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Stigma, Gender Dysphoria, and Nonsuicidal Self-Injury in a Community Sample of Transgender Individuals

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Abstract

We investigated rates of nonsuicidal self-injury (NSSI) and correlates of past-year NSSI among transgender people to better understand factors contributing to this health disparity. A community-based sample of 332 transgender people participated in quantitative in-person interviews. The mean age of participants was 34.56 years (SD = 13.78, range = 16–87). The sample was evenly divided between transfeminine spectrum (50.3%) and transmasculine spectrum identities (49.7%) and was diverse in race/ethnicity. We evaluated associations between sociodemographic characteristics, stigma, hypothesized resilience factors, and identity variables with past-year NSSI. 53.3% of participants reported ever having self-injured in their lifetime. Past-year NSSI was reported by 22.3% of the sample and did not significantly differ based on gender identity. In logistic regression models, past-year NSSI was associated with younger age and felt stigma (perceived or anticipated rejection), but not enacted stigma (actual experiences of discrimination), and with gender dysphoria. Efforts to address the high rates of NSSI among transgender people should aim to reduce felt stigma and gender dysphoria, and promote transgender congruence. Future research using a developmental approach to assess variations in NSSI across the life course and in relation to transgender identity development may illuminate additional processes that affect NSSI in this population.

Keywords

gender dysphoria; identity development; minority stress; felt stigma

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1. Introduction

Transgender people are those whose gender identity differs from their sex assigned at birth (Institute of Medicine, 2011). This includes people who identify within a binary system of gender, as a man/transgender man or woman/transgender woman, as well as people who identify outside of a binary system of gender, as bigender (i.e., both man and woman (American Psychological Association, 2015)), genderqueer (i.e., identifying outside of the binary of male or female (Budge et al., 2014)), nonbinary, or gender fluid. Transmasculine spectrum refers to people with a gender identity that is man, transgender or transsexual man, genderqueer, or nonbinary with female sex assigned at birth. Transfeminine spectrum refers to people with a gender identity that is woman, transgender or transsexual woman, genderqueer, or nonbinary with male sex assigned at birth. For the purposes of this article, the term transgender is used as an umbrella term to refer to this diverse population. Data from a probability sample indicate that 0.53% of the U.S. adult population identifies as transgender (Meyer et al., 2017).

Transgender people experience a number of health disparities compared to cisgender (i.e., nontransgender) populations, including depression, anxiety, suicidal ideation and attempts, and nonsuicidal self-injury (NSSI; Bockting et al., 2013; Davey et al., 2016; Marshall et al., 2016; Meyer et al., 2017; Streed et al., 2017). NSSI is the least studied of these disparities. NSSI refers to intentional direct harm to the body's surface without lethal intent (Nock, 2010). The inclusion of proposed criteria for NSSI in the *Diagnostic and Statistical Manual of Mental Disorders*, 5th edition (DSM-5) in the section Conditions for Further Study (American Psychiatric Association, 2013) indicates the increasing interest of clinicians and researchers in NSSI and the need for improved understanding of this behavior.

NSSI appears to occur at higher rates among transgender people than among lesbian, gay, and bisexual people, who are also disproportionately affected compared to the general population (Jackman et al., 2016). Two reviews of the literature found that NSSI is more common among transgender men than transgender women (Jackman et al., 2016; Marshall et al., 2016), however one matched cohort chart review study found no difference in NSSI between these groups (Reisner et al., 2015). Among transgender people, NSSI has been found to be associated with body dissatisfaction, lack of family support, psychological symptoms, lower self-esteem, lower social support, and younger age (Claes et al., 2015; Davey et al., 2016).

Minority stress theory has been proposed as a way to understand the health disparities experienced by transgender populations (Hendricks and Testa, 2012). This theory posits that stigma associated with minority identity confers additional chronic stress, which contributes to negative health outcomes (Meyer, 2003). Minority stress occurs along a continuum from distal processes, known as enacted stigma, which include discrimination, victimization, or harassment, to proximal processes, which include expecting rejection, concealment of identity, and internalized stigma (Meyer, 2003). Research with transgender populations has supported the minority stress model with respect to the negative effects of stigma on mental health, the protective effect of family support and identity pride, and the moderating,

resilience effect of community connectedness and peer support (Bockting et al., 2013; Nuttbrock et al., 2015; Pflum et al., 2015; Rood et al., 2016; Tebbe and Moradi, 2016).

Coping styles have been shown to vary by transition status and to affect mental health, specifically depression and anxiety (Budge et al., 2013). Budge and colleagues (2013) found that compared to participants in later stages of transition, transgender individuals in earlier stages were more likely to rely on avoidant coping strategies, which had a negative influence on their mental health. While gender transition refers to a process that may involve various dimensions including social changes (name, pronouns, hairstyle, clothing) and/or medical interventions (hormones, surgeries), in this study transition status was assessed using a single item that reflected to what degree participants had made changes to live as a transgender person. Their study highlights that throughout the process of transgender identity development, transgender individuals' coping strategies may vary, thus identity-related variables should be examined in relation to NSSI.

