



Published in final edited form as:

J Couns Psychol. 2016 October ; 63(5): 509–519. doi:10.1037/cou0000143.

Discriminatory experiences associated with posttraumatic stress disorder symptoms among transgender adults

Sari L. Reisner, ScD^{1,2,3}, Jaclyn M. White Hughto, MPH^{3,4}, Kristi E. Gamarel, PhD⁵, Alex S. Keuroghlian, MD, MSc^{3,6}, Lauren Mizock, PhD⁷, and John Pachankis, PhD⁴

Jaclyn M. White Hughto: jwhite@fenwayhealth.org; Kristi E. Gamarel: kristi_gamarel@brown.edu; Alex S. Keuroghlian: akeuroghlian@partners.org; Lauren Mizock: lauren.mizock@gmail.com; John Pachankis: john.pachankis@yale.edu

¹Division of General Pediatrics, Boston Children's Hospital/Harvard Medical School, Boston, MA

²Dept of Epidemiology, Harvard T.H. Chan School of Public Health, Boston, MA

³The Fenway Institute, Fenway Health, Boston, MA

⁴Chronic Disease Epidemiology, Yale School of Public Health, New Haven, CT

⁵Dept of Psychiatry & Human Behavior, Alpert Medical School of Brown University, Providence, RI

⁶Dept of Psychiatry, Massachusetts General Hospital/Harvard Medical School, Boston, MA

⁷Psychology, Worcester State University, Worcester, MA

Abstract

Discrimination has been shown to disproportionately burden transgender people; however, there has been a lack of clinical attention to the mental health sequelae of discrimination, including posttraumatic stress disorder (PTSD) symptoms. Additionally, few studies contextualize discrimination alongside other traumatic stressors in predicting PTSD symptomatology. The current study sought to fill these gaps. A community-based sample of 412 transgender adults (mean age 33, SD=13; 63% female-to-male spectrum; 19% people of color; 88% sampled online) completed a cross-sectional self-report survey of everyday discrimination experiences and PTSD symptoms. Multivariable linear regression models examined the association between self-reported everyday discrimination experiences, number of attributed domains of discrimination, and PTSD symptoms, adjusting for prior trauma, sociodemographics, and psychosocial co-morbidity. The mean number of discrimination attributions endorsed was 4.8 (SD=2.4) and the five most frequently reported reasons for discrimination were: gender identity and/or expression (83%), masculine and feminine appearance (79%), sexual orientation (68%), sex (57%), and age (44%). Higher everyday discrimination scores ($\beta=0.25$; 95% CL=0.21–0.30) and greater number of attributed reasons for discrimination experiences ($\beta=0.05$; 95% CL=0.01–0.10) were independently associated with PTSD symptoms, even after adjusting for prior trauma experiences. Everyday discrimination experiences from multiple sources necessitate clinical consideration in treatment for PTSD symptoms in transgender people.

Corresponding Author: Sari L. Reisner, ScD, 300 Longwood Avenue, Mailstop BCH 320, Boston, MA 02115, sari.reisner@childrens.harvard.edu, Phone: 617-927-6017; Fax: 617-267-0764.

The authors do not have any conflicts of interest.

Keywords

PTSD; discrimination; stigma; transgender

Transgender people, who have a gender identity that differs from their assigned sex at birth, experience high levels of prejudice, discrimination, and violence (Bockting, Miner, Romine, Hamilton, & Coleman, 2013; Grant, 2011; Lombardi, Wilchins, Priesing, & Malouf, 2002; Mizock & Lewis, 2008; Shipherd, Maguen, Skidmore, & Abramovitz, 2011). A national study of more than 6,000 U.S. transgender respondents found that 63% reported an emotionally- or life-impairing experience of discrimination (Grant, 2011). Discrimination toward transgender people occurs across settings (e.g., employment, healthcare) and can be both chronic (e.g., interpersonal rejection) and acute (e.g., victimization) (Lombardi, 2009; Mizock & Lewis, 2008; Mizock & Mueser, 2014). Physical violence and sexual assault due to transgender identity are also highly prevalent across the life course (Clements-Nolle, Marx, & Katz, 2006; Grant, 2011; Stotzer, 2009). Consistent with minority stress theory (Hendricks & Testa, 2012; Meyer, 2003b), both violent and non-violent forms of discrimination are associated with adverse mental health outcomes in transgender people, including depression, anxiety, psychological distress, and substance abuse (Grant, 2011; Lombardi, et al., 2002).

Posttraumatic stress disorder (PTSD), a stress-sensitive disorder associated with significant morbidity and impairment (Kessler, 2000), represents one of the most common mental health conditions to arise from direct or vicarious exposure to life-threatening events, serious injury, or sexual assault (APA, 2013). PTSD is characterized by four key symptoms: (1) persistent intrusive thoughts or re-experiencing of the event; (2) avoidance of stimuli associated with the event; (3) negative cognitions and mood such as emotional numbing and detachment from others; and (4) changes in arousal or reactivity such as hypervigilance, irritability, exaggerated startle response, or self-destructive reckless behavior (APA, 2013). While PTSD affects an estimated 6.8% of the U.S. general adult population (Kessler et al., 2005), prevalence estimates in transgender samples range from 18 to 61% (Rowe, Santos, McFarland, & Wilson, 2015; Shipherd, et al., 2011; Valera, Sawyer, & Schiraldi, 2001; Wharton, 2007) and greater severity and frequency of emotional numbing, behavioral avoidance, and physiological arousal relative to non-transgender people have been reported (Wilson, 2013).

Despite the high prevalence of discrimination and PTSD in transgender people, the relationship between these phenomena remains understudied. A possible explanation for the dearth of research in this area is that exposure to non-violent forms of discrimination may not meet *DSM* criteria for a traumatic event (e.g., Criterion A). However, like acute traumatic stress, chronic and persistent threats to one's identity in the form of everyday discrimination threaten a person's core human needs for trust, understanding, control and belonging, with harmful mental health effects (Swim & Thomas, 2006). Further, trauma and discrimination, whether acute or chronic, produce similar stress responses, including avoidance of stimuli associated with the traumatic or discriminatory event (Bockting, et al., 2013; Carter & Forsyth, 2010; Meyer, 2003b; Pascoe & Richman, 2009) and hypervigilance

(e.g., anticipatory stress) about the possibility of future trauma or discrimination (Bockting, et al., 2013; Carter & Forsyth, 2010; Meyer, 2013; Pachankis, Goldfried, & Ramrattan, 2008), as well as similar physiological responses in reaction to acute laboratory-based stressors (Hatzenbuehler & McLaughlin, 2014). Despite evidence that traumatic stress exposure and stigma-related stress operate through similar minority stress processes (Meyer, 2003b), no studies have explored the relationship between discrimination and PTSD symptoms in transgender people, a highly stigmatized and underserved group.

In addition to known traumatic stressors such as childhood physical and/or sexual abuse and intimate partner violence, which increase probability of PTSD symptoms (Brewin, Andrews, & Valentine, 2000; Golding, 1999), a potential source of additional traumatic stress responses for transgender people is exposure to acts of discrimination based on gender identity or gender presentation. In addition, qualitative studies have illustrated that transgender individuals experience discrimination and oppression based on their gender identity and intersecting stigmatized identities (e.g., race/ethnicity, age, social class, and citizenship status) (Daley, Solomon, Newman, & Mishna, 2008; de Vries, 2014; Gamarel, Walker, Rivera, & Golub, 2014; Sevelius, 2013).

While research indicates that individuals with multiple identities often incorporate these identities into a single unified sense of self (McAdams, 1997; Meyer, 2010; Singer, 2004), multiple identities can provoke different forms of discrimination in diverse contexts. Indeed, multiple minority statuses can lead to greater discrimination exposure and result in greater erosion of core needs, as well as hypervigilance, avoidance, and physiological stress responses (e.g. Pascoe & Richman, 2009). For example, a study of 873 Latino and Black adults in New York City found that participants who experienced multiple domains of discrimination related to age, race, gender, weight, income, religion, mental or physical illness, immigration status, or sexual orientation, had a greater probability of reporting poor mental health than those who experienced no discrimination or discrimination in only one domain (Stuber, Galea, Ahern, Blaney, & Fuller, 2003). Similarly, a national study of 1,052 youth found that multiply disadvantaged youth faced greater exposure to multiple forms of discrimination than their more advantaged counterparts, and experiencing numerous forms of discrimination was more strongly associated with adverse mental and physical health outcomes than experiencing only one form of disadvantage (Grollman, 2012). Given that many transgender people may possess multiple stigmatized identities or characteristics (e.g., minority race/ethnicity, older age, low SES) and report discrimination and distress (Bockting, et al., 2013; Daley, et al., 2008; de Vries, 2014; Gamarel, Walker, et al., 2014; Golub & Gamarel, 2013; Reisner, Bailey, & Sevelius, 2014; Sevelius, 2013; Witten, 2009), the additive stress associated with experiencing discrimination based on multiple minority stigmas represents an important area for research.

