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# Self-Reported Changes in Attractions and Social Determinants of Mental Health in Transgender Adults

**Sabra L. Katz-Wise**[1,2,8], **Sari L. Reisner**[2,3,4,5], **Jaclyn M. White Hughto**[5,6], and **Stephanie L. Budge**[7]

[1]Division of Adolescent/Young Adult Medicine, Boston Children's Hospital, Boston, MA

[2]Department of Pediatrics, Harvard Medical School, Boston, MA

[3]Division of General Pediatrics, Boston Children's Hospital, Boston, MA

[4]Department of Epidemiology, Harvard T.H. Chan School of Public Health, Boston, MA

[5]The Fenway Institute, Fenway Health, Boston, MA

[6]Chronic Disease Epidemiology, Yale School of Public Health, New Haven, CT

[7]Department of Counseling Psychology, University of Wisconsin – Madison, Madison, WI

## Abstract

This study examined associations between changes in self-reported attractions and mental health in a community-based sample of self-identified transgender adults. Participants were purposively recruited in 2013 using bimodal sampling methods and completed a one-time survey. Multivariable logistic regression models estimated Adjusted Risk Ratios (aRR) and 95% Confidence Intervals (95% CI) to examine associations between changes in attractions and mental health outcomes (lifetime self-harm, suicide attempts, depression diagnosis; past-week clinically significant depressive distress assessed via CES-D 10) among the entire sample ($N$ = 452; 285 female-to-male spectrum, 167 male-to-female spectrum) and after gender transition among those who had socially transitioned ($n$ = 205; 156 female-to-male spectrum, 49 male-to-female spectrum). Models were adjusted for known population social determinants (age, race/ethnicity, gender identity, socioeconomic status, sexual orientation identity), transgender-specific determinants (age of transgender realization, social transition, medical transition, visual gender nonconformity, non-binary gender identification), and survey mode (online vs. in-person sampling). Lifetime changes in attractions were significantly associated with increased probability of all mental health outcomes; individuals reporting any change in attractions were more likely than individuals not reporting changes to indicate lifetime self-harm, suicide attempts, depression diagnosis, and current depressive distress (all $p$'s < .05). Changes in attractions post-social transition were not significantly associated with mental health outcomes. Many, but not all, population and transgender-specific social determinants were significantly associated with mental health in the full sample and among those who had socially transitioned. Clinical implications of findings about changes in attractions and mental health are discussed for transgender individuals.

[8]To whom correspondence should be addressed: Sari Reisner at The Fenway Institute, Fenway Health, 1340 Boylston Street, 8th Floor, Boston, MA 02215; sreisner@fenwayhealth.org.

**Keywords**

gender minority; transgender; sexual fluidity; mental health

## INTRODUCTION

Transgender individuals (i.e., gender minorities) identify with a different gender from their sex assigned at birth (Institute of Medicine, 2011). The link between having a transgender identity and negative mental health outcomes is well-established (Bockting, Miner, Swinburne Romine, Hamilton, & Coleman, 2013; Budge, Adelson, & Howard, 2013; Clements-Nolle, Marx, & Katz, 2006; Dhejne, Van Vlerken, Heylens, & Arcelus, 2016; Dickey, Reisner, & Juntunen, 2015; Liu & Mustanski, 2012; Reisner et al., 2015; Zucker, Lawrence, & Kreukels, 2016) and typically attributed to experiences of minority stress related to the social stigmatization of being transgender (Hendricks & Testa, 2012; Meyer, 2003; Reisner, Greytak, Parsons, & Ybarra, 2014; Testa, Habarth, Peta, Balsam, & Bockting, 2015). An understudied potential sexual minority stressor is sexual fluidity, which refers to shifts in the directionality of one or more dimensions of sexual orientation (e.g., attractions, sexual orientation identity) over time (Diamond, 2008; Katz-Wise, 2014). Sexual fluidity may represent a sexual minority stressor as individuals move toward or away from a sexual minority orientation, which may change exposure to sexual orientation-related prejudice and discrimination; however, this has not been empirically tested. A small number of studies have examined associations between sexual fluidity and health outcomes among cisgender (non-transgender) individuals (Everett, 2015; Everett, Talley, Hughes, Wilsnack, & Johnson, 2016; Katz-Wise et al., 2014; Ott et al., 2013), but no research to our knowledge has examined associations between changes in attractions and mental health among transgender individuals. The current study begins to fill this gap by investigating links between changes in attractions and mental health outcomes and related social determinants in a community-based study of transgender adults in Massachusetts.

Sexual orientation among transgender individuals has traditionally been defined in reference to transgender individuals' assigned birth sex (American Psychiatric Association, 1987); for example, an individual who was assigned female at birth and identifies as a man would be described as heterosexual (i.e., androphilic) if they were sexually oriented toward men. Many transgender individuals today use sexual orientation terms in reference to their current gender identity, rather than their sex assigned at birth. In this case, the transgender individual described above might identify as gay. However, it is also common for transgender individuals to identify their sexual orientation using the term "queer." One study of over 400 transgender adults found that 43% identified their sexual orientation as queer (Katz-Wise, Reisner, Hughto, & Keo-Meier, 2015). The use of a queer identity among transgender individuals may bypass the complexity of considering whether sexual orientation is in reference to an individual's assigned sex at birth or gender identity.

Sexual fluidity is defined as changes in one or more dimensions of sexual orientation (attractions, identity, sexual behavior) toward heterosexuality (e.g., identifying as bisexual and then as heterosexual) or toward a sexual minority (non-heterosexual) orientation (e.g.,

attractions toward a different gender and then attractions toward more than one gender). Research on sexual fluidity in cisgender individuals has indicated that changes occur more frequently among sexual minority individuals compared to heterosexual individuals (Ott, Corliss, Wypij, Rosario, & Austin, 2011; Savin-Williams, Joyner, & Rieger, 2012), and some studies have found that sexual minority women and men are equally likely to report experiencing sexual fluidity (Katz-Wise, 2014; Kinnish, Strassberg, & Turner, 2005; Ott et al., 2011). Sexual fluidity has been documented among both trans feminine (male-to-female; MTF) individuals and trans masculine (female-to-male; FTM) individuals (Auer, Fuss, Höhne, Stalla, & Sievers, 2014; Coleman, Bockting, & Gooren, 1993; Daskalos, 1998; Katz-Wise, 2015a; Meier, Pardo, Labuski, & Babcock, 2013). However, only two studies have compared trans feminine individuals with trans masculine individuals in the same study. A U.S. community-based study found greater sexual fluidity among trans masculine individuals compared to trans feminine individuals (Katz-Wise, 2015a), and a German study using a clinical sample of transgender individuals found no significant difference in prevalence of sexual fluidity between trans feminine and trans masculine individuals (Auer et al., 2014).

