians; n = 1 nurse; n = 1 epidemiologist; n = 1 advocacy expert; n = 4 trained community educators; from the entire sample n = 5 identified as trans Boston U.S.	Not described	N/A
Valente et al. (2020)	N = 330 transgender and gender nonbinary identified individuals; age 16-87; mean age 34.4; stratified by age groups; 43.6% White; n = 169 transfeminine; n = 161 trans masculine New York City, San Francisco, and Atlanta	Recruited by venue-based sampling; venues included public spaces, commercial institutions, community events and groups, social media, trans explicit healthcare clinics; word of mouth	None described

Authors	Sample & Setting	Recruitment Methods	Discussion of Ethical or Privacy Guidelines Used in Social Media Recruitment
	U.S		
Wagaman et al. (2019)	N = 85 trans and gender expansive youth and young adults; age 13-24; did not collect race/ethnicity U.S.	Recruited from 4-day overnight leadership program	N/A
Wirtz et al. (2019)	N = 795 trans women; mean age 35; 45% Black, 28% Hispanic/Latinx Study is in process	Recruited by peer referrals, social media (Facebook and Reddit), and dating applications; clinic referral; gender-affirming community conferences; electronic study flyers	None described
Yamanis et al. (2018)	N = 38 Latina/Hispanic adult trans women; age range 22-50; 24% had some college or college degree Washington, D.C. U.S.	Recruited via HIV, LGBTQ, trans events, venues, and activities; flyers and study information distributed to community centers and community-based organizations	N/A
Yang et al. (2016)	N = 209 Chinese trans women; mean age 26.7; age range 18-45 China	Recruited via community-based organizations, grassroots support groups, community outreach; word of mouth by participants	N/A

Table 4-2: Comparison of Demographics from a National Transgender Survey (James et al., 2016)

Demographic Category	Percent of Respondents from James et al. (2016)	Percent of Respondents from Current Study
Sample Size	N = 27,715	N = 56
Gender Identity		
Transgender Women	33%	51.8%
Transgender Men	29%	25%
Non-Binary People	35%	N/A
Race and Ethnicity		
White	62.2%	85.7%
Latino/a	16.6%	7.1%
Black	12.6%	3.6%
Asian	5.1%	1.8%
Multiracial	2.5%	N/A
Middle Eastern	0.4%	N/A
Age		
Age Range [a]	18-87 years	18-71 years
Age Group 18-24 years	42%	21.8%
Age Group 25-44 years	42%	47.3%
Age Group 46-64 years	14%	25.5%
Age Group 65 and Over	2%	3.6%
Income		
Poverty Level [b]	29%	25.0%
Educational Level		
No High School or Equivalent	2%	7.1%
High School Diploma	11%	14.3%
Some College	40%	30. 4%
Associate Degree	9%	17.9%
Baccalaureate Degree	2 %	19.6%
Graduate Degree	13%	10.7%

Note. For a particular subcategory not collected in the current study a non-applicable representation ("N/A") was indicated.

[a] One participant indicated "38200" as an age. This entry was not included and was coded to erroneous ("888") for data analysis

[b] The poverty level determination for the current study was determined by the 2021 poverty guidelines for an annual income representing a one person household of $12,880 (U.S. Department of Health and Human Services, 2021). It is important to note the participants were not asked if this was a single income or household income. One participant indicated "not too much" as an annual income. This entry was not included and was coded to erroneous ("888") for data analysis.

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APPENDIX A: PERMISSIONS

Permission to Use the Brief Resilience Scale

From: Bruce Smith <bws0513@gmail.com>
Date: October 14, 2020 at 6:29:02 PM CDT
To: Jake Bush <jbush@uwf.edu>
Subject: Re: Permission to use BRS

Hi Jake,

Thanks for your interest in the *Brief Resilience Scale (BRS)*. You are welcome to use it free of charge and for as much as you like. The only thing we ask is that you try to keep us posted on what you find in using the *BRS*. We are building a community of resilience researchers around the world to share what we learn and work together when we can.

In case it is helpful to you, I attached the validation article for the *BRS* that was published in 2008. I also attached an informal *Translation Guide for the Brief Resilience Scale* and an article on translating measures in case you want to use it for a language other than English. As of October 2020, the *BRS* has been used in 39 countries, cited over 2,100 times on Google Scholar, and there are a large number of studies showing how resilience as assessed by the BRS may be increased by interventions.

Finally, I also attached the *User Guide for the Stress Adaptation Scale*, which includes more information about the *BRS*. *The Stress Adaptation Scale* includes the *BRS* and the more recently developed *Brief Thriving Scale (BTS)*. While the *BRS* assesses the ability to bounce back from stress, the *BTS* assesses the ability to learn, grow, and benefit from stress. They both seem to be vital for adapting to stress and I encourage you to take a look at the *BTS* in the *User Guide* and consider also using it if you can.

Whatever you decide, we hope that the *BRS* works well for you and wish you the best in your work!

Warm Regards,

Bruce

On Sat, Oct 10, 2020 at 11:03 AM Jake Bush <jbush@uwf.edu> wrote:

[EXTERNAL]

Hi Dr. Smith, my name is Jake Bush. I am a nursing instructor at the University of West Florida in Pensacola, FL. I am also a PhD student at the University of Central Florida in Orlando, FL. I would like to use your Brief Resilience Scale in my dissertation research. I plan to investigate resilience in the adult transgender population.

- May I use your BRS?
- How can I obtain a copy of the BRS?