Appearance-related stigma represents a possible mechanism through which transgender people experience discrimination. Appearance-related stigma refers to the extent to which one's appearance produces a negative reaction in others (Jones, Farina, Hastorf, & French, 1984). Transgender individuals who do not conform to the socially sanctioned expression of their assigned sex at birth often experience mistreatment by others who view their self-expression as non-normative (Bockting, et al., 2013). Conversely, transgender individuals

with high visual conformity are said to have “passing privilege” in that their stigma (i.e., being transgender) is concealable (Jones, et al., 1984) and they are therefore able to hide their transgender status and avoid mistreatment (Sevelius, 2013; Xavier, 1999). Social (i.e., living full-time in one’s gender) and medical gender affirmation (i.e., hormones/surgery to masculinize/feminize) processes may impact the extent to which a transgender person appears more or less visually gender nonconforming, in turn impacting exposure to experiences of discrimination; however, the relationship between gender affirmation processes and experiences of discrimination are understudied.

Despite accumulating evidence that transgender people evince high prevalence of discrimination and PTSD symptoms, critical questions remain unanswered as to whether experiencing discrimination, as well as discrimination based on multiple stigmatized identities, is associated with PTSD symptoms. The purpose of this study was to: (1) examine discrimination experiences in a sample of transgender adults and explore reasons attributed to discrimination; (2) explore whether endorsing a higher number of attributed reasons for discrimination is associated with more PTSD symptoms; (3) identify whether gender affirmation processes are associated with discrimination experiences, including whether higher visible gender nonconformity is a risk factor and whether social transition or medical gender affirmation are protective factors for PTSD symptoms; and (4) evaluate whether discrimination experiences and the number of attributed domains are independently associated with elevated PTSD symptoms, after adjustment for some known traumatic stressors (e.g., childhood abuse and intimate partner violence).

Method

Participants and Procedures

A community-based sample of 452 transgender and gender nonconforming Massachusetts residents, ages 18 to 75 years, were purposively sampled from August–December 2013 for Project VOICE (Voicing Our Individual and Community Experiences), a study designed to examine the association between social stress and health. Participants were recruited via transgender-specific online and in-person venues. The majority (88%) were sampled online (via transgender electronic listservs, emails, web postings at local community-based websites, and social networking sites); 12% were sampled in-person (completed the survey via electronic tablets provided by the research team onsite at transgender community events, local social programming, and other gatherings). Eligible respondents were ages 18 years or older, self-identified as transgender or gender nonconforming, lived in Massachusetts for at least 3 months in the last year, and had the ability to read/write in either English or Spanish. Participants completed a one-time survey assessing demographics, experiences of discrimination and victimization, and health. Participants provided informed consent before beginning the survey. Using community-based participatory research principles (Leung, Yen, & Minkler, 2004), between March–July 2013 a team of community-based advocates, transgender leaders, researchers, and LGBT policy experts, working with gender minority people in the Commonwealth, together created the survey instrument and data collection plan. Whenever possible, validated questions or survey items adapted from prior transgender health research were utilized to ensure comparability of findings, including those from such

sources as the U.S. National Transgender Discrimination Survey (Reisner, Conron, Scout, et al., 2014) and Behavioral Risk Factor Surveillance System (BRFSS) (CDC, 2012). The survey was designed for a 5th grade reading level. Participants could opt to be entered into a community raffle for two tablet computers. We followed best practices for Internet research with transgender people, including initial usability and pilot testing, quality management processes to ensure unduplicated responses and valid study respondents (Miner, Bockting, Romine, & Raman, 2011) to ensure the integrity and validity of online data collected (Reisner et al., 2015). Two versions of the Project VOICE survey were fielded. The short version did not ask participants about discrimination experiences; thus, only participants who completed the long survey were included in the analytic sample ($n=412$). The survey was translated and back translated into Spanish, with input from transgender community members to ensure cultural relevance and appropriate translation. Four respondents completed surveys in Spanish. All study activities were IRB-approved.

Measures

Posttraumatic Stress Disorder (PTSD) Symptoms—PTSD symptoms were assessed with a 4-item scale designed for primary care settings (Ouimette, Wade, Prins, & Schohn, 2008; Prins et al., 2003) recommended by the U.S. Department of Veteran’s Affairs (U.S. Department of Veteran’s Affairs, 2014). Participants were asked: “In your life, have you ever had any experience that was so frightening, horrible, or upsetting that, in the past month you: (1) Have had nightmares about it or thought about it when you did not want to? (2) Tried hard not to think about it or went out of your way to avoid situations that reminded you of it? (3) Were constantly on guard, watchful, or easily startled? (4) Felt numb or detached from others, activities, or your surroundings?” Participants responded to each item using binary (yes/no) responses. The PC-PTSD has a test-retest Pearson’s correlation coefficient of 0.83 ($p<0.001$), correlates highly with the Clinician-Administered PTSD Scale (Blake et al., 1995) 0.83 ($p<0.001$), and has an overall diagnostic accuracy of 85% (Prins, et al., 2003; Prins et al., 2004). The scale has also demonstrated good internal consistency in non-transgender samples (Cronbach’s alpha ranges from 0.79–0.93) (Maguen et al., 2010; Mason, Mennis, & Schmidt, 2011; Sayer et al., 2011). This study represent the first time this measure has been used in a sample of transgender individuals. A factor analysis supported a single factor solution in the current study data (Eigenvalue=2.9; proportion of variance explained (PVE)=71.9%). Items were summed and scores ranged from 0–4; higher scores reflected more traumatic stress symptoms ($\alpha=0.87$ in the current study).

Discrimination Experiences—Participants completed the Everyday Discrimination Scale, which consists of 11 items assessing the frequency of participants’ experiences of everyday discrimination in the past 12 months on a Likert scale ranging from 0=“*never*” to 4=“*very often*.” Sample items: “You have been treated with less courtesy than other people;” “People have acted as if they think you are not smart” (Krieger, Smith, Naishadham, Hartman, & Barbeau, 2005; Williams, Yan, Jackson, & Anderson, 1997). The Everyday Discrimination Scale has demonstrated good reliability and validity (Taylor, Kamarck, & Shiffman, 2004; Williams et al., 2012; Williams, Neighbors, & Jackson, 2003). In sample of LGBT participants, Cronbach’s alpha for the discrimination scale was 0.94, and discrimination scores were correlated positively with depressive symptoms, anxiety, and

substance use (Gamarel, Reisner, Laurenceau, Nemoto, & Operario, 2014; Gamarel, Reisner, Parsons, & Golub, 2012; Gordon & Meyer, 2008; S. L. Reisner, White, Bradford, & Mimiaga, 2014). A factor analysis confirmed a single factor solution in the current dataset (Eigenvalue=6.9; PVE=62.9%). Items were summed and scores ranged from 0–44, with higher scores indicating higher levels of everyday discrimination experiences ($\alpha=0.94$ in current dataset).

Reasons Attributed to Discrimination—Fourteen items assessed participants' attributed reasons for everyday discrimination using binary (yes/no) responses. Domains included those from prior research (Gordon & Meyer, 2008; Williams, et al., 1997) and theoretically relevant to this study: age, sex, race, ethnicity, nationality, religion, sexual orientation, disability, education or income level, weight, gender expression, masculine/feminine appearance, other aspect of appearance, and other reason. The number of attributed domains was summed; scores ranged from 0–14 with higher scores indicating higher number of domains of discrimination endorsed.