Our knowledge about NSSI among transgender people is limited by methodological issues in research to date. Studies of NSSI among transgender people have largely lacked a theoretical foundation. Minority stress theory with NSSI as the outcome of interest may be a useful model to understand the disparities in NSSI in transgender populations. Sampling strategies used in past research limit our understanding of NSSI among transgender people. While studies with clinic-based samples are an important source of information about transgender people (e.g. (Claes et al., 2015; Davey et al., 2016), clinical studies report on a particular segment of the transgender population, often those who meet criteria for a diagnosis of gender dysphoria and/or for other mental health diagnoses (Deutsch, 2016). Clinical samples may also over-represent transgender individuals pursuing gender affirming medical interventions (e.g. hormones, surgery), and exclude transgender individuals who do not want these interventions.

Several studies about NSSI among transgender people report on data gathered from clinical charts or electronic health records (Holt et al., 2016; Peterson et al., 2017; Reisner et al., 2015; Skagerberg et al., 2013; Spack et al., 2012). These are useful sources of existing data, and allow findings to be disseminated quickly without the need for recruitment and original data collection. However, these studies may have the same selection bias as clinical samples and represent a secondary analysis of data collected for clinical rather than research purposes. In these cases data about the research question may be incomplete or of low quality since the original focus of data collection was for the purpose of clinical assessment and decision-making.

Other studies report on online convenience samples (dickey et al., 2015; Walls et al., 2010), which exclude people who lack access to the Internet, are vulnerable to false respondents, and frequently lack racial diversity (Miner et al., 2012; Teitcher et al., 2015). To our knowledge the current study is the first to examine NSSI among a systematically recruited community-based sample of transgender people using in person, interviewer-administered surveys for data collection.

We set out to examine associations between stigma and NSSI in the last year, and tested resilience factors and identity-related variables that emerged from formative, qualitative research (Jackman et al., 2018). The qualitative study revealed that among transmasculine spectrum people who reported self-injury, in addition to stigma at various levels, stressors related to transgender identity development were also important for understanding vulnerability and resilience to NSSI. Therefore, we tested constructs from the minority stress model (Meyer, 2003) including enacted and felt stigma, as well as resilience factors such as family support, support from friends, connectedness to the transgender community, and identity variables (sexual orientation and transgender congruence). We chose past-year NSSI rather than frequency of NSSI as our outcome based on literature which shows that recency of NSSI may be a stronger measure of NSSI severity than frequency (Kiekens et al., 2016; Zielinski et al., 2018). We hypothesized that higher levels of stigma would be associated with higher rates of past-year NSSI. We additionally hypothesized that resilience factors would be negatively correlated with past-year NSSI. We investigated the effects of identity variables that foundational qualitative research indicated may confer additional stress contributing to risk for NSSI.

2. Methods

2.1 Participants and Procedures

The study sample consisted of transgender participants enrolled in Project AFFIRM, a longitudinal study of transgender identity development across the lifespan. Baseline data from the entire sample were analyzed for this study. Project AFFIRM used venue-based recruitment in three major metropolitan areas in the U.S. followed by quota sampling to arrive at a purposive sample diverse in gender identity, age, and race/ethnicity. The venues for recruitment included six categories: bars and clubs/non-bar establishments/outdoors, events (e.g., Pride festivals), groups (e.g., community groups), online (e.g., Facebook), transgender-specific clinical care sites, and other, including referral by a friend. Sampling quotas were based on city (New York City, Atlanta, or San Francisco), sex assigned at birth (male or female), and age category (16–20 years, 21–25, 26–39, 40–60, and 60+). We maximized racial and ethnic diversity in the sample by seeking out venues in communities with high percentages of racial and ethnic minorities and by capping enrollment for White participants. The inclusion criteria were self-identification as a transgender person, age 16 years or older, and fluent in English or Spanish.

Data were collected during face-to-face individual quantitative interviews conducted by trained interviewers at each study site. Data were entered directly into a computerized database by the interviewers using a laptop or tablet during the interview. Interviews lasted approximately 90 minutes. Participants were compensated \$40 in cash. The institutional review board of the New York State Psychiatric Institute/Columbia Psychiatry approved this study.

2.2 Measures

Demographic and identity variables used in this analysis consisted of gender identity, sex assigned at birth, age (continuous variable), race/ethnicity (non-Hispanic White, Hispanic,

African-American, other/mixed races which included American Indian, Alaskan Native, Asian, Hawaiian, Pacific Islander, and more than one race), educational level, and annual personal income. Annual personal income is reported in three categories: \$23,999; \$24,000 - \$47,999; and \$48,000.

In terms of gender identity, participants were classified as transfeminine spectrum (self-identifying as woman, transgender woman, male-to-female, non-binary, genderqueer, or a write-in option while having male sex assigned at birth) or transmasculine spectrum (self-identifying as man, transgender man, female-to-male, non-binary, genderqueer, or a write-in option while having female sex assigned at birth).