Sexual fluidity may have implications for health via a sexual minority stress pathway (Meyer, 2003). A large body of previous research indicates that minority stress has negative implications for both physical and mental health of sexual minorities (Institute of Medicine, 2011; Kuyper & Fokkema, 2011; Meyer, 2003). For instance, institutional stigma, in the form of bans on same-sex marriage, is associated with increased risk for mental health concerns among sexual minorities, but not among heterosexuals (Hatzenbuehler, McLaughlin, Keyes, & Hasin, 2010). In this study, heterosexuals and sexual minorities both reported increased prevalence of panic disorder and generalized anxiety disorder during the time period following implementation of a ban on same-sex marriage; however, the magnitude of the increase was smaller among heterosexuals compared to sexual minorities (e.g., heterosexuals reported a 61% increased prevalence of generalized anxiety disorder, compared to a 248% increase among sexual minorities). Individuals shifting toward a sexual minority orientation may experience greater minority stress as they cross into a sexual minority status, although this has not been empirically tested. For instance, an individual who previously had different-gender attractions and now has same-gender attractions may experience prejudice if others are made aware of these attractions. Conversely, individuals shifting toward heterosexuality may do so as a reaction to experiencing minority stress. A small number of studies have examined links between sexual fluidity and health risks among cisgender individuals, finding that sexual fluidity in sexual orientation identity was associated with greater substance use among female and male adolescents (Ott et al., 2013), higher body mass index among female adolescents (Katz-Wise et al., 2014), and increased depressive symptoms among individuals whose identity shifted toward same-gender orientation (Everett, 2015). However, no research has yet examined associations between changes in attractions and mental health outcomes among transgender individuals.

Potential associations between changes in attractions and mental health among transgender individuals may be related to known population social determinants and to hypothesized transgender-specific determinants. Social determinants are multiple and intersecting conditions that influence population-level health and well-being (Healthy People 2020,

2014; World Health Organization & Calouste Gulbenkian Foundation, 2014), and contribute to social inequities by restricting access to money, power, and resources, in turn increasing risk for psychiatric distress (World Health Organization & Calouste Gulbenkian Foundation, 2014). In addition to known population social determinants, such as race/ethnicity and socioeconomic status (SES), a number of transgender-specific determinants may be related to associations between changes in attractions and mental health: age of realization of transgender identity, social transition, visual gender conformity, and non-binary identification.

Previous research on demographic and psychosocial factors associated with psychological distress among a community-based sample of transgender individuals in Australia found that younger age was associated with greater psychological distress (Bariola et al., 2015). Realization of transgender identity at a younger age may be related to adverse mental health in part because individuals have more difficulty regulating their emotions during adolescence (Riediger & Klipker, 2014), which may be compounded by minority stress related to transgender identity. For example, it may be that earlier age of transgender identity recognition translates into longer duration of exposure to and internalization of transgender stigma. Adverse mental health of transgender individuals may also be related to stress inherent to incongruence between sex assigned at birth and gender identity, which may emerge earlier for individuals who realize their transgender identity at a younger age. Conversely, realization of transgender identity at a younger age may be protective for mental health, particularly if an individual receives gender affirmative treatment at a young age. Indeed, recent research on long-term outcomes of medical gender affirming treatment found that transgender youth who received such treatment during adolescence had improved psychological functioning by young adulthood (de Vries, Steensma, Wagenaar, Doreleijers, & Cohen-Kettenis, 2014); however, we know little about the effects of age of realization independent from medical gender affirming treatment. More research is needed to determine whether realization of transgender identity at a younger age is protective for mental health or whether it puts individuals at greater risk for adverse mental health outcomes.

Social transition, living “full-time” in one’s felt gender identity and expression (Budge et al., 2013a), is recommended as a treatment for gender dysphoria resulting from incongruence between one’s assigned birth sex and gender identity (Coleman et al., 2011), and may improve mental health. Previous research has indicated that transgender individuals who are farther along in their social gender transition report less distress (Bailey, Ellis, & McNeil, 2014; Blanchard, Steiner, & Clemmensen, 1985; Budge et al., 2013a; 2013b). Therefore, individuals who have socially transitioned might be better emotionally equipped to handle any stigma that may result from experiencing changes in attractions. Individuals who have higher visual gender nonconformity (i.e., their current gender expression does not match the traditional gender expression associated with their assigned birth sex or their current gender identity) have poorer mental health because they experience more prejudice and discrimination compared to individuals who are more visibly gender conforming (Grant et al., 2011). Non-binary gender identification (e.g., genderqueer individuals who do not identify as a woman or a man) may negatively affect mental health due to the complexities of living within a system that is largely based on the female/male gender binary (Budge, Rossman, & Howard, 2014).

The aim of the current study was to examine associations between lifetime changes in attractions and mental health outcomes (lifetime: self-harm, suicide attempts, depression diagnosis; current: past-week clinically significant depressive distress) among transgender and adults. This study also examined associations between changes in attractions post-social transition (e.g., being attracted to one gender prior to social gender transition and being attracted to another gender after social transition) and mental health outcomes among transgender adults who reported social transition. The relationship between changes in attractions and mental health outcomes was explored alongside: (1) known population-level social determinants of mental health (age, race/ethnicity, gender identity: trans feminine vs. trans masculine, SES, sexual orientation identity); and (2) transgender-specific determinants of mental health (age of transgender realization, social gender transition, medical gender transition, visual gender nonconformity, binary vs. non-binary gender identification). The hypothesis tested was that, compared to individuals who did not report changes in attractions, transgender adults reporting changes in attractions would have poorer mental health outcomes in general and among those who had socially transitioned.

## METHOD

### Participants

A total of 452 self-identified transgender adults (285 female-to-male spectrum, 167 male-to-female spectrum), ages 18 to 75 years, were recruited for Project VOICE, a collaboration between The Fenway Institute at Fenway Health and the Massachusetts Transgender Political Coalition. A community-based sample of Massachusetts residents was purposively recruited in 2013 using bimodal (online and in-person) recruitment methods. Eligibility criteria included: age 18 years or older, self-identification as transgender or gender nonconforming, residency in Massachusetts for three months or more in the past year, and English or Spanish literacy at the $5^{th}$ grade level. Sociodemographic characteristics are shown in Table 1. The Fenway IRB approved all study activities.

### Measures

#### Primary Statistical Predictor

**Changes in attractions:** Lifetime changes in attractions was assessed with one item: “Have you ever experienced a change in attractions to others? (for example, feeling only attracted to women, then feeling attracted to both women and men)” (yes, no). This item has been previously used in a study assessing changes in attractions in sexual minority youth (Katz-Wise, 2013). If participants responded yes, they completed a second item developed for the current study which assessed changes in attractions post-social transition, “Did you experience a change in attractions to others after recognizing you were transgender and/or gender nonconforming? (for example, feeling only attracted to women before transition, then feeling attracted to both women and men after transition)” (yes, no).