Other forms of trauma—Participants completed brief measures of childhood abuse and intimate partner violence used in prior research (Reisner, Falb, Wagenen, Grasso, & Bradford, 2013). Childhood abuse was queried by asking: “Were you ever physically or sexually abused as a child under age 15 years-old?” Participants who indicated “yes” were compared to those who indicated “no.” Similarly, intimate partner violence was assessed with the item: “Have you ever been slapped, punched, kicked, beaten up, or otherwise physically or sexually hurt by your spouse (or former spouse), a boyfriend/girlfriend, or some other intimate partner?” These items are similar to other screening instruments commonly used to assess childhood abuse and IPV in clinical settings (Basile, Hertz, & Back, 2007; Hulme, 2004; McFarlane, Parker, Soeken, & Bullock, 1992). Previous use of the scale with LGBT populations have found associations with adverse mental health outcomes (S.L. Reisner, et al., 2013).

Sociodemographics—Age in years was assessed continuously. Gender was assessed using a two-step method (S.L. Reisner, Conron, Tardiff, et al., 2014) asking: (1) assigned sex at birth (*female, male*) and (2) current gender identity (*man, woman, female-to-male (FTM)/trans man, male-to-female (MTF)/trans woman, genderqueer, gender variant, gender nonconforming, other*). The two items were cross-tabulated to categorize participants as being on the female-to-male (FTM) trans masculine or male-to-female (MTF) trans feminine spectrum according to their natal sex. Participants assigned female at birth with a current nonbinary gender identity were categorized as FTM trans masculine; those assigned male at birth with a current nonbinary gender identity were characterized as MTF trans feminine. An indicator of non-binary gender was created to compare respondents with non-binary gender identities (gender variant, genderqueer, androgynous, gender nonconforming) to those with binary gender identities (man, woman, FTM, MTF). We note that intersex is not an assigned sex at birth; all infants, including those who are intersex, are assigned either a male or female sex at birth on their birth certificate. Social gender transition was assessed by asking participants if they lived full-time in their felt gender identity (yes/no). Medical gender affirmation was operationalized as being on cross-sex hormone therapy and/or having had

gender-related reassignment surgery (yes/no). High visual gender nonconformity was coded as those who “most of the time” or “always” endorsed the statement: “People can tell I’m transgender even if I don’t tell them” and were compared to those who endorsed “never,” “occasionally,” or “sometimes.” Race/ethnicity captured whether participants were white (non-Hispanic), Black (non-Hispanic), Latino/Hispanic, Other race/ethnicity, and Multiracial. Participants were categorized as people of color (POC) or non-Hispanic white. Perceived income ranged from 0=“no income” to 3=“high income/upper class.” Educational attainment was queried and ranged from 1=“high school or less” to 4=“graduate school.” Unstable housing was operationalized as “rarely,” “sometimes,” or “often” having trouble “finding a safe place to hang out or sleep (housing)” in the past 12 months and compared to stable housing (i.e., “never” having such trouble). Sexual orientation was assessed by asking respondents how they identify with response options as “heterosexual/straight,” “lesbian/gay,” “bisexual,” “queer,” or “another sexual orientation.” Sexual minority (i.e., lesbian, gay, bisexual, queer, another sexual orientation) respondents were compared to non-sexual minority (i.e., heterosexual, straight) respondents. Survey mode (online or in-person) was included as a covariate.

Depressive symptoms—Participants completed the 10-item Center of Epidemiologic Studies Depression Scale (CES-D-10) (Radloff, 1977) to assess past-week depressive symptoms. In the current dataset, Cronbach’s $\alpha=0.88$; a two factor solution was supported (cumulative PVE=60.7%) for negative affect (factor 1, Eigenvalue=4.9) and positive affect (factor 2, Eigenvalue=1.1), consistent with previous validation studies (Bradley, Bagnell, & Brannen, 2010; Zhang et al., 2012). Scores were summed such that higher scores indicated higher depressive symptoms. A score of 10 or more was operationalized to indicate a positive screen for clinically significant depression as recommended in prior research (Andresen, Malmgren, Carter, & Patrick, 1994). The CES-D-10 has been shown to correlate highly with the 20-item CES-D (Carpenter et al., 1998), which is sensitive in detecting clinical diagnoses of major depressive disorder. Furthermore, Cronbach’s alpha for the CES-D scale was 0.88 in a sample of transgender adults (Reisner, et al., 2014).

Substance use—Participants were asked if they had used marijuana, cocaine, crack, club drug, methamphetamine, heroin, poppers, hallucinogens, downers, painkillers, or any other drug in the past 12-months (Yes/No). Past-12 month polydrug drug use was assessed by summing the number of drugs participants reported in the last 12 months. Participants using two or more drugs were compared to those reporting none or one drug.

Data Analysis

Statistical analyses were performed in SAS v9.4.1. Distributions of individual items were assessed, including missingness. Because missingness violated the missing completely at random assumption required for valid statistical inferences using listwise deletion (Allison, 2003), data were multiply imputed. A fully conditional specification imputation method was used shown to perform well in many different scenarios of missingness (Lee & Carlin, 2010; van Buuren, 2007; van Buuren, Brand, Groothuis-Oudshoorn, & Rubin, 2006). All subsequent analyses were conducted using the imputed data.

Univariate statistics were used to summarize the distribution of variables (mean, standard deviation [SD], frequencies, proportion). Two-sided tests were conducted with statistical significance at $\alpha=0.05$. Tests for normality were conducted to ensure statistical assumptions for linear regression models were tenable. Analyses then examined whether any sociodemographic, depressive symptoms or substance use factors were associated with everyday experiences of discrimination to identify those groups who reported higher discrimination experiences. A linear multivariable regression model was fit (Model 1), regressing everyday discrimination scores on: number of reasons attributed to discrimination experiences (continuous), other traumatic experiences (binary) [childhood abuse, intimate partner violence], and sociodemographics [age, income, education (each continuous); FTM spectrum, non-binary gender identity, live full-time, medical gender affirmation, high visual gender nonconformity, POC, unstably housed, sexual minority, online survey mode, past-week depression, polydrug use (each binary)]. Next, analyses examined whether everyday experiences of discrimination were statistically associated with PTSD symptom scores (Model 2), adjusting for all variables described in Model 1. Multicollinearity diagnostics were computed for all regression models using variance inflation factor (VIF) values. All VIF values were less than 10, indicating no detection of multicollinearity (Jou, Huang, & Cho, 2014).

Age, everyday discrimination experiences scale scores, number of reasons attributed to discrimination, and PTSD symptoms were transformed to z-scores (mean=0, SD=1) to facilitate interpretation. The regression of a standardized variable (e.g., PTSD symptoms) on a standardized predictor (e.g., everyday discrimination experiences) generates standardized slopes that range from -1.0 and 1.0 (beta weights). For a binary predictor (e.g., childhood abuse yes/no), the standardized slope represents the difference between the means of the two groups on the outcome. Because the outcome variable is standardized (z-scored), the mean differences are in SD. The slope (beta) or difference between the means equals Cohen's *d* (effect size estimates). A Cohen's *d* of 0.20 (i.e., a fifth of a standard deviation) is a small effect, 0.50 (i.e., half a SD) a medium effect, and 0.80 a large effect (Cohen, 1988). Beta coefficients can therefore be interpreted in terms of SD unit changes in the statistical predictor relative to the outcome.

Results

Sample Characteristics

Table 1 presents characteristics of study sample. Participants had a mean age of 32.7 (SD=12.8); 62.6% were FTM spectrum; 59.7% identified their gender as binary; 19.2% were POC (2.9% Black, 9.0% Latino/Hispanic, 2.9% Other race, 4.4% Multiracial). There was high prevalence of childhood abuse age <15 years (46.6%), intimate partner violence (33.3%), depression (26.5%), polydrug use (18.5%), and unstable housing (25.5%). PTSD symptom scores ranged from 0 to 4 (M=1.95, SD=1.71). Overall, 44.4% of the sample met criteria for probable PTSD (PTSD symptom score 3+) (Prins, et al., 2003). The mean everyday discrimination score was 19.9 (SD=9.6). The mean number of discrimination attributions was 4.8 (SD=2.4). The five most frequently reported reasons attributed to discrimination were: gender identity and/or expression (83.2%), how masculine/feminine

you appear (78.6%), sexual orientation (68.0%), sex (assigned sex at birth) (56.8%), and age (43.5%) (Table 2). Linear models adjusted for survey mode (online vs in-person) are presented in Table 3 showing the statistically significant associations of PTSD symptoms, everyday discrimination experiences, and number of attributed domains of discrimination.