Enacted stigma was measured using the Everyday Discrimination Scale adapted from Williams, Yu, Jackson, and Anderson (Meyer et al., 2008; Williams et al., 1997). The measure used in this survey consisted of 11 items that assessed the frequency of the following types of daily discrimination: being threatened or harassed, being called names or insulted, having difficulty finding housing, being treated with less respect, being treated with less courtesy, receiving worse service at stores or restaurants, people acting as if they think you are not smart, people acting as if they think you are dishonest, people acting as if they are afraid of you, people acting as if they are better than you, and having difficulty finding employment. Frequency was measured using a 4-point scale ranging from “never” to “often.” For the first 10 items, if participants reported that these things happened sometimes or often, they were asked to report the main reason for this experience with the response options being ancestry or national origins, gender, race, age, religion, appearance, or sexual orientation. Participants could endorse as many reasons as they felt were applicable. One point was assigned for each time the participant reported that their gender was the reason for their discriminatory experience. Therefore, scores on the enacted stigma measure ranged from 0 to 10 with higher scores representing higher levels of enacted stigma. Cronbach’s alpha in our sample was 0.81.

Felt stigma was measured using the Stigma Consciousness Scale (10 items) (Pinel, 1999) adapted to assess stigma related to one’s transgender identity (Bockting et al., 2013). Items include statements such as “My being transgender does not influence how others act with me” and “When interacting with non-transgender individuals, I feel like they interpret all of my behaviors in terms of the fact that I am transgender.” Participants are asked to rate their agreement with each statement from 1 = “strongly disagree” to 7 = “strongly agree.” Some items were reverse coded so that higher scores represent higher levels of felt stigma. Cronbach’s alpha for this scale in our sample was 0.77.

The hypothesized resilience factors we measured were family support of transgender identity, support from friends, and transgender community connectedness. Family support of transgender identity was assessed using a single item: “How supportive do you feel your family of origin (e.g. parents and/or siblings) is regarding your transgender identity?” Four response options ranged from “not at all” to “to a great extent.” Responses were dichotomized to represent presence or absence of supportive family of origin.

Support from friends was assessed using the four-item friend subscale from the Multidimensional Scale of Perceived Social Support (Zimet et al., 1988). Items include statements such as “My friends really try to help me,” and “I have friends with whom I can share my joys and sorrows.” Statements were rated on a 7-point Likert scale from “strongly disagree” to “strongly agree” with higher scores representing higher levels of support from friends. Cronbach’s alpha for this scale was 0.91 in our sample.

Transgender community connectedness was measured using the five-item subscale from the Gender Minority Stress and Resilience Measure, which assesses the level of connection participants feel to a community who shares their gender identity (Testa et al., 2015). Items included statements such as “I feel part of a community of people who share my gender identity,” and “I’m not like other people who share my gender identity” (reverse scored). Statements were rated on a 7-point Likert scale from “strongly disagree” to “strongly agree” such that higher scores represent higher levels of feeling connected to the transgender community. Cronbach’s alpha for this scale in our sample was 0.83.

We also measured identity-related variables that emerged from formative qualitative research: sexual orientation (participants’ self-reported identity) and transgender congruence. Participants’ identity with regard to sexual orientation was assessed with the question, “Which of the following do you consider yourself to be?” with the response options of straight/heterosexual, lesbian, gay, bisexual, queer, same-gender loving, or other (please specify). Commonly reported identities to the write-in response option were pansexual and asexual, so these responses were manually coded and reported in their own categories.

The Transgender Congruence Scale (12 items) is a validated measure of the degree to which participants feel their appearance represents their gender identity and their degree of acceptance of their gender identity (Kozee et al., 2012). This construct is described as transgender congruence which can be considered in opposition to gender incongruence, the central feature of the Gender Dysphoria diagnosis in the DSM-5 (American Psychiatric Association, 2013). This scale is particularly appropriate for use with our diverse sample of transgender people since it does not rely on a binary conceptualization of gender. Furthermore, testing during development of the scale showed that it is associated with well-being regardless of the number of steps one has taken to transition socially, legally, or medically reflecting that transgender people have unique gender identities and individual paths to affirming their gender identities. In this study, statements were rated on a 7-point Likert scale from “strongly disagree” to “strongly agree” with lower scores representing lower transgender congruence, which can also be interpreted as higher gender dysphoria. Cronbach’s alpha for this scale was 0.90 in our sample.

Our outcome of NSSI was assessed using the short form of the Self Injurious Thoughts and Behaviors Interview (SITBI) with the addition of the four questions from the long version of this measure assessing functions of NSSI (Nock et al., 2007). Items of the SITBI assess several dimensions of NSSI including onset, frequency, duration, severity, impulsivity, and future likelihood of NSSI. The SITBI demonstrated good psychometric properties when tested in an adolescent and young adult population and the item assessing past-year NSSI

showed perfect interrater reliability (Kappa = 1.0) (Nock et al., 2007). The total number of items used to assess NSSI was 16.