#### Outcomes

**Self-harm:** Lifetime self-harm was assessed with one item from the Youth Risk Behavior Survey (Centers for Disease Control and Prevention, 2013), “Have you ever engaged in self-

injurious behavior (e.g., burning, cutting, severe scratching, hitting, etc.) to hurt yourself intentionally (i.e., on purpose) and without suicidal or lethal intent?" (yes, no).

**Suicide attempts:** Lifetime suicide attempts were assessed with one item from the National Transgender Discrimination Survey (Grant et al., 2011), "Have you ever attempted suicide?" (yes, no).

**Depression diagnosis:** Lifetime depression diagnosis was assessed with one item adapted from the 2012 Behavioral Risk Factor Surveillance System Questionnaire (Centers for Disease Control and Prevention, 2012). Participants were asked if a doctor, nurse, or other health professional had diagnosed them with a "depressive disorder such as depression, major depression, dysthymia, or minor depression" (yes, no).

**Depressive distress:** Clinically significant depressive distress in the past week was assessed using the 10-item Center for Epidemiologic Studies Depression Scale (CES-D-10) (Andresen, Malmgren, Carter, & Patrick, 1994), which has been used previously with transgender individuals (Budge et al., 2013a). Responses were assessed on a 4-point Likert scale ranging from 0 (rarely or none of the time) to 3 (all of the time). A summary score was calculated for each participant (range, 0–30). Participants were classified as experiencing clinically significant levels of depressive symptoms if their CES-D score was ≥ 10. Reliability for the current sample was $\alpha = 0.89$, which is comparable ($\alpha = 0.88$) to other studies of transgender adults (Gamarel, Reisner, Laurenceau, Nemoto, & Operario, 2014).

### Covariates, Population-Level Social Determinants

**Age:** Current age in years was assessed continuously using a measure from the 2012 Behavioral Risk Factor Surveillance System Questionnaire (Centers for Disease Control and Prevention, 2012).

**Race/ethnicity:** Race and ethnicity were assessed using a measure from the 2012 Behavioral Risk Factor Surveillance System Questionnaire (Centers for Disease Control and Prevention, 2012). Specifically race and ethnicity were measured as separate items and recoded into the following groups: White non-Hispanic, Black non-Hispanic, Hispanic/Latino, other race/ethnicity non-Hispanic, multiracial non-Hispanic.

**Gender identity:** Gender identity was assessed using a two-step method validated in a study of sexual and gender minorities (Reisner et al., 2014c) with two items: (1) assigned sex at birth (female, male) and (2) current gender identity (male; female; female-to-male [FTM]/trans man; male-to-female [MTF]/trans woman; genderqueer, gender variant, gender nonconforming; or other). The two items were cross-tabulated to categorize participants as trans feminine (woman/MTF/trans woman; $n = 167$) or trans masculine (man/FTM/trans man; $n = 285$) according to assigned sex at birth. Binary vs. non-binary gender identity was coded separately (see "Binary vs. non-binary gender identification" below).

**Socioeconomic status:** Perceived income/class was assessed with one item used previously in a national study of sexual and gender minorities (Reisner et al., 2014a) measured on a 4-point scale (0 to 3) with the following response options: no income, low income/lower class,

middle income/middle class, high income/upper class. Educational attainment was measured on a 4-point scale (1 to 4) with the following response options: high school or less, some college, 4-year college degree, graduate school. A higher score on each variable indicated higher SES.

**Sexual orientation identity:** Sexual orientation identity was assessed with one item adapted from a study of transgender adults (Xavier, Honnold, & Bradford, 2007), "How do you currently identify your sexual orientation?" (straight/heterosexual, gay/lesbian/same-gender attracted, bisexual, queer, questioning, I do not label my sexual orientation, unsure, asexual, other), which was recoded into: straight, gay/lesbian, bisexual, queer, and other/non-binary (questioning, I do not label my sexual orientation, unsure, asexual, other).

### Covariates, Transgender-Specific Social Determinants

**Age of transgender realization:** Age (in years) of first awareness of transgender identity was assessed continuously with one item adapted from a study of transgender adults (Xavier et al., 2007), "How old were you when you first became aware that you were transgender or gender nonconforming?"

**Social gender transition:** Social gender transition was assessed with one item previously used in research with transgender adults (Xavier et al., 2007), "Do you consistently present (live 'full-time') in your identified gender?" (yes, no).

**Medical gender transition:** Medical gender affirmation was assessed with the following item used in prior research with transgender adults (Reisner et al., 2014b). Specifically, medical gender transition was assessed by asking participants whether or not they had medically affirmed their gender via cross-sex hormones, surgery, or other medical interventions/technologies to change their bioanatomy (yes, no).

**Visual gender nonconformity:** Visual gender nonconformity was assessed with one item from the National Transgender Discrimination Survey (Grant et al., 2011), "People can tell I'm transgender or gender nonconforming even if I don't tell them." Responses were assessed on a 5-point Likert scale from 0 (never) to 4 (always). Consistent with prior research (Grant et al., 2011), the item was recoded into low (never or occasionally), moderate (sometimes), or high (mostly of the time or always) visual gender nonconformity.

**Binary vs. non-binary gender identification:** Binary (man/FTM/trans man, woman/MTF/trans woman) vs. non-binary (genderqueer, gender variant, gender nonconforming) gender identity was coded based on participant's response to the current gender identity item (see "Gender identity" above).

## Procedure

Participants completed a one-time quantitative survey via Computer-Assisted Self Interview. The survey was completed either online ($n = 397$) or in-person ($n = 55$) via electronic tablet. All participants gave informed consent prior to completing the survey. Following survey completion, participants had the option of being entered into a raffle for one of two

electronic tablets. Additional details regarding study methodology and procedures are reported elsewhere (Reisner et al., 2014e).

### Statistical Analyses

SAS® version 9.3 statistical software was used to analyze data. Univariable descriptive statistics were obtained for all variables of interest. Distributions of individual items were assessed, including missingness. Because missingness was differential and violated the missing completely at random assumption required for valid statistical inferences using listwise deletion (Allison, 2001), data were multiply imputed. A fully conditional specification imputation method (Van Buuren, 2007; Van Buuren, Brand, Groothuis-Oudshoorn, & Rubin, 2006) was used as in previous transgender research (Reisner et al., 2014b). All subsequent statistical analyses were conducted in the imputed dataset.