Everyday Discrimination Experiences (Table 4)

As shown in Model 1, FTM spectrum, POC, high visual gender nonconformity, greater number of reasons attributed to discrimination, childhood abuse age <15 years, past-week depression, and unstable housing were each independently and significantly associated with increased everyday discrimination scores. In this same model, sexual minority status, higher income, non-binary gender, and online sampling were each protective and associated with lower everyday discrimination scores.

PTSD Symptoms (Table 4)

In Model 2, higher everyday discrimination scores, greater number of attributed reasons for discrimination, childhood abuse age <15 years, intimate partner violence, social gender transition (living full-time in one's identified gender—distinct from medical gender affirmation), high visual gender nonconformity, unstable housing, past-week depression, and past-12 month polydrug use were each independently and significantly associated with higher PTSD scores. On the contrary, younger age, FTM spectrum gender, medical gender affirmation, and online sampling were each independently and significantly associated with lower PTSD scores.

Discussion

In this community-based sample of transgender adults, associations were found between discrimination experiences and PTSD symptoms. The present findings are consistent with a burgeoning body of evidence documenting elevated risk for mental health problems among individuals who experience discrimination (Diaz, Ayala, Bein, Henne, & Marin, 2001; Landrine & Klonoff, 1996; Williams, et al., 2003), including transgender people (Shipherd, et al., 2011). Notably, the prevalence of PTSD symptoms reported here is much higher than national studies of the general population (Kessler, et al., 2005).

Many participants experienced known sources of trauma including childhood abuse and intimate partner violence, but the association between discrimination experiences and PTSD symptoms existed after statistically adjusting for these. Further, the magnitude of the association between discrimination and PTSD symptoms ($\beta=0.25$) was comparable to the magnitude of association between childhood abuse and PTSD symptoms ($\beta=0.29$), and exceeded the magnitude of association between intimate partner violence and PTSD symptoms ($\beta=0.18$). In other words, discrimination experiences were associated with PTSD symptoms regardless of reporting of other known traumatic experiences. These findings point to the importance of identifying mechanisms that explain associations between discrimination and PTSD symptoms, including both interpersonal and intrapersonal pathways (Hatzenbuehler, Nolen-Hoeksema, & Dovidio, 2009). For example, prior evidence suggests that emotion dysregulation (i.e., difficulty monitoring, evaluating, and modifying

emotional reactions) mediates associations between daily experiences of discrimination and subsequent daily depressive symptoms (Hatzenbuehler, et al., 2009) and explains evaluated PTSD symptoms in several samples (Bowleg et al., 2014).

In addition, a greater number of domains attributed to discrimination was independently associated with higher levels of PTSD symptoms in the present study, suggesting that co-occurrence of stigmatized minority statuses may be associated with greater exposure to discrimination, as well as more PTSD symptoms. Findings are consistent with the view that an individual's health cannot be fully understood by examining isolated systems of social oppression (Crenshaw, 1991). Individuals hold multiple co-existing identities, typically experienced as a unified self (Crenshaw, 1991; Hembree et al., 2009); however possessing multiple stigmatized identities might increase the chances of experiencing discrimination toward any one of those identities (Stuber et al., 2003). Thus, individuals who experience multiple forms of discrimination may be at high risk of poor mental health as a result of their disproportionate exposure to social oppressions, which can diminish coping resources and may exacerbate PTSD symptoms (Cole, 2009; Mizock & Mueser, 2014). These results are particularly important in light of research that suggests coping with cumulative stressors is associated with wear and tear on biological systems, termed "allostatic load" (Geronimus, 1992; McEwen & Stellar, 1993). These findings highlight the importance of examining multiple forms of discrimination, rather than a singular stressor, in the mental health of transgender people.

Gender affirmation—an interpersonal process through which a person's gender identity is socially recognized—has been theorized as a key determinant of health for transgender people of color (Sevelius, 2013). This study found that gender affirmation processes are important to consider in understanding PTSD symptoms in transgender people more broadly. Consistent with prior research (Bockting, et al., 2013; Grant, 2011), visibly gender nonconforming participants in the present study had significantly higher discrimination scores. No similar differences in discrimination were found for either social transition (i.e., living full-time) or medical gender affirmation (i.e., hormones and/or surgery). However, high visual gender nonconformity and social transition were each associated with increased PTSD symptoms. Medical gender affirmation was significantly protective and associated with significantly decreased PTSD symptoms, which is consistent with prior research showing that medical gender affirmation is associated with positive mental health outcomes in transgender people (Colizzi, Costa, & Todarello, 2014; Gómez-Gil et al., 2012; Keo-Meier et al., 2014; E. C. Wilson, Chen, Arayasirikul, Wenzel, & Raymond, 2015).

Of note, other known social determinants of health were also associated with PTSD symptoms in this sample, including younger age (Chiu, deRoon-Cassini, & Brasel, 2011). An interesting gender difference emerged: MTFs had significantly higher PTSD scores than FTMs. This difference is consistent with U.S. general population data showing approximately two-fold increased risk for PTSD in females than males (e.g., Tolin & Foa, 2006); however, conflation of sex and gender in much epidemiologic research (Krieger, 2003) makes the sex- and gender-linked pathways shaping differences in psychiatric conditions difficult to interpret (Tolin & Foa, 2006). Unstable housing was associated with elevated PTSD symptoms, supporting low socioeconomic status as a risk factor (Bender,

Ferguson, Thompson, Komlo, & Pollio, 2010). Additionally, childhood abuse, intimate partner violence, depression, and polydrug use statistically predicted PTSD symptoms in this sample, supporting known PTSD-specific psychosocial risk factors in the U.S. general population for transgender people (Balan et al., 2013; O'Donnell, Creamer, & Pattison, 2014; Ullman, Relyea, Peter-Hagene, & Vasquez, 2013).

Several limitations must be noted. As a cross-sectional study, findings demonstrate associations only; causality cannot be inferred. The presence of "Criterion A" or the "stressor criterion" (Breslau & Kessler, 2001) was not necessary for inclusion in this study, nor a prerequisite for assessment of PTSD symptoms. Given that 90% or more of the general population will experience a traumatic event in their lifetime (Breslau & Kessler, 2001; Breslau et al., 1998), assessment of traumatic exposure was excluded from the screening items (Prins, et al., 2003). The brief screening assessment for PTSD symptoms used in this study was designed for primary care settings, not for research purposes. Discrimination and PTSD symptoms were both self-reported subjective measures. Future research utilizing objective measures (e.g., clinician-assessed PTSD diagnosis) is needed to circumvent the possibility that self-reported discrimination experiences are confounded with mental health status (Meyer, 2003a). In addition, future mixed-methods research to explore the attributed reasons (e.g., sex, gender, race) for discrimination would make a valuable contribution. For example, the most frequent reason attributed to discrimination experiences was gender identity and/or expression; however, more than half of the sample reported experiencing discrimination due to sex. A more in-depth understanding of transgender experiences and perceptions regarding sex- and gender-based discrimination is warranted. There is substantial heterogeneity of trauma responses (Bonanno & Mancini, 2012), which the current study was not designed to assess. Future studies would benefit from considering transgender identity formation alongside gender affirmation (Devor, 2004). Children or adolescents may be abused because of discrimination related to their gender nonconforming presentation (Grossman & Howell, 2005); similarly, intimate partner violence may occur due to discrimination related to a partner's transgender status (Ard & Makadon, 2011; Brennan et al., 2012; Stotzer, 2009). Thus, childhood abuse and intimate partner violence can be driven by discrimination and may therefore not be necessarily distinct from it. Although the items for childhood abuse and intimate partner violence have been used in prior research (Reisner, et al., 2013), their brief single-item nature could be improved in future research by utilizing screeners with established psychometric properties.