2.3 Statistical Analysis

We compared rates of lifetime NSSI and past year NSSI for the entire sample. Differences in demographic characteristics and other variables between participants who reported NSSI in the past 12 months and those who did not were examined using independent samples *t*-tests with Levene's tests for equality of variances, and Pearson's chi-squared tests. Fisher's exact test was conducted in the case of expected cell counts less than five. The criterion for statistical significance was 0.05, two-sided, for all tests. For the multivariable analysis, we used a hierarchical approach to evaluate associations of variables with the dichotomous outcome of NSSI in the past 12 months. In the first step of the model, we entered our two measures of stigma and demographic variables that were significantly different between the groups in order to adjust for these while examining the effects of stigma on past year NSSI. In the second step of the model, we entered additional variables that were significantly different between groups. The results are presented as odds ratios and 95% confidence intervals (CIs). Goodness of fit for each logistic regression model was assessed using Hosmer-Lemeshow tests. Analyses were conducted using SPSS Statistics, version 24.

3. Results

3.1 Lifetime NSSI

The total sample consisted of 332 participants of which 53.3% ($n = 177$) reported having engaged in NSSI in their lifetime. Lifetime history of NSSI was more common among transmasculine spectrum compared to transfeminine spectrum participants (60.5% vs. 39.5%, $p < .001$). Table 1 describes the characteristics of NSSI among participants who reported lifetime NSSI comparing transfeminine and transmasculine spectrum participants. The mean age at first NSSI was 14.11 years (standard deviation (SD) = 5.40, range: 1–41 years). The mean age of most recent NSSI was 25.23 years (SD = 10.64, range: 10–65 years). Transmasculine spectrum participants were of significantly younger current age and reported most recent NSSI at a significantly younger age. Among participants who reported lifetime NSSI, 28.2% ($n = 50$) reported ever having received medical treatment for NSSI. The most common method of NSSI reported was cutting or carving the skin ($n = 127$, 71.8%), followed by hitting oneself on purpose ($n = 110$, 62.1%), picking the skin to the point of drawing blood ($n = 90$, 50.8%), burning the skin ($n = 66$, 37.3%), scraping the skin to the point of drawing blood ($n = 57$, 32.2%), inserting sharp objects into the skin or nails ($n = 51$, 28.8%), and giving oneself a tattoo ($n = 22$, 12.4%). Another 38.4% of participants ($n = 68$) reported a method of NSSI not listed above. Transmasculine spectrum participants were significantly more likely to report cutting or carving the skin and burning the skin compared to transfeminine spectrum participants. In terms of the functions of NSSI, 63.0% ($n = 109$) reported it was a way to get rid of bad feelings, 36.8% ($n = 64$) reported it was due to feeling empty or numb, 12.6% ($n = 22$) reported it was to communicate with someone else or get attention, and 6.9% ($n = 12$) reported it was to get out of doing something or to get away from others.

Transmasculine spectrum participants were significantly more likely to report NSSI as a way to get rid of bad feelings compared to transfeminine spectrum participants. Of all participants who reported lifetime NSSI, 16.6% ($n = 29$) reported it was likely that they would self-injure again in the future.

3.2 NSSI in the Last 12 Months

Of the total sample, 22.3% ($n = 74$) reported having engaged in NSSI in the past 12 months. Table 2 displays the demographic characteristics of the total sample and compares participants who reported NSSI in the last 12 months to those who did not report NSSI in the last 12 months. The mean age of the total sample was 34.56 years ($SD = 13.78$ years, range = 16–87 years). The two groups were similar in gender identity, race/ethnicity, and educational level. The groups significantly differed in age and annual personal income. Participants who had self-injured in the past 12 months were significantly younger and reported lower personal annual income.

Table 3 compares participants who reported NSSI in the last 12 months with those who did not on stigma, resilience factors (family support, support from friends, and transgender community connectedness), and identity variables (sexual orientation and transgender congruence). Participants who reported NSSI in the last 12 months reported higher levels of enacted and felt stigma, lower transgender congruence, which indicates higher gender dysphoria, and were less likely to self-report being heterosexual.

3.3 Associations with NSSI in the Last 12 Months

The initial model with sociodemographic differences and stigma as independent variables significantly predicted NSSI in the last 12 months (omnibus chi-squared (5) = 70.24, $p < 0.001$). Table 4 displays model coefficients, the Wald chi-squared statistic, and odds ratios with 95% confidence intervals for each of the independent variables. This model shows that age and felt stigma were significantly associated with NSSI in the last 12 months, whereas enacted stigma and income were not. An increase of one year of age was associated with a decrease in the odds of NSSI in the last 12 months by a factor of 0.94 (95% CI 0.91 – 0.97). Each unit increase in felt stigma score was associated with an increase in the odds of NSSI by a factor of 2.32 (95% CI 1.55 – 3.46).