Analyses compared prevalence of mental health outcomes by lifetime changes in attractions (yes/no) among the entire sample ($N$ = 452) and changes in attractions post-social transition (yes/no) among those who reported social gender transition ($n$ = 205). First, crude unadjusted logistic regression models were fit. Second, multivariable logistic regression models were fit with lifetime changes in attractions (yes/no) as the primary statistical predictor and mental health indicators as outcomes, adjusting for key population-level social determinants, transgender-specific social determinants, and survey mode (study design covariate). Second, the sample was restricted to participants who reported social gender transition ($n$ = 205) and multivariable logistic regression models were fit with changes in attractions post-social transition (yes/no) as the primary statistical predictor and mental health indicators as outcomes, adjusting for other social determinants as indicated above. Adjusted Risk Ratios (aRR) were estimated (Spiegelman & Hertzmark, 2005) rather than odds ratios because the prevalence of outcomes were >10%.

## RESULTS

Table 1 shows the distribution of sociodemographic characteristics and predictors. Table 2 shows unadjusted crude risk ratios examining the association of changes in attractions with mental health outcomes. Table 3 shows multivariable logistic regression models regressing mental health outcomes on lifetime changes in attractions and other social determinants. Table 4 shows multivariable logistic regression models regressing mental health outcomes on changes in attractions post-social transition.

### Changes in Attractions and Mental Health

In the full sample, 58.2% of participants reported lifetime changes in attractions (Table 1). Results from the unadjusted crude models indicated that individuals reporting lifetime changes were significantly more likely to indicate self-harm, suicide attempts, depressive diagnosis, and current depressive distress (Table 2). Among individuals who had socially transitioned, 64.6% reported changes in attractions post-social transition (Table 1). Individuals reporting changes in attractions post-social transition were significantly more likely to indicate a depression diagnosis, but not other mental health outcomes (Table 2).

### Lifetime Changes in Attractions and Mental Health

Results from the multivariable logistic regression models indicated that in the full sample, lifetime changes in attractions significantly predicted self-harm, suicide attempts, depression diagnosis, and depressive distress, such that individuals reporting changes in attractions were significantly more likely to indicate each of these mental health outcomes (Table 3). Among individuals who had socially transitioned, changes in attractions post-social transition did not predict any of the mental health outcomes (Table 4).

### Population-Level Social Determinants and Mental Health

**Self-Harm—**In the full sample, all five population-level social determinants were significant for individuals reporting self-harm. On average, these individuals were younger, White, trans masculine, and had an other/non-binary sexual orientation identity and a lower income (Table 3). Among those who had socially transitioned, three of the five determinants were significant for individuals reporting self-harm. On average, these individuals were trans masculine, and had an other/non-binary sexual orientation identity and less education (Table 4).

**Suicide Attempts—**In the full sample, all five population-level social determinants were significant for individuals reporting suicide attempts. On average, these individuals were older, multiracial, trans masculine, straight, and had a lower income and less education (Table 3). Among those who had socially transitioned, four of the five determinants were significant for individuals reporting suicide attempts. On average, these individuals were older, Black, straight, and had a lower income and less education (Table 4).

**Depression Diagnosis—**In the full sample, all five population-level social determinants were significant for individuals reporting a depression diagnosis. On average, these individuals were older, Hispanic/Latino or multiracial, trans masculine, gay/lesbian, and had a lower income and less education (Table 3). Among those who had socially transitioned, all five determinants were significant for individuals reporting a depression diagnosis. On average, these individuals were older, Hispanic/Latino, trans masculine, straight, and had less education (Table 4).

**Depressive Distress—**In the full sample, only two of the five population-level social determinants were significant for individuals reporting depressive distress. On average, these individuals were Black, Hispanic/Latino, or multiracial, and had a lower income and less education (Table 3). Among those who had socially transitioned, three of the five determinants were significant for individuals reporting depressive distress. On average, these individuals were Black, straight, and had less education (Table 4).

### Transgender-Specific Social Determinants and Mental Health

**Self-Harm—**In the full sample, four of the five transgender-specific social determinants were significant for individuals reporting self-harm. On average, these individuals had a younger age of transgender realization; had a medical transition, but not a social transition; and had high visual gender nonconformity (Table 3). Among those who had socially

transitioned, only one of the five determinants was significant for individuals reporting self-harm; these individuals had moderate or low visual gender nonconformity (Table 4).

**Suicide Attempts—**In the full sample, three of the five transgender-specific social determinants were significant for individuals reporting suicide attempts. On average, these individuals had a younger age of transgender realization, moderate visual gender nonconformity, and a non-binary gender identity (Table 3). Among those who had socially transitioned, two of the five determinants were significant for individuals reporting suicide attempts. On average, these individuals had a younger age of transgender realization and moderate visual gender nonconformity (Table 4).

**Depression Diagnosis—**In the full sample, only two of the five transgender-specific social determinants were significant for individuals reporting a depression diagnosis. On average, these individuals had no social transition and high visual gender nonconformity (Table 3). Among those who had socially transitioned, two of the five determinants were significant for individuals reporting a depression diagnosis. On average, these individuals had a younger age of transgender realization and moderate or low visual gender nonconformity (Table 4).

**Depressive Distress—**In the full sample, four of the five transgender-specific social determinants were significant for individuals reporting depressive distress. On average, these individuals had a younger age of transgender realization, no social transition, high visual gender nonconformity, and a non-binary gender identity (Table 3). Among those who had socially transitioned, only two of the four determinants were significant for individuals reporting depressive distress. On average, these individuals had a medical transition and a non-binary gender identity (Table 4).

## DISCUSSION

The aim of this study was to examine associations between changes in attractions and mental health outcomes among transgender individuals. This study also examined associations between social determinants–both general population-level and transgender-specific–and lifetime and current mental health indicators. Nearly 60% of participants, ages 18 to 75 years, in the current study reported lifetime changes in attractions. By comparison, in a study of prevalence of changes in attractions among cisgender adults in New Zealand during the ages of 21 to 38 years, the greatest change (16%) was among women during the ages of 26 to 32 years (Dickson, van Roode, Cameron, & Paul, 2013). Although it was not possible to examine at which point during the lifespan the changes in attractions occurred in the current study, it appears that prevalence of changes in attractions may be higher among transgender individuals compared to cisgender individuals. Future studies should examine this using a sample that includes both cisgender and transgender individuals to allow for a direct comparison.

In the current study, lifetime changes in attractions was significantly associated with all mental health outcomes, in that individuals reporting changes in attractions were more likely than individuals not reporting changes in attractions to indicate adverse mental health.