Despite the limitations, our findings have implications for treatment interventions. (Maugen, Shipherd, & Harris, 2005). Considering everyday experiences of multiple forms of discrimination in PTSD treatment represents a critical aspect of clinical care for traumatized transgender people. Integrating evidenced-based treatments for PTSD, such as cognitive behavioral interventions (Forneris et al., 2013; Kar, 2011; Maguen, et al., 2005; Resick, Nishith, Weaver, Astin, & Feuer, 2002), with gender minority stress models (Hendricks & Testa, 2012) will ensure cultural responsiveness of interventions to meet the unique needs of transgender communities. Coping resources can act as a buffer against discrimination (Thoits, 1991); thus, skills-focused coping may represent an important component of clinical intervention. Given that only a minority of individuals who experience traumatic stressors develop PTSD symptomatology (Yehuda & McFarlane, 1995) and that the majority of

transgender individuals demonstrate resilience in a context of pervasive societal oppressions (Mizock & Lewis, 2008), uncovering the biopsychosocial mechanisms underlying vulnerability to and protection against PTSD represents a key future research direction with this population. Given that online respondents had statistically significantly lower discrimination and PTSD symptom scores relative to those completing the survey in-person, community efforts that engage transgender people “face-to-face” represent an important way of transgender people at-risk social stress and PTSD symptomatology.

Acknowledgments

Acknowledgements and Credits: We wish to thank our participants, outreach consultants (Lorelei Erisis, Maria Roman), and community partners: Massachusetts Transgender Political Coalition (MTPC) (Jesse Begenyi, Mason Dunn, Gunner Scott, Devyn Shea); Boston Medical Center Health Care for the Homeless (Pam Klein, Rebecca Thal); Network/La Red (Tre’ Andre Valentine); AIDS Project Worcester (Jesse Pack); Boston Glass (Tharyn Grant); Fenway staff (Emilia Dunham, Julia Coffey-Esquivel, Amaya Perez-Brumer, Angela Robertson, Nelisa Rash, Layla Stamper, Dana Pardee, Justice Williams, Anum Awan).

Funding: This project was partly supported with funding from the Miller Foundation and Fenway. Dr. Reisner is partly supported by grant NIMH R01MH094323; Ms. White by NIMH T32MH020031 and P30MH062294; Dr. Gamarel by NIMH T32MH078788; Dr. Keuroghlian by the Kraft Family National Center for Leadership & Training in Community Health. Funding sources had no role in study design, collection, data analysis and interpretation, article writing, or decision to submit for publication.

References

- Allison PD. Missing data techniques for structural equation modeling. *Journal of Abnormal Psychology*. 2003; 112(4):545–557. [PubMed: 14674868]
- Andresen EM, Malmgren JA, Carter WB, Patrick DL. Screening for depression in well older adults: evaluation of a short form of the CES-D. *American Journal of Preventive Medicine*. 1994; 10(2):77–84. [PubMed: 8037935]
- APA. *Diagnostic and Statistical Manual of Mental Disorders, (DSM-5®)*. Washington, DC: American Psychiatric Publishing; 2013.
- Ard KL, Makadon HJ. Addressing intimate partner violence in lesbian, gay, bisexual, and transgender patients. *Journal of General Internal Medicine*. 2011; 26(8):930–933. [PubMed: 21448753]
- Balan S, Widner G, Shroff M, van den Berk-Clark C, Scherrer J, Price RK. Drug use disorders and post-traumatic stress disorder over 25 adult years: Role of psychopathology in relational networks. *Drug and Alcohol Dependence*. 2013; 133(1):228–234. [PubMed: 23726975]
- Basile, K.; Hertz, M.; Back, S. Intimate partner violence and sexual violence victimization assessment instruments for use in healthcare settings: version 1. 2007. Retrieved October 18, 2015, from <http://www.cdc.gov/violenceprevention/pdf/ipv/ipvandsvscreening.pdf>
- Bender K, Ferguson K, Thompson S, Komlo C, Pollio D. Factors associated with trauma and posttraumatic stress disorder among homeless youth in three US cities: The importance of transience. *Journal of Traumatic Stress*. 2010; 23(1):161–168. [PubMed: 20146399]
- Blake DD, Weathers FW, Nagy LM, Kaloupek DG, Gusman FD, Charney DS, Keane TM. The development of a clinician-administered PTSD scale. *Journal of Traumatic Stress*. 1995; 8(1):75–90. [PubMed: 7712061]
- Bockting WO, Miner MH, Romine RE, Hamilton A, Coleman E. Stigma, mental health, and resilience in an online sample of the US transgender population. *American Journal of Public Health*. 2013; 103(5):943–951. [PubMed: 23488522]
- Bonanno GA, Mancini AD. Beyond resilience and PTSD: Mapping the heterogeneity of responses to potential trauma. *Journal of Psychological Trauma*. 2012; 4(1):74–83.
- Bowleg L, Fitz CC, Burkholder GJ, Massie JS, Wahome R, Teti M, Tschann JM. Racial discrimination and posttraumatic stress symptoms as pathways to sexual HIV risk behaviors among urban Black heterosexual men. *AIDS care*. 2014; 26(8):1050–1057. [PubMed: 24797317]

- Bradley KL, Bagnell AL, Brannen CL. Factor validity of the Center for Epidemiological Studies Depression 10 in adolescents. *Issues Ment Health Nurs*. 2010; 31(6):408–412. [PubMed: 20450343]
- Brennan J, Kuhns LM, Johnson AK, Belzer M, Wilson EC, Garofalo R. Syndemic theory and HIV-related risk among young transgender women: the role of multiple, co-occurring health problems and social marginalization. *American Journal of Public Health*. 2012; 102(9):1751–1757. [PubMed: 22873480]
- Breslau N, Kessler RC. The stressor criterion in DSM-IV posttraumatic stress disorder: an empirical investigation. *Biological Psychiatry*. 2001; 50(9):699–704. [PubMed: 11704077]
- Breslau N, Kessler RC, Chilcoat HD, Schultz LR, Davis GC, Andreski P. Trauma and posttraumatic stress disorder in the community: the 1996 Detroit Area Survey of Trauma. *Archives of General Psychiatry*. 1998; 55(7):626–632. [PubMed: 9672053]
- Brewin CR, Andrews B, Valentine JD. Meta-analysis of risk factors for posttraumatic stress disorder in trauma-exposed adults. *Journal of Consulting and Clinical Psychology*. 2000; 68(5):748. [PubMed: 11068961]
- Carpenter J, Andrykopwski M, Wilson J, Hall LA, Rayens MK, Sachs B, Cunningham L. Psychometrics for two short forms of the Centre for Epidemiological Studies-Depression Scale. *Issues in Mental Health Nursing*. 1998; 19:481–494. [PubMed: 9782864]
- Carter RT, Forsyth J. Reactions to racial discrimination: Emotional stress and help-seeking behaviors. *Journal of Psychological Trauma*. 2010; 2(3):183.
- CDC. Behavioral Risk Factor Surveillance System Survey Questionnaire. Atlanta, GA: Centers for Disease Control and Prevention; 2012.
- Chiu KB, deRoon-Cassini TA, Brasel KJ. Factors identifying risk for psychological distress in the civilian trauma population. *Academic Emergency Medicine*. 2011; 18(11):1156–1160. [PubMed: 22044521]
- Clements-Nolle K, Marx R, Katz M. Attempted suicide among transgender persons: The influence of gender-based discrimination and victimization. *Journal of Homosexuality*. 2006; 51(3):53–69. [PubMed: 17135115]
- Cohen, J. *Statistical Power Analysis for the Behavioral Sciences*, 2nd Edition. 2. Hillsdale, NJ: Lawrence Erlbaum Associates, Inc; 1988.
- Cole ER. Intersectionality and research in psychology. *American Psychologist*. 2009; 64(3):170. [PubMed: 19348518]
- Colizzi M, Costa R, Todarello O. Transsexual patients' psychiatric comorbidity and positive effect of cross-sex hormonal treatment on mental health: Results from a longitudinal study. *Psychoneuroendocrinology*. 2014; 39:65–73. [PubMed: 24275005]
- Crenshaw K. Mapping the margins: Intersectionality, identity politics, and violence against women of color. *Stan L Rev*. 1991:1241–1299.
- Daley A, Solomon S, Newman PA, Mishna F. Traversing the margins: Intersectionalities in the bullying of lesbian, gay, bisexual, and transgender youth. *Gay and Lesbian Social Services*. 2008; 19(3–4)
- de Vries KM. Intersectional identities and conceptions of the self: The experiences of transgender people. *Symbolic Interaction*. 2014; 35(1):49–67.
- Devor AH. Witnessing and mirroring: A fourteen stage model of transsexual identity formation. *Journal of Gay & Lesbian Mental Health*. 2004; 8:41–67.
- Diaz RM, Ayala G, Bein E, Henne J, Marin BV. The impact of homophobia, poverty, and racism on the mental health of gay and bisexual Latino men: Findings from 3 US cities. *American Journal of Public Health*. 2001; 91(6):927. [PubMed: 11392936]
- Forneris CA, Gartlehner G, Brownley KA, Gaynes BN, Sonis J, Coker-Schwimmer E, Woodell CL. Interventions to prevent post-traumatic stress disorder: a systematic review. *American Journal of Preventive Medicine*. 2013; 44(6):635–650. [PubMed: 23683982]
- Gamarel KE, Reisner SL, Laurenceau JP, Nemoto T, OPerario D. Gender minority stress, mental health, and relationship quality: A dyadic investigation of transgender women and their cisgender male partners. *Journal of Family Psychology*. 2014; 28(4):437–447. [PubMed: 24932942]