Since the hypothesized resilience factors were not significantly different between the groups, we subsequently added the identity variables, transgender congruence and sexual orientation, to the model since these were found to be significantly different between the two groups (NSSI in past 12 months and no NSSI in past 12 months) in the bivariate comparisons. Age, felt stigma, and transgender congruence were significantly associated with NSSI in the last 12 months. The model significantly predicted NSSI in the last 12 months (omnibus chi-squared (7) = 76.80, $p < 0.001$). An increase of one point on the transgender congruence scale was associated with a decrease in the odds of NSSI in the last 12 months by a factor of 0.74 (95% CI 0.56 – 0.98) suggesting that higher levels of gender dysphoria were associated with past year NSSI.

4. Discussion

In comparison with previous reports of NSSI among transgender people, our community-based sample reported high rates of lifetime NSSI (53.3% of the sample). The next highest report in the literature about NSSI among transgender people comes from an online convenience sample of transgender adults where 41.9% of the sample reported a lifetime history of NSSI (dickey et al., 2015). Somewhat lower rates have been reported in clinical samples (e.g., 36.8% (Claes et al., 2015)), however participants reporting NSSI at the same clinic where they receive gender affirming medical care may be motivated to underreport this behavior so as to not jeopardize their access to care (Coleman et al., 2012). In our study, data were collected by research staff at locations unrelated to gender affirming care participants may have been pursuing, so participants may have felt more comfortable reporting behaviors that are stigmatized and potentially of concern with regard to eligibility and readiness for gender affirming hormones and/or surgery. Alternatively, data collected in clinical settings represent a population a transgender people who are connected to care and may be receiving some type of mental health services, which could contribute to lower rates of NSSI. Clinical studies usually collect data upon initiating treatment, however, so participants in such studies may have only recently entered care. The high rates of NSSI in our sample may reflect an unmet need for mental health services in this community-based sample.

The majority of studies of NSSI among transgender people report significantly higher rates among transmasculine spectrum compared to transfeminine spectrum individuals. While this was the case in our sample when considering lifetime history of NSSI, there was no significant difference between the gender groups in NSSI in the last 12 months, which was reported by 22.3% of the sample. This surprising finding is mirrored in another study that, similar to the present study, used self-identification as transgender rather than a clinical diagnosis of gender dysphoria as inclusion criteria and found no differences between gender groups in rates of NSSI (Reisner et al., 2015). It is possible that the lack of difference between our gender groups in last 12 month NSSI could be related to transmasculine spectrum people who on average appear to come out earlier in life compared to transfeminine spectrum people (Bockting et al., 2013, Kuper et al., 2012). As a result, transmasculine spectrum people may be more vulnerable to NSSI at younger ages. Our study only included people 16 years of age and older, so transmasculine spectrum participants may have been most vulnerable to NSSI more than a year before data collection. Further research is needed to examine relationships between developmental tasks, such as coming out, and NSSI. Additionally, future research should include transgender people who are younger, such as early adolescents.

Our results are interesting to view in relation to a large-scale college campus-based study where cisgender women reported lifetime NSSI at nearly twice the rate of cisgender men, however in that sample too, there was no significant difference between the gender groups in NSSI during the last 12 months (Whitlock et al., 2011). Literature about NSSI among cisgender populations reports higher rates among girls and women compared to boys and men in the past 12 months (Bostwick et al., 2014), in their lifetime (Whitlock et al., 2006), and in both the past 12 months and their lifetime (Zubrick et al., 2016). The apparent higher

heritability of NSSI among women compared to men could help to understand this disparity (Maciejewski et al., 2014). Further understanding of differences in NSSI by gender among cisgender and transgender populations will inform our understanding of this behavior and future development of interventions to reduce NSSI.

Our hypothesis regarding the association between stigma and NSSI was partially supported. Felt stigma was associated with NSSI during the last 12 months in all of our regression models, while enacted stigma was not. Felt stigma has been shown to be correlated with negative mental health outcomes, including suicidality and psychological distress among transgender people (Bockting et al., 2013; Lehavot et al., 2016), and has shown the strongest association with suicide-related outcomes among gender minority (Lehavot et al., 2016) and sexual minority adults compared to other types of stigma (Plöderl et al., 2014). The strong association between felt stigma and NSSI may be reflective of the most commonly reported motivation for NSSI, which is to cope with negative emotions (Nock, 2010). Indeed, our participants reported this motivation most often, although in this study of transgender people, the negative emotions may be related to one's transgender identity as reflected by our measure of felt stigma. The lack of significance of enacted stigma on NSSI in the last 12 months may reflect the largely internal nature of motivations for NSSI. These findings underscore the importance of exploring and addressing felt stigma in therapeutic settings with transgender people.