Thank you,
Jake Bush

Jake Bush, MSN, RN
Lecturer

University of West Florida
11000 University Pkwy
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Pensacola, FL 32514

850.529.0383 Cell
jbush@uwf.edu

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Please note: Due to Florida's broad public records law, most written communication to or from University employees is considered a public record. Therefore, the contents of this email, including personal email addresses, may be subject to disclosure in the event a request is made.

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Bruce W. Smith, Ph.D.
Department of Psychology
University of New Mexico
Albuquerque, NM 87131-1161
505-277-0643
<BRS Validation Article - Bruce W. Smith.pdf>
<User Guide for Stress Adaptation Scale - Bruce W. Smith.pdf>
<Article about Translating Measures with BRS as Example.pdf>
<Translation Guide for the BRS - Bruce W. Smith.pdf>

Permission to Use The DUKE

From: "George Parkerson Jr., M.D." <george.parkerson@duke.edu>
Date: November 12, 2020 at 12:00:01 PM CST
To: Jake Bush <jbush@uwf.edu>
Subject: RE: Permission to use DUKE-17 Item

Thank you for your interest in the Duke Health Profile. You have our permission to use it in your research project and hope it will be useful. I am attaching a copy of the form and scoring instructions. Best wishes, George Parkerson MD MPH

From: Jake Bush <jbush@uwf.edu>
Sent: Thursday, November 12, 2020 11:30 AM
To: parke001@mc.duke.edu
Subject: Permission to use DUKE-17 Item

Hello Dr. Parkerson, my name is Jake Bush. I am a nursing instructor at the University of West Florida in Pensacola, FL. I am also a PhD student at the University of Central Florida in Orlando, FL. I would like to use your Duke Health Profile (DUKE) in my dissertation research. I plan to investigate resilience in the adult transgender population and would use your instrument to assess participants' health perceptions.

- May I use your DUKE questionnaire?
- How can I obtain a copy of the DUKE questionnaire?

Thank you,
Jake Bush

Jake Bush, MSN, RN
Lecturer

University of West Florida
11000 University Pkwy
Building 37; Room 113B
Pensacola, FL 32514

850.529.0383 Cell
jbush@uwf.edu

Learn about prevention at uwf.edu/coronavirus

Permission to Use the SOC-13

From: Maurice Mittelmark <maurice.mittelmark@gmail.com>
Date: October 12, 2020 at 4:02:56 PM CDT
To: Jake Bush <jbush@uwf.edu>
Cc: Monica Eriksson <monica.eriksson@hv.se>
Subject: Re: Permission to use SOC-13 and copy request

Jake, everything you need is at:

https://www.stars-society.org/

Best wishes, Maurice

On Mon, Oct 12, 2020, 22:17 Jake Bush <jbush@uwf.edu> wrote:

> Hello, my name is Jake Bush. I am a PhD student at the University of Central Florida in Orlando, FL.
>
> - May I use the SOC-13
> - Where can I obtain a copy of the questionnaire? Can you provide a copy?
>
> Thank you,
> Jake
>
> **Jake Bush, MSN, RN**
> Lecturer
>
> University of West Florida
> 11000 University Pkwy
> Building 37; Room 113B
> Pensacola, FL 32514
>
> 850.529.0383 *Cell*
> jbush@uwf.edu
>
> UNIVERSITY of WEST FLORIDA
>
> BEST COLLEGES U.S.News REGIONAL UNIVERSITIES SOUTH 2021 | Honor Roll GREAT COLLEGES TO WORK FOR 2020 | INSIGHT Excellence in Diversity 2020 Top Colleges for Diversity
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APPENDIX B: IRB APPROVAL

UNIVERSITY OF CENTRAL FLORIDA

Institutional Review Board
FWA00000351
IRB00001138, IRB00012110
Office of Research
12201 Research Parkway
Orlando, FL 32826-3246

EXEMPTION DETERMINATION

January 25, 2021

Dear Jake Bush:

On 1/25/2021, the IRB determined the following submission to be human subjects research that is exempt from regulation:

Type of Review:	Initial Study
Title:	Factors Associated with Resilience in Adult Transgender Persons: Identifying Predictors to Reduce Health Disparities in a Vulnerable Population
Investigator:	Jake Bush
IRB ID:	STUDY00002656
Funding:	None
Grant ID:	None
Documents Reviewed:	• HRP 251 Faculty Advisor Review, Category: Faculty Research Approval; • BRS, Category: Test Instruments; • FB Recruitment Posts.docx, Category: Recruitment Materials; • HRP 254 Consent, Category: Consent Form; • HRP 255 Request for Exemption, Category: IRB Protocol; • SOC-13, Category: Test Instruments; • Sociodemographic Survey, Category: Test Instruments; • The DUKE, Category: Test Instruments; • WIN_20210124_13_31_37_Pro.mp4, Category: Recruitment Materials; • WIN_20210124_13_45_50_Pro.mp4, Category: Recruitment Materials

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 whether these changes affect the exempt status of the human research, please submit a modification request to the IRB. Guidance on submitting Modifications and Administrative Check-in are detailed in the Investigator Manual (HRP-103), which can be found by navigating to the IRB Library within the IRB system. When you have completed your research, please submit a Study Closure request so that IRB records will be accurate.

If you have any questions, please contact the UCF IRB at 407-823-2901 or irb@ucf.edu. Please include your project title and IRB number in all correspondence with this office.

Sincerely,

Katie Kilgore
Designated Reviewer