- Gamarel KE, Reisner SL, Parsons JT, Golub SA. Association between socioeconomic position discrimination and psychological distress: Findings from a community-based sample of gay and bisexual men in New York City. *American Journal of Public Health*. 2012; 102(11):2094–2101. [PubMed: 22994188]
- Gamarel KE, Walker JJ, Rivera L, Golub SA. Identity safety and relational health in youth spaces: A needs assessment with LGBTQ youth of color. *LGBT Youth*. 2014; 11(3):289–314.
- Geronimus AT. The weathering hypothesis and the health of African-American women and infants: evidence and speculations. *Ethn Dis*. 1992; 2(3):207–221. [PubMed: 1467758]
- Golding JM. Intimate partner violence as a risk factor for mental disorders: A meta-analysis. *Journal of Family Violence*. 1999; 14(2):99–132.
- Golub SA, Gamarel KE. The impact of anticipated HIV stigma on delays in HIV testing behaviors: Findings from a community-based sample of men who have sex with men and transgender women in New York City. *AIDS Patient Care and STDs*. 2013; 27(11):621–627. [PubMed: 24138486]
- Gómez-Gil E, Zubiaurre-Elorza L, Esteva I, Guillamon A, Godás T, Almaraz MC, Salamero M. Hormone-treated transsexuals report less social distress, anxiety and depression. *Psychoneuroendocrinology*. 2012; 37(5):662–670. [PubMed: 21937168]
- Gordon AR, Meyer IH. Gender nonconformity as a target of prejudice, discrimination, and violence against LGB individuals. *Journal of LGBT Health Research*. 2008; 3(3):55–71. [PubMed: 19042905]
- Grant, JM.; Mottet, Lisa A.; Tanis, Justin; Harrison, Jack; Herman, Jody L.; Keisling, Mara. *Injustice at Every Turn: A Report of the National Transgender Discrimination Survey*. Washington, DC: National Center for Transgender Equality and National Gay and Lesbian Task Force; 2011.
- Grollman EA. Multiple forms of perceived discrimination and health among adolescents and young adults. *Journal of Health and Social Behavior*. 2012; 53(2):199–214. [PubMed: 22588219]
- Grossman AH, Howell TJ. Parents' Reactions to Transgender Youths' Gender Nonconforming Expression and Identity. *Journal of Gay & Lesbian Social Services*. 2005; 18:1.
- Hatzenbuehler ML, McLaughlin KA. Structural Stigma and Hypothalamic–Pituitary–Adrenocortical Axis Reactivity in Lesbian, Gay, and Bisexual Young Adults. *Annals of Behavioral Medicine*. 2014; 47(1):39–47. DOI: 10.1007/s12160-013-9556-9 [PubMed: 24154988]
- Hatzenbuehler ML, Nolen-Hoeksema S, Dovidio J. How does stigma “get under the skin”? The mediating role of emotion regulation. *Psychological Science*. 2009; 20(10):1282–1289. [PubMed: 19765237]
- Hembree WC, Cohen-Kettenis P, Delemarre-van de Waal HA, Gooren LJ, Meyer WJ 3rd, Spack NP, Montori VM. Endocrine treatment of transsexual persons: an Endocrine Society clinical practice guideline. *J Clin Endocrinol Metab*. 2009; 94(9):3132–3154. [PubMed: 19509099]
- Hendricks ML, Testa RJ. A conceptual framework for clinical work with transgender and gender nonconforming clients: An adaptation of the Minority Stress Model. *Professional Psychology Research and Practice*. 2012; 43(5):460.
- Hulme PA. Retrospective measurement of childhood sexual abuse: A review of instruments. *Child Maltreatment*. 2004; 9(2):201–217. [PubMed: 15104889]
- Jones, EE.; Farina, A.; Hastorf, AH.; French, RdS. *Social Stigma: The Psychology of Marked Relationships*. New York, NY: WH Freeman; 1984.
- Jou YJ, Huang CCL, Cho HJ. A VIF-based optimization model to alleviate collinearity problems in multiple linear regression. *Computational Statistics*. 2014; 29(6):1515–1541.
- Kar N. Cognitive behavioral therapy for the treatment of post-traumatic stress disorder: a review. *Journal of Neuropsychiatric Disease and Treatment*. 2011; 7:167. [PubMed: 21552319]
- Keo-Meier CL, Herman LI, Reisner SL, Pardo ST, Sharp C, Babcock JC. Testosterone Treatment and MMPI–2 Improvement in Transgender Men: A Prospective Controlled Study. *Journal of Consulting and Clinical Psychology*. 2014; 83(1):43.
- Kessler RC. Posttraumatic stress disorder: the burden to the individual and to society. *J Clin Psychiatry*. 2000; 61(Suppl 5):4–12. discussion 13–14. [PubMed: 10761674]
- Kessler RC, Berglund P, Demler O, Jin R, Merikangas KR, Walters EE. Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry*. 2005; 62(6):593–602. [PubMed: 15939837]

- Krieger N. Genders, sexes, and health: what are the connections—and why does it matter? *International Journal of Epidemiology*. 2003; 32(4):652–657. [PubMed: 12913047]
- Krieger N, Smith K, Naishadham D, Hartman C, Barbeau EM. Experiences of discrimination: validity and reliability of a self-report measure for population health research on racism and health. *Social Science and Medicine*. 2005; 61(7):1576–1596. DOI: 10.1016/j.socscimed.2005.03.006 [PubMed: 16005789]
- Landrine H, Klonoff EA. The schedule of racist events: A measure of racial discrimination and a study of its negative physical and mental health consequences. *Journal of Black Psychology*. 1996; 22(2):144–168.
- Lee KJ, Carlin JB. Multiple imputation for missing data: fully conditional specification versus multivariate normal imputation. *American Journal of Epidemiology*. 2010; 171(5):624–632. [PubMed: 20106935]
- Leung MW, Yen IH, Minkler M. Community based participatory research: a promising approach for increasing epidemiology's relevance in the 21st century. *International Journal of Epidemiology*. 2004; 33(3):499–506. [PubMed: 15155709]
- Lombardi EL. Varieties of transgender/transsexual lives and their relationship with transphobia. *Journal of Homosexuality*. 2009; 56(8):977–992. [PubMed: 19882422]
- Lombardi EL, Wilchins RA, Priesing D, Malouf D. Gender violence: Transgender experiences with violence and discrimination. *Journal of Homosexuality*. 2002; 42(1):89–101. [PubMed: 11991568]
- Maguen S, Lucenko BA, Reger MA, Gahm GA, Litz BT, Seal KH, Marmar CR. The impact of reported direct and indirect killing on mental health symptoms in Iraq war veterans. *Journal of Traumatic Stress*. 2010; 23(1):86–90. [PubMed: 20104592]
- Maguen S, Shipherd JC, Harris HN. Providing culturally sensitive care for transgender patients. *Cognitive and Behavioral Practice*. 2005; 12:479–490.
- Mason MJ, Mennis J, Schmidt CD. A social operational model of urban adolescents' tobacco and substance use: A mediational analysis. *Journal of Adolescence*. 2011; 34(5):1055–1063. [PubMed: 21144577]
- McAdams DP. The case for unity in the (post) modern self. *Self and Identity: Fundamental Issues*. 1997; 1:46–78.
- McEwen BS, Stellar E. Stress and the individual: mechanisms leading to disease. *Archives of Internal Medicine*. 1993; 153(18):2093–2101. [PubMed: 8379800]
- McFarlane J, Parker B, Soeken K, Bullock L. Assessing for abuse during pregnancy: severity and frequency of injuries and associated entry into prenatal care. *JAMA*. 1992; 267(23):3176–3178. [PubMed: 1593739]
- Meyer IH. Prejudice as stress: conceptual and measurement problems. *American Journal of Public Health*. 2003a; 93(2):262–265. [PubMed: 12554580]
- Meyer IH. Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: conceptual issues and research evidence. *Psychological Bulletin*. 2003b; 129(5):674. [PubMed: 12956539]
- Meyer IH. Identity, stress, and resilience in lesbians, gay men, and bisexuals of color. *The Counseling Psychologist*. 2010; 38(3):442–454.
- Meyer IH. Prejudice, Social Stress, and Mental Health in Lesbian, Gay, and Bisexual Populations. *Psychology of Sexual Orientation and Gender Diversity*. 2013; 1:3–26.
- Miner MH, Bockting WO, Romine RS, Raman S. Conducting Internet research with the transgender population: Reaching broad samples and collecting valid data. *Social Science Computer Review*. 2011; 30(2):202. [PubMed: 24031157]
- Mizock L, Lewis TK. Trauma in transgender populations: Risk, resilience, and clinical care. *Journal of Emotional Abuse*. 2008; 8(3):335–354.
- Mizock L, Mueser K. Employment, mental health, internalized stigma, and coping with transphobia among transgender individuals. *Psychology of Sexual Orientation and Gender Diversity*. 2014; 1(2):146–158.
- O'Donnell ML, Creamer M, Pattison P. Posttraumatic stress disorder and depression following trauma: understanding comorbidity. *American Journal of Psychiatry*. 2014; 161(8):1390. [PubMed: 15285964]