Experiencing shifts toward or away from sexual minority status may be indicative of underlying minority stress processes, thereby negatively affecting mental health. Importantly, changes in attractions post-social transition was not associated with any mental health outcomes. The current research also found that individuals who had socially transitioned were significantly less likely than those who had not socially transitioned to report self-harm, depression diagnosis and depressive distress, independent of changes in attractions. These findings are consistent with research showing that social transition is associated with better mental health (Budge et al., 2013a; 2013b) and support the World Professional Association for Transgender Health standards of care, which recommend social transition as a treatment for alleviating psychiatric distress (Coleman et al., 2012).

The known population social determinants of age, race/ethnicity, gender identity, SES, and sexual orientation identity were all associated with at least one mental health outcome both in the full sample and among those who had socially transitioned. Some determinants were more consistently associated with a mental health outcome than other determinants. In the full sample, sexual orientation identity was associated with only two of the four mental health outcomes, age and gender identity were associated with three outcomes, and race/ethnicity and SES were associated with all four mental health outcomes. Among those who had socially transitioned, age and gender identity were associated with only two of the four mental health outcomes, race/ethnicity was associated with three outcomes, and sexual orientation identity and SES were associated with all four mental health outcomes.

Some associations were straightforward; for instance, higher SES was associated with lower risk of all mental health outcomes overall. This finding is consistent with research in diverse populations linking higher SES to better emotional health (Link & Phelan, 2005). However, some social factors were negatively associated with one mental health outcome, but positively associated with another. For instance, being Black non-Hispanic appeared to be a risk factor for depressive distress among both samples and for suicide attempts among those who had socially transitioned, but it was a protective factor for self-harm in the full sample. Population-level social determinants appear to be associated with mental health outcomes in complex ways among transgender individuals. Among sexual minorities, racial/ethnic minority status may result in additive minority stress due to having multiple intersecting stigmatized identities that negatively impact health (Balsam, Molina, Beadnell, Simoni, & Walters, 2011; Bowleg, 2013; Bowleg, Huang, Brooks, Black, & Burkholder, 2003; Consolacion, Russell, & Sue, 2004). Additional research is needed to understand how social transition and changes in attractions impact mental health among racially and ethnically diverse transgender populations.

One of the novel findings from this study regarding known social determinants was that individuals reporting a sexual minority identity had lower risk of suicide attempts compared to individuals reporting a straight/heterosexual identity, both in the full sample and post-social transition subsample. The majority of research on suicidality and sexual orientation has found higher rates of suicidality among sexual minorities compared to heterosexual individuals (Marshal et al., 2011). A recent study of demographic and psychosocial factors associated with psychological distress among transgender individuals in Australia found that identifying as heterosexual was associated with greater resilience (Bariola et al., 2015).

However, the current study found that identifying as heterosexual was associated with more adverse mental health than identifying as a sexual minority. It is possible that transgender individuals who are also sexual minorities benefit from being a part of sexual minority communities who may provide support for both sexual orientation and gender identity (i.e., LGBT communities). Indeed, studies show that group affiliation is protective against poor mental health, particularly for sexual and gender minorities, as group affiliation provides individuals with social support, a sense of belonging and, in some cases, encourages collective activism allowing individuals to combat the effects of minority stress and stigma (Ashmore, Deaux, & McLaughlin-Volpe, 2004; Ramirez-Valles, Kuhns, Campbell, & Diaz, 2010; Testa, Jimenez, & Rankin, 2014; White Hughto, Reisner, & Pachankis, 2015). Conversely, transgender individuals who are straight/heterosexual may not have access to these benefits and may face additional barriers related to dating other straight-identified individuals. It may be possible that some participants in the current study responded to the sexual orientation measure based on their sex assigned at birth rather than their gender identity, which may complicate the interpretations of these findings. Future longitudinal research should more closely examine how sexual orientation identity is related to mental health over time among transgender individuals, and whether support received from sexual minority group membership may play a role in these associations.

Many, but not all, transgender-specific social determinants were significantly associated with mental health in the full sample and among those who had socially transitioned. Some determinants were more consistently associated with a mental health outcome than other determinants. In the full sample, medical transition was associated with only one of the four mental health outcomes, gender identity was associated with only two outcomes, age of transgender realization and social transition were associated with three outcomes, and visual gender nonconformity was associated with all four mental health outcomes. Among those who had socially transitioned, medical transition and gender identity were associated with only one of the four mental health outcomes, age of transgender realization was associated with two outcomes, and visual gender nonconformity was associated with three mental health outcomes.

A number of additional patterns emerged. Individuals who realized their transgender identity at an older age had a lower probability of reporting lifetime self-harm, lifetime suicide attempts, and current depressive distress. This finding is in contrast to previous clinical research, which indicated that transgender individuals who realized their identity at a young age and received medical gender affirming treatment had positive mental health outcomes in young adulthood (de Vries et al., 2014). However, the current analysis assessed age of realization of transgender identity rather than age of accessing gender affirming treatment. Previous research has indicated that compared to cisgender adults, cisgender adolescents have poorer emotion regulation (Riediger & Klipker, 2014), which is associated with suicide attempts (Pisani et al., 2013). Individuals who realize their transgender identity at a younger age may be less able than those who realize their transgender identity at an older age to regulate their emotions related to experiencing minority stress due to their transgender identity, which may negatively affect their health. Similarly, sexual minorities who reach sexual orientation developmental milestones earlier report using more negative coping

mechanisms, including alcohol abuse and unhealthy eating behaviors (Katz-Wise et al., 2015b; Parks & Hughes, 2007).

Another pattern that emerged is that individuals in the full sample who had socially transitioned were less likely than those who had not socially transitioned to report self-harm, depression diagnosis, and depressive distress, findings which support previous research and clinical recommendations that suggest that social transition is protective for transgender individuals' mental health (Bockting, 2008; Budge et al., 2013b; Coleman et al., 2011). However, surprisingly in the full sample, those who had medically transitioned were more likely to report self-harm. This is inconsistent with previous research, which has indicated the positive benefits of medically transitioning to mental health (White Hughto & Reisner, 2016). Although medical transition is important for bringing one's body in line with one's gender identity, it is possible that the stigma that persists after medical transition, particularly for those with high visual gender nonconformity (i.e., those who are not recognized as their affirmed gender), negatively affects health in the form of self-harm. Alternatively, individuals who choose to medically transition may be more likely to have dysphoria, compared to individuals who do not choose to medically transition. Additionally, medical gender affirmation includes both hormones and surgery; perhaps individuals who are taking hormones, but have not yet had surgery, are still experiencing high levels of dysphoria. Further investigation of this finding is needed.