Similar to findings from other studies with transgender and cisgender people, younger age was strongly associated with NSSI (Claes et al., 2015; Davey et al., 2016). In our study, the average age of most recent lifetime NSSI was 25.2 years, which indicates that NSSI continues into young adulthood. In an online convenience sample with an older mean age than our sample (40.4 vs. 34.6 years old), the average age of most recent NSSI was similarly high (27.3 years) (dickey et al., 2015). Since transgender people may come out as transgender at any age, it is possible that age patterns of NSSI may be different in this population compared to cisgender populations. Longitudinal research is needed to understand how NSSI may relate to the trajectory of transgender identity development and the accompanying stressors.

Our study showed that higher levels of gender dysphoria, represented by lower scores on the Transgender Congruence Scale, were a risk factor for NSSI in the last 12 months. Although literature supports the beneficial effects on mental health of gender-affirming hormonal interventions for transgender people (Costa and Colizzi, 2016; Fisher et al., 2016), the Transgender Congruence Scale incorporates a broad understanding of congruence which goes beyond measuring steps to transition. This scale reflects a holistic perspective of the importance of congruence between identity and appearance, and acceptance of gender identity. Building on this finding, efforts to reduce NSSI among transgender people should include psychosocial interventions that target gender dysphoria. Healthcare providers working with transgender people can help them to develop individualized strategies to work toward a feeling of congruence with regards to their gender identity, thereby reducing gender dysphoria and potential vulnerability to NSSI.

Contrary to expectations, family support, support from friends, and transgender community connectedness were not related to NSSI in the last year, although these have been shown to be protective factors for mental health in other studies with transgender populations (Bockting et al., 2013; Nuttbrock et al., 2015; Pflum et al., 2015). Our findings mirror Lehavot and colleagues' (2016) study of transgender veterans, where social support from friends, family, or a significant other and connection to the LGBT community were not associated with suicide-related outcomes. Our unexpected findings on these variables could be related to social functions of NSSI as a sign of in-group membership as found with other identity groups, such as adolescents who identify with such subcultures as Emo, Goth, or Punk (Nock, 2008; Young et al., 2014). Further research is needed to understand the potential relationship between self-identification as someone who self-injures and various types of social support. Additionally, while our measurement of family support for transgender identity was limited to a single item, the lack of significant difference with regards to past year NSSI may indicate that transgender people also require family support around other salient identities, such as sexual orientation.

Strengths of this study include the examination of NSSI among a diverse nonclinical sample of transgender people. Previous studies of NSSI among transgender people have relied on clinical or online convenience samples, so our recruitment and sampling approach may have captured a sample that is comparatively more representative of urban transgender populations in the U.S. Data collection via individual in-person interviews is a strength since it led to high quality data with few missing responses. Additionally, application of the minority stress model extended our knowledge about how stigma affects NSSI among transgender people. The choice of the NSSI in the last 12 months as our main outcome variable, rather than lifetime NSSI, allowed us to gain a better understanding of current reactions to stressors and the effects of selected resilience factors and identity-related variables.

Limitations of our study include the cross-sectional nature of the data, which prevents us from drawing conclusions about causal relationships between the variables. However, the longitudinal nature of Project AFFIRM will allow us, in the near future, to investigate changes in NSSI over time. While our sample was recruited in a variety of venues, all participants were residing in metropolitan areas, which restricts the generalizability of these findings. Additionally, since data were collected through face-to-face interviews, people who were not comfortable disclosing their gender identity may have declined to participate. Participants' responses may have been affected by social desirability such that they underreported NSSI which is a stigmatized behavior. Some of our findings should be interpreted with caution and explored further in future research, such as the effect of non-heterosexual orientation on self-injury, which showed a p-value approaching significance ($p < .10$) with a wide confidence interval. The magnitude of this effect may be a chance finding, or there may be an actual effect that we were not able to detect conclusively in our sample. This may be a result of multiple stigmatized identities (i.e., individuals who have both a gender and a sexual minority identity, such as a transgender man who identifies as gay) conferring additional stress, which can contribute to NSSI, and should be further examined in future studies. Although race/ethnicity was not significantly different between our analytic groups, these identities should continue to be considered in future research

employing an intersectional approach. The fact that we combined people who ever self-injured and those who had never self-injured into one group because of our interest in the proximity in time of NSSI in relation to our measures of stigma, could be considered a limitation since these two groups might be different. Looking at these groups separately in future research could provide important insights into the trajectory of self-injury over time. Finally, while we focused on NSSI as the mental health outcome of interest and included assessment of transgender congruence, other mental health issues and general body image concerns may also play a role in vulnerability to NSSI and these should be investigated in future studies.

4.1 Conclusion

Guided by the minority stress model, we examined rates of NSSI and its correlates by using measures of enacted stigma, felt stigma, resilience factors, and identity variables in a large community sample of transgender people. Felt stigma, gender dysphoria, and younger age were associated with higher rates of NSSI in the last 12 months. Application of the minority stress model in this study allowed us to better understand NSSI in the context of stigma about transgender identity, as well as understand the role of identity development and affirmation. Efforts to address the high rates of NSSI among transgender people should aim to reduce felt stigma and reduce gender dysphoria by improving transgender congruence. Further research should investigate NSSI longitudinally to better understand its relationship to transgender identity development.