- Ouimette P, Wade M, Prins A, Schohn M. Identifying PTSD in primary care: comparison of the Primary Care-PTSD screen (PC-PTSD) and the General Health Questionnaire-12 (GHQ). *Journal of Anxiety Disorders*. 2008; 22(2):337–343. [PubMed: 17383853]
- Pachankis JE, Goldfried MR, Ramrattan ME. Extension of the rejection sensitivity construct to the interpersonal functioning of gay men. *Journal of Consulting and Clinical Psychology*. 2008; 76(2):306. [PubMed: 18377126]
- Pascoe EA, Richman LS. Perceived Discrimination and Health: A Meta-Analytic Review. *Psychological Bulletin*. 2009; 135(4):531–554. DOI: 10.1037/a0016059 [PubMed: 19586161]
- Prins A, Ouimette P, Kimerling R, Cameron RP, Hugelshofer DS, Shaw-Hegwer J, Sheikh JI. The primary care PTSD screen (PC-PTSD): Development and operating characteristics. *Primary Care Psychiatry*. 2003; 9(1):9–14.
- Prins A, Ouimette P, Kimerling R, Cameron RP, Hugelshofer DS, Shaw-Hegwer J, Sheikh JI. The primary care PTSD screen (PC-PTSD): Corrigendum. *Primary Care Psychiatry*. 2004; 9:151.
- Radloff LS. The CES-D scale: a self-report depression scale for research in the general population. *Appl Psych Meas*. 1977; 1:385–401.
- Reisner SL, Bailey Z, Sevelius J. Racial/ethnic disparities in history of incarceration, experiences of victimization, and associated health indicators among transgender women in the US. *Women & Health*. 2014; 54(8):75.
- Reisner SL, Conron K, Scout N, Mimiaga MJ, Haneuse S, Austin SB. Comparing in-person and online survey respondents in the US National Transgender Discrimination Survey: implications for transgender health research. *LGBT Health*. 2014; 1(2):98–106. [PubMed: 26789619]
- Reisner SL, Conron KJ, Tardiff LA, Jarvi S, Gordon AR, Austin SB. Monitoring the health of transgender and other gender minority populations: Validity of natal sex and gender identity survey items in a U.S. national cohort of young adults. *BMC Public Health*. 2014; 14:1224. [PubMed: 25427573]
- Reisner SL, Falb KL, Wagenen AV, Grasso C, Bradford J. Sexual orientation disparities in substance misuse: the role of childhood abuse and intimate partner violence among patients in care at an urban community health center. *Subst Use Misuse*. 2013; 48(3):274–289. [PubMed: 23368669]
- Reisner SL, Hughto JM, Dunham EE, Heflin KJ, Begenyi JB, Coffey-Esquivel J, Cahill S. Legal Protections in Public Accommodations Settings: A Critical Public Health Issue for Transgender and Gender-Nonconforming People. *Milbank Quarterly*. 2015; 93(3):484–515. [PubMed: 26219197]
- Reisner SL, White JM, Bradford JB, Mimiaga MJ. Transgender Health Disparities: Comparing Full Cohort and Nested Matched-Pair Study Designs in a Community Health Center. *LGBT Health*. 2014; 1(3):177–184. [PubMed: 25379511]
- Resick PA, Nishith P, Weaver TL, Astin MC, Feuer CA. A comparison of cognitive-processing therapy with prolonged exposure and a waiting condition for the treatment of chronic posttraumatic stress disorder in female rape victims. *Journal of Consulting and Clinical Psychology*. 2002; 70(4):867. [PubMed: 12182270]
- Rowe C, Santos GM, McFarland W, Wilson EC. Prevalence and correlates of substance use among trans* female youth ages 16–24 years in the San Francisco Bay Area. *Drug and Alcohol Dependence*. 2015; 147:160–166. [PubMed: 25548025]
- Sayer NA, Frazier P, Orazem RJ, Murdoch M, Gravely A, Carlson KF, Noorbaloochi S. Military to civilian questionnaire: a measure of postdeployment community reintegration difficulty among veterans using Department of Veterans Affairs medical care. *Journal of Traumatic Stress*. 2011; 24(6):660–670. [PubMed: 22162082]
- Sevelius JM. Gender Affirmation: A Framework for Conceptualizing Risk Behavior among Transgender Women of Color. *Sex Roles*. 2013; 68(11–12):675–689. [PubMed: 23729971]
- Shipherd JC, Maguen S, Skidmore WC, Abramovitz SM. Potentially traumatic events in a transgender sample: Frequency and associated symptoms. *Traumatology*. 2011; 17(2):56–67.
- Singer JA. Narrative identity and meaning making across the adult lifespan: An introduction. *Journal of Personality*. 2004; 72(3):437–460. [PubMed: 15102034]
- Stotzer RL. Violence against transgender people: A review of United States data. *Aggression and Violent Behavior*. 2009; 14(3):170–179.