The association between visual gender nonconforming gender expression and mental health demonstrated different patterns among the full sample versus those who had socially transitioned. Lower visual gender nonconformity was associated with lower risk of self-harm, depression diagnosis, and depressive distress in the full sample. This finding is consistent with prior research showing that transgender individuals who are more likely to be recognized as their identified gender have better mental health outcomes (McLemore, 2015). However, inconsistent with prior research, lower visual gender nonconformity was associated with higher probability of self-harm and depression diagnosis among those who had socially transitioned. Perhaps these individuals have less access to transgender communities because they are more likely to be recognized as cisgender. Relatedly, it is possible that individuals with lower visual gender nonconformity have greater concerns about concealing their transgender identity. Research among gay men suggests that concealing a stigmatized identity may lead to chronic distress (Pachankis, 2007; White Hughto et al., 2015). Thus, transgender individuals who are more visually conforming and "pass" as male or female (i.e., are assumed to be cisgender) may experience stress related to how best to negotiate disclosure of their concealed transgender status. More research is needed to better understand associations of visual gender nonconformity with mental health outcomes among transgender individuals.

Finally, non-binary identification was associated both positively and negatively with mental health outcomes. Compared to individuals with a binary identification (e.g., MTF, FTM), individuals with a non-binary identification (e.g., genderqueer) had higher risk of suicide attempts and current depressive distress. This increased risk may reflect difficulties associated with identifying outside of the female/male dichotomy in a society that is largely organized around the binary. These findings are consistent with previous research indicating

substantial clinical levels of depression among genderqueer individuals (Budge et al., 2014). This may be similar to findings indicating worse mental health among bisexual individuals relative to lesbian and gay individuals (Jorm, 2002), which may be associated with experiencing discrimination from both heterosexual and sexual minority communities (Mulick & Wright, 2002). More research is needed to understand mental health concerns among transgender individuals with non-binary gender identities.

A number of limitations should be mentioned. The sample was limited to transgender individuals, which did not allow for comparison with cisgender individuals. Participants were recruited from the Internet and were required to live in Massachusetts at the time of study completion. Therefore, the sample may not be representative of all transgender individuals. The sexual orientation identity measure did not specify the reference group; therefore, it is unknown whether transgender participants were responding based on their assigned sex at birth or current gender identity. This study did not assess the directionality of changes in attractions, the number of changes experienced, or the timing of changes. Thus, we cannot draw conclusions regarding whether shifts toward or away from sexual minority status negatively affects mental health, how more or less change might affect health, or how the timing of changes might affect health (e.g., more recent changes might have a stronger effect on health than changes that occurred many years ago). However, we can conclude that any change in attractions is negatively associated with mental health outcomes. In addition, we did not assess changes in sexual orientation identity (rather than attraction), which may also be related to mental health. Future research could assess changes in multiple dimensions of sexual orientation among transgender individuals and associations with mental health outcomes. A number of the mental health outcomes were measured using only one item. For instance, the self-harm measure assessed lifetime self-harm, but did not measure specific types of self-harm behaviors or the specific timing of these behaviors across the life course. A more detailed investigation of mental health outcomes in relation to change in attractions among transgender individuals would be useful in future research. Finally, this was a cross-sectional study; therefore, results are associational rather than causal. Longitudinal research will be an important future direction to better understand why and how change in attractions is associated with negative mental health outcomes.

This research has a number of implications for clinical work with transgender adults. The majority of mental health intake forms or clinical interview templates do not include information about changes in attractions or sexual orientation identity, which should be standard procedure when discussing client history and identity. In addition, since the results from the current study indicate that changes in attractions is associated with adverse mental health, it will be important for mental health professionals to provide interventions that specifically address both changes in attractions and mental health symptoms. Theoretically, clients are likely experiencing internal conflict based on how people perceive their decision-making processes and interpersonal patterns due to shifts in sexual orientation; interpersonal therapy (Teyber & McClure, 2011) indicates that mental health professionals can use here-and-now process dimensions to facilitate change and provide a rationale for negative symptomology. In addition, clients should be provided with multicultural contextual frameworks to explain how proximal and distal minority stressors may contribute to negative affect and difficulties regulating emotion (Sue & Sue, 2012).

In conclusion, this research found that lifetime changes in attractions was associated with negative mental health outcomes, including self-harm, suicide attempts, depression diagnosis, and depressive distress. Changes in attractions post-social transition were not associated with mental health outcomes. In addition, many general and transgender-specific social determinants were associated with adverse mental health in the full sample and among those who had socially transitioned. This research supports a clear association between changes in attractions and mental health among transgender individuals, but further research is needed to understand why and how experiencing shifts in attractions is associated with adverse mental health for gender minorities.

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## Table 1

Sociodemographic Characteristics and Predictors in Transgender Individuals (N = 452) and in Transgender Individuals who Socially Transitioned (n = 205)

| Measures | Total Sample *(N = 452)* | Individuals who Socially Transitioned *(n = 205)* |
|---|---|---|
| Predictors | | |
| Lifetime changes in attractions | | |
| No | 41.8% (189) | 1.4% (3) |
| Yes | 58.2% (263) | 98.6% (202) |
| Changes in attractions post-social transition | | |
| No | 16.2% (73) | 35.4% (73) |
| Yes | 29.2% (132) | 64.6% (132) |
| General Social Determinants | | |
| Age (years, *M, SD*) | 32.61 (12.8) | 31.7 (12.2) |
| Race/ethnicity | | |
| White non-Hispanic | 79.4% (359) | 82.3% (169) |
| Black non-Hispanic | 2.9% (13) | 2.4% (5) |
| Hispanic/Latino | 9.5% (43) | 9.1% (19) |
| Other non-Hispanic | 2.9% (13) | 2% (4) |
| Multiracial non-Hispanic | 5.3% (24) | 4.2% (9) |
| Gender identity | | |
| Male-to-female/trans feminine | 39.9% (167) | 24.1% (49) |
| Female-to-male/trans masculine | 63.1% (285) | 75.9% (156) |
| SES | | |
| Income (*M, SD*, range: 0–3) | 1.4 (0.7) | 1.4 (0.7) |
| Education (*M, SD*, range: 1–4) | 2.6 (1.0) | 2.7 (0.9) |
| Sexual orientation identity | | |
| Straight | 12.2% (55) | 9.8% (20) |
| Gay/lesbian | 10.4% (47) | 6.5% (13) |
| Bisexual | 15.7% (71) | 14.2% (29) |
| Queer | 42.7% (193) | 48.5% (99) |
| Other/non-binary | 19% (86) | 21.1% (43) |
| Transgender-Specific Social Determinants | | |
| Age of transgender realization (years, *M/SD*) | 14.0 (8.7) | 13.7 (7.3) |
| Social gender transition | | |
| No | 24% (109 | 0% (0) |
| Yes | 76% (343) | 100% (205) |
| Medical gender transition | | |
| No | 45.1% (204) | 28.7% (59) |
| Yes | 54.9% (248) | 71.3% (146) |

| Measures | Total Sample *(N = 452)* | Individuals who Socially Transitioned *(n = 205)* |
|---|---|---|
| Visual gender nonconformity | | |
| High | 19.7% (89) | 16.2% (33) |
| Moderate | 29.5% (133) | 30.4% (62) |
| Low | 50.8% (230) | 53.4% (109) |
| Non-binary identification | | |
| No | 59.1% (267) | 63.8% (131) |
| Yes | 40.9% (185) | 36.2% (74) |
| Survey mode | | |
| Online | 87.8% (397) | 90.6% (186) |
| In-person | 12.2% (55) | 9.4% (19) |

*Note*. Category sums may exceed 100% due to rounding. The prevalence of social gender transition among trasngender individuals who socially transitioned is 100% because this group is defined by an affirmative response to this question. Male-to-female/trans feminine = individuals assigned male sex at birth who now identify somewhere along the feminine gender spectrum. Female-to-male/trans masculine= individuals assigned female sex at birth who now identify somewhere along the masculine gender spectrum.