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Highlights

- Over half of a community sample of transgender people reported a lifetime history of NSSI.
- Rates of past year NSSI did not differ between transmasculine and transfeminine groups.
- Younger age, felt stigma, and gender dysphoria were associated with past year NSSI.
- Enacted stigma was not associated with past year NSSI.

TABLE 1

Lifetime NSSI among transfeminine and transmasculine spectrum groups ($n = 177$)

Characteristic	All who reported lifetime NSSI ($n = 177$)	Transfeminine spectrum ($n = 70$)	Transmasculine spectrum ($n = 107$)		
	Mean $\pm$ SD	Mean $\pm$ SD	Mean $\pm$ SD	t (df)	p (two-sided)
Age (current)	30.68 $\pm$ 11.98	33.51 $\pm$ 13.53	28.82 $\pm$ 10.50	-2.46 (121.83)	0.015
Age at first NSSI	14.11 $\pm$ 5.40	14.20 $\pm$ 6.66	14.06 $\pm$ 4.42	-.16 (108.56)	0.874
Age at most recent NSSI	25.23 $\pm$ 10.64	27.54 $\pm$ 12.60	23.72 $\pm$ 8.87	-2.21 (113.30)	0.029
	n (%)	n (%)	n (%)	χ^2 (df)	p (two-sided)
Methods of NSSI					
Cut or carved skin	127 (71.8)	39 (55.7)	88 (82.2)	14.69 (1)	< 0.001
Burned skin	66 (37.3)	18 (25.7)	48 (44.9)	6.63 (1)	0.010
Hit self on purpose	110 (62.1)	42 (60.0)	68 (63.6)	0.23 (1)	0.634
Picked to draw blood	90 (50.8)	30 (42.9)	60 (56.1)	2.96 (1)	0.085
Other	68 (38.4)	33 (47.1)	35 (32.7)	3.73 (1)	0.054
Scraped skin to draw blood	57 (32.2)	24 (34.3)	33 (30.8)	0.23 (1)	0.632
Inserted sharp objects	51 (28.8)	23 (32.9)	28 (26.2)	0.92 (1)	0.337
Gave self a tattoo	22 (12.4)	7 (10.0)	15 (14.0)	0.628 (1)	0.428
Functions of NSSI					
Get rid of bad feelings ^a	109 (63.0)	34 (50.0)	75 (71.4)	8.13 (1)	0.004
Due to feeling empty or numb ^b	64 (36.8)	22 (32.4)	42 (39.6)	0.94 (1)	0.332
Communicate or get attention ^b	22 (12.6)	9 (13.2)	13 (12.3)	0.04 (1)	0.851
Get out of doing something or get away from others ^{b,c}	12 (6.9)	6 (8.8)	6 (5.7)	0.65 (1)	0.542
Received medical treatment for NSSI	50 (28.2)	24 (34.2)	26 (24.3)	2.08 (1)	0.149
Likely to self-injure in the future ^d	29 (16.6)	14 (20.3)	15 (14.2)	1.14 (1)	0.286

Note: Degrees of freedom for age variables are less than 177 due to equal variances not assumed based on Levene's test.

^aFour participants with missing data for this item.^bThree participants with missing data for this item.^cOne cell with expected frequency less than five, so Fisher's Exact test conducted.^dTwo participants with missing data for this item.

TABLE 2

Sociodemographic characteristics of transgender participants by NSSI in the last 12 months ($N = 332$)

Characteristic	Total sample ($N = 332$)	NSSI in last 12 months ($n = 74$)	No NSSI in last 12 months ($n = 255$)		
	Mean $\pm$ SD	Mean $\pm$ SD	Mean $\pm$ SD	t (df)	p (two- sided)
Age	34.56 $\pm$ 13.78	26.18 $\pm$ 11.02	36.92 $\pm$ 13.63	6.98 (144.07)	< 0.001
	n (%)	n (%)	n (%)	χ^2 (df)	p (two- sided)
Gender identity				1.67 (1)	0.197
Transfeminine spectrum (male sex assigned at birth)	167 (50.3)	32 (43.2)	132 (51.8)		
Transmasculine spectrum (female sex assigned at birth)	165 (49.7)	42 (56.8)	123 (48.2)		
Race/ethnicity				1.58 (3)	0.665
Non-Hispanic White	145 (44.1)	33 (44.6)	112 (43.9)		
Hispanic	72 (21.9)	18 (24.3)	54 (21.2)		
African-American	50 (15.2)	8 (10.8)	42 (16.5)		
Other ^a	62 (18.8)	15 (20.3)	47 (18.4)		
Education				8.01 (4)	0.091
Less than high school	31 (9.4)	11 (14.9)	20 (7.8)		
High school graduate/GED	38 (11.6)	6 (8.1)	32 (12.5)		
Some college	119 (36.2)	32 (43.2)	87 (34.1)		
College graduate (Bachelor deg.)	83 (25.2)	17 (23.0)	66 (25.9)		
Graduate/professional school	58 (17.6)	8 (10.8)	50 (19.6)		
Annual personal income				13.51 (2)	0.001
\$23,999	188 (58.2)	55 (76.4)	133 (53.0)		
\$24,000-\$47,999	69 (21.4)	11 (15.3)	58 (23.1)		
\$48,000	66 (20.4)	6 (8.3)	60 (23.9)		

^a Other includes American Indian, Alaskan Native, Asian, Hawaiian, Pacific Islander, and more than one race/ethnicity.