## Table 2

Mental Health Outcomes by Changes in Attractions in Transgender Individuals (N = 452) and in Transgender Individuals who Socially Transitioned (n = 205)

| | **All Individuals** | | |
|---|---|---|---|
| | **Lifetime Changes in Attractions (Yes, *n* = 263)** | **Lifetime Changes in Attractions (No, *n* = 189)** | **Unadjusted Crude Models** |
| **Mental Health Outcomes** | **%** | **%** | **RR (95% CI)** |
| Self-Harm | 56.3 | 37.0 | **2.19 (1.84, 2.60)** |
| Suicide Attempts | 35.1 | 29.8 | **1.27 (1.06, 1.52)** |
| Depression Diagnosis | 50.1 | 43.1 | **1.33 (1.12, 1.57)** |
| Depressive Distress | 28.8 | 23.5 | **1.32 (1.09, 1.60)** |
| | Individuals who Socially Transitioned | | |
| | Post-Social Transition Changes in Attractions (Yes, *n* = 132) | Post-Social Transition Changes in Attractions (No, *n* = 73) | Unadjusted Crude Models |
| Mental Health Outcomes | % | % | RR (95% CI) |
| Self-Harm | 55.9 | 56.2 | 0.99 (0.76, 1.28) |
| Suicide Attempts | 35.1 | 34.4 | 1.03 (0.79, 1.34) |
| Depression Diagnosis | 45.2 | 54.0 | **0.70 (0.54, 0.91)** |
| Depressive Distress | 23.0 | 25.1 | 0.89 (0.66, 1.20) |

*Note*. RR = Risk Ratio. 95% CI = 95% Confidence Interval. Models adjusted for survey mode (online/in-person). Significant effects are bolded, $p < .05$.

## Table 3

Multivariable Models with Mental Health Outcomes as a Function of Lifetime Changes in Attractions and Social Determinants in Transgender Individuals (N = 452)

| | Self-Harm | Suicide Attempts | Depression Diagnosis | Depressive Distress |
|---|---|---|---|---|
| **Primary Predictor** | **RR (95% CI)** | **RR (95% CI)** | **RR (95% CI)** | **RR (95% CI)** |
| Lifetime changes in attractions | | | | |
| No | Ref | Ref | Ref | Ref |
| Yes | **1.93 (1.59, 2.33)** | **1.48 (1.21, 1.81)** | **1.39 (1.16, 1.67)** | **1.44 (1.16, 1.78)** |
| General Social Determinants | | | | |
| Age (years) | **0.97 (0.96, 0.98)** | **1.02 (1.01, 1.03)** | **1.01 (1.00, 1.02)** | 1.00 (0.99, 1.01) |
| Race/ethnicity | | | | |
| White non-Hispanic | Ref | Ref | Ref | Ref |
| Black non-Hispanic | **0.40 (0.22, 0.73)** | 0.95 (0.55, 1.67) | 0.96 (0.56, 1.63) | **1.91 (1.08, 3.38)** |
| Hispanic/Latino | 0.87 (0.62, 1.21) | 1.06 (0.75, 1.49) | **1.60 (1.16, 2.19)** | **1.95 (1.37, 2.78)** |
| Other non-Hispanic | **0.37 (0.20, 0.69)** | 1.01 (0.57, 1.78) | 0.60 (0.34, 1.07) | 1.23 (0.67, 2.26) |
| Multiracial non-Hispanic | 1.20 (0.80, 1.81) | **1.66 (1.11, 2.46)** | **2.03 (1.36, 3.04)** | **2.63 (1.75, 3.96)** |
| Gender identity | | | | |
| Male-to-female/trans feminine | Ref | Ref | Ref | Ref |
| Female-to-male/trans masculine | **2.34 (1.85, 2.97)** | **1.69 (1.32, 2.16)** | **2.02 (1.61, 2.54)** | 1.00 (0.78, 1.29) |
| SES | | | | |
| Income (range:0–3) | **0.83 (0.73, 0.95)** | **0.74 (0.65, 0.85)** | **0.86 (0.76, 0.98)** | **0.85 (0.73, 0.98)** |
| Education (range:1–4) | 0.81 (0.67, 1.13) | **0.69 (0.62, 0.77)** | **0.80 (0.72, 0.89)** | **0.73 (0.65, 0.82)** |
| Sexual orientation identity | | | | |
| Straight | Ref | Ref | Ref | Ref |
| Gay/lesbian | 1.12 (0.75, 1.66) | **0.55 (0.37, 0.80)** | **2.12 (1.47, 3.08)** | 1.05 (0.68, 1.61) |
| Bisexual | 1.21 (0.85, 1.73) | **0.37 (0.26, 0.53)** | 1.18 (0.84, 1.65) | 1.21 (0.83, 1.76) |
| Queer | 0.83 (0.60, 1.16) | **0.39 (0.28, 0.55)** | 0.94 (0.69, 1.28) | 0.71 (0.49, 1.02) |
| Other/non-binary | **1.50 (1.06, 2.13)** | **0.49 (0.35, 0.69)** | 1.06 (0.77, 1.47) | 0.99 (0.68, 1.43) |
| Transgender-Specific Social Determinants | | | | |
| Age of transgender realization (years) | **0.98 (0.97, 0.99)** | **0.98 (0.97, 0.99)** | 1.00 (0.99, 1.01) | **0.98 (0.97, 0.99)** |
| Social gender transition | | | | |
| No | Ref | Ref | Ref | Ref |
| Yes | **0.78 (0.61, 0.99)** | 0.82 (0.64, 1.05) | **0.71 (0.57, 0.90)** | **0.42 (0.33, 0.54)** |
| Medical gender transition | | | | |
| No | Ref | Ref | Ref | Ref |
| Yes | **1.32 (1.04, 1.66)** | 1.17 (0.93, 1.48) | 2.09 (0.88, 2.36) | 0.90 (0.70, 1.14) |
| Visual gender nonconformity | | | | |
| High | Ref | Ref | Ref | Ref |
| Moderate | 0.87 (0.67, 1.13) | **1.44 (1.09, 1.89)** | **0.76 (0.59, 0.97)** | **0.64 (0.48, 0.86)** |