TABLE 3

Stigma, resilience factors, and identity related variables of transgender participants by NSSI in the last 12 months ($N = 332$)

Variable	Total sample ($N = 332$)	NSSI in last 12 months ($n = 74$)	No NSSI in last 12 months ($n = 255$)	t (df) or χ^2 (df)	p (two- sided)
	$M \pm SD$ or n (%)	$M \pm SD$ or n (%)	$M \pm SD$ or n (%)		
Stigma					
Everyday Discrimination Scale (Enacted stigma)	2.64 ± 2.59	3.49 ± 2.53	2.39 ± 2.53	-3.27 (327)	0.001
Stigma Consciousness Scale (Felt stigma)	4.92 ± 0.97	5.48 ± 0.72	4.75 ± 0.98	-7.02 (158.36)	< 0.001
Resilience factors					
Family support	228 (69.7)	45 (60.8)	183 (72.3)	3.60 (1)	0.058
Multidimensional Scale of Perceived Social Support (Friend subscale)	5.73 ± 1.20	5.84 ± 1.06	5.70 ± 1.24	$-.84$ (326)	0.403
Gender Minority Stress and Resilience Measure (Transgender community connectedness subscale)	3.37 ± 0.84	3.35 ± 0.83	3.38 ± 0.84	$.24$ (326)	0.807
Identity related variables					
Transgender Congruence Scale	4.98 ± 1.19	4.34 ± 1.08	5.14 ± 1.15	5.36 (326)	< 0.001
Sexual orientation (self-reported) ^a				24.32 (6)	0.001
Heterosexual	74 (22.5)	5 (6.8)	68 (26.9)		
Gay/lesbian/same gender loving	45 (13.7)	6 (8.2)	38 (15.0)		
Bisexual	48 (14.6)	11 (15.1)	37 (14.6)		
Queer	116 (35.3)	32 (43.8)	83 (32.8)		
Pansexual	26 (7.9)	11 (15.1)	15 (5.9)		
Asexual	8 (2.4)	4 (5.5)	4 (1.6)		
Another option	12 (3.6)	4 (5.5)	8 (3.2)		

Note: Degrees of freedom may be less than 332 due to missing data or because equal variances not assumed based on Levene's test.

^aTwo cells with expected count less than five, so Fisher's exact test conducted.

TABLE 4

Logistic regression of NSSI in the last 12 months on age, income, stigma, transgender congruence, and sexual orientation ($N = 332$)

Variable	Step 1			Step 2		
	<i>B</i> (SE)	Wald χ^2	Odds ratio (95% CI)	<i>B</i> (SE)	Wald χ^2	Odds ratio (95% CI)
Age	−0.07 (0.02)	15.63	0.94 (0.91 – 0.97)***	−0.06 (0.02)	10.98	0.95 (0.91 – 0.98)***
Income \$23,999 (ref. group)	-	-	-	-	-	-
Income \$24,000–\$47,999	−0.67 (0.40)	2.76	0.51 (0.23–1.13) [^]	−0.63 (0.41)	2.36	0.53 (0.24–1.19)
Income \$48,000	−0.54 (0.52)	1.08	0.58 (0.21–1.62)	−0.47 (0.53)	0.77	0.63 (0.22–1.78)
Enacted stigma	0.01 (0.06)	0.04	1.01 (0.89 – 1.15)	0.03 (0.07)	0.15	1.03 (0.90 – 1.17)
Felt stigma	0.84 (0.20)	16.95	2.32 (1.55 – 3.46)***	0.70 (0.22)	10.15	2.01 (1.31 – 3.08)***
Transgender Congruence Scale				−0.30 (0.14)	4.34	0.74 (0.56 – 0.98)*
Non-heterosexual orientation ^a				0.87 (0.53)	2.74	2.40 (0.85 – 6.75) [^]

^aSexual orientation dichotomized to heterosexual vs. all other (i.e. non-heterosexual).

Model statistics for step 1: Omnibus chi-squared = 70.24, $df = 5$, $p < 0.001$

Model statistics for step 2: Omnibus chi-squared = 76.80, $df = 7$, $p < 0.001$

* $p = 0.05$

** $p = 0.01$

*** $p = 0.001$

[^] $p < 0.10$