| | Self-Harm | Suicide Attempts | Depression Diagnosis | Depressive Distress |
|---|---|---|---|---|
| **Primary Predictor** | **RR (95% CI)** | **RR (95% CI)** | **RR (95% CI)** | **RR (95% CI)** |
| Low | **0.64 (0.50, 0.82)** | 0.94 (0.73, 1.23) | **0.62 (0.49, 0.79)** | **0.71 (0.54, 0.93)** |
| Non-binary identification | | | | |
| No | Ref | Ref | Ref | Ref |
| Yes | 0.88 (0.70, 1.10) | **1.36 (1.08, 1.72)** | 0.81 (0.66, 1.01) | **1.31 (1.03, 1.67)** |

*Note*. RR = Risk Ratio. 95% CI = 95% Confidence Interval. Models adjusted for survey mode (online/in-person). Significant effects are bolded, $p < .05$. Male-to-female/trans feminine = individuals assigned male sex at birth who now identify somewhere along the feminine gender spectrum. Female-to-male/trans masculine= individuals assigned female sex at birth who now identify somewhere along the masculine gender spectrum.

## Table 4

Multivariable Models with Mental Health Outcomes as a Function of Changes in Attractions Post-Social Transition and Social Determinants in Transgender Individuals who Socially Transitioned (N = 205)

| | Self-Harm | Suicide Attempts | Depression Diagnosis | Depressive Distress |
|---|---|---|---|---|
| **Primary Predictor** | **RR (95% CI)** | **RR (95% CI)** | **RR (95% CI)** | **RR (95% CI)** |
| Changes in attractions post- social transition | | | | |
| No | Ref | Ref | Ref | Ref |
| Yes | 1.22 (0.89, 1.68) | 1.04 (0.74, 1.45) | 0.84 (0.62, 1.12) | 1.25 (0.88, 1.79) |
| General Social Determinants | | | | |
| Age (years) | 0.99 (0.98, 1.01) | **1.04 (1.02, 1.05)** | **1.02 (1.01, 1.03)** | 1.01 (1.00, 1.03) |
| Race/ethnicity | | | | |
| White non-Hispanic | Ref | Ref | Ref | Ref |
| Black non-Hispanic | 1.94 (0.66, 5.69) | **3.49 (1.40, 8.68)** | 0.47 (0.20, 1.12) | **2.68 (1.06, 6.74)** |
| Hispanic/Latino | 1.07 (0.66, 1.75) | 1.26 (0.74, 2.14) | **2.52 (1.54, 4.12)** | 1.49 (0.87, 2.55) |
| Other non-Hispanic | 0.39 (0.12, 1.22) | 0.44 (0.11, 1.73) | 0.72 (0.24, 2.18) | 2.15 (0.66, 6.94) |
| Multiracial non-Hispanic | 1.58 (0.68, 3.68) | 0.94 (0.46, 1.94) | 0.79 (0.41, 1.54) | 1.49 (0.75, 2.98) |
| Gender identity | | | | |
| Male-to-female/trans feminine | Ref | Ref | Ref | Ref |
| Female-to-male/trans masculine | **2.50 (1.66, 3.76)** | 0.97 (0.63, 1.50) | **3.19 (2.13, 4.80)** | 1.06 (0.67, 1.68) |
| SES | | | | |
| Income (range: 0–3) | 0.92 (0.75, 1.13) | **0.69 (0.55, 0.86)** | 1.06 (0.87, 1.30) | 0.83 (0.66, 1.05) |
| Education (range: 1–4) | **0.49 (0.41, 0.59)** | **0.63 (0.52, 0.76)** | **0.80 (0.67, 0.95)** | **0.52 (0.42, 0.63)** |
| Sexual orientation identity | | | | |
| Straight | Ref | Ref | Ref | Ref |
| Gay/lesbian | 0.65 (0.32, 1.32) | **0.14 (0.06, 0.30)** | 1.11 (0.57, 2.17) | 0.52 (0.23, 1.15) |
| Bisexual | 1.20 (0.68, 2.12) | **0.11 (0.06, 0.21)** | **0.49 (0.28, 0.85)** | **0.40 (0.21, 0.78)** |
| Queer | 1.08 (0.63, 1.84) | **0.32 (0.18, 0.56)** | 0.85 (0.51, 1.42) | 0.67 (0.37, 1.20) |
| Other/non-binary | **2.24 (1.27, 3.95)** | **0.26 (0.14, 0.46)** | 0.78 (0.46, 1.31) | 0.80 (0.45, 1.42) |
| Transgender-Specific Social Determinants | | | | |
| Age of transgender realization (years) | 0.99 (0.97, 1.02) | **0.96 (0.94, 0.98)** | **0.97 (0.95, 0.99)** | 0.98 (0.96, 1.01) |
| Medical gender transition | | | | |
| No | Ref | Ref | Ref | Ref |
| Yes | 1.33 (0.89, 2.00) | 1.11 (0.74, 1.66) | 0.75 (0.52, 1.10) | **1.65 (1.08, 2.50)** |
| Visual gender nonconformity | | | | |
| High | Ref | Ref | Ref | Ref |
| Moderate | **3.44 (2.21, 5.35)** | **2.46 (1.52, 3.96)** | **1.62 (1.06, 2.48)** | 0.83 (0.51, 1.34) |
| Low | **1.93 (1.26, 2.96)** | 1.27 (0.78, 2.05) | **1.80 (1.18, 2.74)** | 0.83 (0.52, 1.33) |
| Non-binary identification | | | | |
| No | Ref | Ref | Ref | Ref |

| | Self-Harm | Suicide Attempts | Depression Diagnosis | Depressive Distress |
|---|---|---|---|---|
| **Primary Predictor** | **RR (95% CI)** | **RR (95% CI)** | **RR (95% CI)** | **RR (95% CI)** |
| Yes | 1.18 (0.79, 1.76) | 1.25 (0.84, 1.88) | 0.79 (0.54, 1.15) | **3.15 (2.05, 4.85)** |

*Note*. RR = Risk Ratio. 95% CI = 95% Confidence Interval. Models adjusted for survey mode (online/in-person). Significant effects are bolded, $p < .05$. Male-to-female/trans feminine = individuals assigned male sex at birth who now identify somewhere along the feminine gender spectrum. Female-to-male/trans masculine= individuals assigned female sex at birth who now identify somewhere along the masculine gender spectrum.