- Stuber J, Galea S, Ahern J, Blaney S, Fuller C. The Association between Multiple Domains of Discrimination and Self-assessed Health: A Multilevel Analysis of Latinos and Blacks in Four Low-Income New York City Neighborhoods. *Health Services Research*. 2003; 38(6 Pt 2):1735–1760. [PubMed: 14727795]
- Swim, JK.; Thomas, MA. Responding to everyday discrimination: A synthesis of research on goal-directed, self-regulatory coping behaviors. In: Levin, S.; Laar, CV., editors. *Stigma and Group Inequality*. Mahwah, NJ: Erlbaum; 2006. p. 105-128.
- Taylor TR, Kamarck TW, Shiffman S. Validation of the Detroit Area Study Discrimination Scale in a community sample of older African American adults: the Pittsburgh healthy heart project. *Int J Behav Med*. 2004; 11(2):88–94. [PubMed: 15456677]
- Thoits, PA. *The Social Context of Coping*. New York, NY: Springer; 1991. Gender differences in coping with emotional distress; p. 107-138.
- Tolin DF, Foa EB. Sex differences in trauma and posttraumatic stress disorder: a quantitative review of 25 years of research. *Psychological Bulletin*. 2006; 132(6):959. [PubMed: 17073529]
- U.S. Department of Veteran’s Affairs. PTSD: National Center for PTSD, Primary Care PTSD Screen (PC-PTSD). 2014. Retrieved October 6, 2014, from <http://www.ptsd.va.gov/professional/assessment/screens/pc-ptsd.asp>
- Ullman SE, Relyea M, Peter-Hagene L, Vasquez AL. Trauma histories, substance use coping, PTSD, and problem substance use among sexual assault victims. *Addictive Behaviors*. 2013; 38(6):2219–2223. [PubMed: 23501138]
- Valera RJ, Sawyer RG, Schiraldi GR. Perceived health needs of inner-city street prostitutes: A preliminary study. *American Journal of Health Behavior*. 2001; 25(1):50–59. [PubMed: 11289729]
- van Buuren S. Multiple imputation of discrete and continuous data by fully conditional specification. *Stat Methods Medical Res*. 2007; 16(3):219–242.
- van Buuren S, Brand JP, Groothuis-Oudshoorn C, Rubin DB. Fully conditional specification in multivariate imputation. *J Stat Computation Simulation*. 2006; 76(12):1049–1064.
- Wharton, VW. *Gender variance and mental health: A national survey of transgender trauma history, posttraumatic stress, and disclosure in therapy*. Smith College; 2007.
- Williams DR, Dolly JA, Oyserman D, Sonnega J, Mohammed SA, Jackson JS. Research on discrimination and health: An exploratory study of unresolved conceptual and measurement issues. *American Journal of Public Health*. 2012; 102(5):975–978. [PubMed: 22420798]
- Williams DR, Neighbors HW, Jackson JS. Racial/ethnic discrimination and health: Findings from community studies. *American Journal of Public Health*. 2003; 93(2):200–208. [PubMed: 12554570]
- Williams DR, Yan Y, Jackson JS, Anderson NB. Racial Differences in Physical and Mental Health: Socio-economic Status, Stress and Discrimination. *Journal of Health Psychology*. 1997; 2(3): 335–351. DOI: 10.1177/135910539700200305 [PubMed: 22013026]
- Wilson EC, Chen YH, Arayasirikul S, Wenzel C, Raymond HF. Connecting the Dots: Examining Transgender Women’s Utilization of Transition-Related Medical Care and Associations with Mental Health, Substance Use, and HIV. *Journal of Urban Health*. 2015; 92(1):182–192. [PubMed: 25476958]
- Wilson, MS. *Violence and Mental Health in the Transgender Community*. Ohio University; 2013.
- Witten TM. Graceful exits: Intersection of aging, transgender identities, and the family/community. *Journal of GLBT Family Studies*. 2009; 5(1–2):35–61.
- Xavier J. *Passing as privilege. Part Two of a Series on Transfeminism*. 1999
- Yehuda R, McFarlane AC. Conflict between current knowledge about posttraumatic stress disorder and its original conceptual basis. *American Journal of Psychiatry*. 1995; 152(12):1705–1713. [PubMed: 8526234]
- Zhang W, O’Brien N, Forrest JI, Salters KA, Patterson TL, Montaner JSG, Lima VD. Validating a shortened depression scale (10 item CES-) among HIV-positive people in British Columbia, Canada. *PLoS ONE*. 2012; 7(7):e40793. [PubMed: 22829885]

Table 1

Descriptive Statistics of Transgender Adults in Massachusetts (n=412)

	Mean (SD)	%	n
Outcome			
PTSD Symptom Scores (range 0–4) [†]			
Mean (SD)	1.95 (1.71)	--	412
Median (IQR)	2.00 (4.00)	--	412
Independent Variables			
Everyday Discrimination Scores (range 0–44)			
Mean (SD)	19.88 (9.58)	--	412
Median (IQR)	19.00 (13.00)	--	412
Number of Attributed Reasons for Discrimination Experiences			
Mean (SD) (range 0–14)	4.84 (2.39)	--	412
Median (IQR)	5.00 (3.00)	--	412
Covariates			
Childhood Abuse Age < 15 Years		46.6	192
Intimate Partner Violence		33.3	137
Depression (CESD Score 10+)		26.5	109
Substance Use, Past 12 Months (2 or More)		18.5	336
Age – Mean (SD) (range 18–72)	32.74 (12.79)	--	412
FTM Spectrum		62.6	258
Binary Gender Identity		59.7	246
Social Gender Transition (Live Full-Time)		76.9	317
Medical Gender Affirmation (Hormones and/or Surgery)		58.7	242
High Visual Nonconforming Gender Expression		21.6	89
People of Color (POC)		19.2	79
Socioeconomic Status			
Income (0–3)	1.39 (0.73)	--	412
Educational Attainment (1–4)	2.65 (0.97)	--	412
Unstably Housed		25.5	105
Sexual Minority (Lesbian/Gay/Bisexual/Queer/Other)		87.1	359
Online Survey Mode		87.9	362

[†]Note: 44.4% of the sample (n=183) met criteria for probable PTSD (score 3+)

Table 2

Reasons Attributed for Discrimination (14 Attributions) (n=412)

	%	n
Age	43.5	170
Sex	56.8	234
Race	11.9	49
Ethnicity	11.4	47
Nationality	5.8	24
Religion	13.4	55
Sexual Orientation	68.0	280
Disability	17.7	73
Education and/or Income	23.1	95
Weight	29.9	123
Gender Identity and/or Expression	83.2	343
How Masculine or Feminine You Appear	78.6	324
Other Appearance	30.1	124
Other Reason	10.6	44

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

Table 3

Linear Models Adjusted for Survey Mode Showing Associations Between PTSD Symptoms, Everyday Experiences of Discrimination, and Number of Reasons for Discrimination Among Transgender Adults in Massachusetts (n=412).

	PTSD Symptoms	Everyday Experiences of Discrimination	Number of Attributed Reasons for Discrimination
PTSD Symptoms	1.00		
Everyday Experiences of Discrimination	0.41 ***	1.00	
Number of Attributed Reasons for Discrimination	0.23 ***	0.38 ***	1.00

p<0.0001

Table 4

Multivariable Linear Models[†] Examining Everyday Experiences of Discrimination (Model 1) and PTSD Symptoms (Model 2) Among Transgender Adults in Massachusetts (n=412)

	Multivariable Model: Everyday Experiences of Discrimination		Multivariable Model: PTSD Symptoms	
	Beta (95% CL)	p-value	Beta (95% CL)	p-value
Independent Variables:				
Everyday Experiences of Discrimination	--	--	0.25 (0.21, 0.30)	<0.0001
Number of Attributed Reasons for Discrimination	0.29 (0.25, 0.33)	<0.0001	0.05 (0.01, 0.10)	0.015
Covariates:				
Physical and/or Sexual Abuse Age < 15 Years vs None	0.31 (0.23, 0.39)	<0.0001	0.29 (0.21, 0.37)	<0.0001
Intimate Partner Violence vs None	0.06 (-0.02, 0.14)	0.113	0.18 (0.10, 0.26)	<0.0001
Depression, Last 7 Days vs None	0.44 (0.35, 0.53)	<0.0001	0.23 (0.14, 0.32)	<0.0001
Polydrug Use, Last 12 Months (2+ Substances) vs 0/1 Substance	0.05 (-0.05, 0.15)	0.302	0.13 (0.03, 0.23)	0.009
Age (Continuous in Years)	0.01 (-0.03, 0.06)	0.521	-0.17 (-0.21, -0.12)	<0.0001
FTM Spectrum vs MTF Spectrum	0.16 (0.06, 0.25)	0.001	-0.21 (-0.30, -0.11)	<0.0001
Non-Binary Gender Identity vs Gender Binary Identity	-0.14 (-0.23, -0.05)	0.003	-0.03 (-0.13, 0.06)	0.493
Social Gender Transition (Live Full-Time) vs Not	0.07 (-0.03, 0.17)	0.167	0.13 (0.03, 0.23)	0.014
Medical Gender Affirmation (Hormones/Surgery) vs Not	0.03 (-0.06, 0.13)	0.459	-0.10 (-0.19, -0.01)	0.043
High Visual Gender Nonconformity vs Low/Moderate	0.25 (0.16, 0.34)	<0.0001	0.17 (0.08, 0.27)	0.0003
People of Color vs Non-White (Non-Hispanic)	0.12 (0.02, 0.22)	0.016	-0.05 (-0.15, 0.05)	0.312
Income (Continuous 0-3)	-0.11 (-0.14, -0.07)	<0.0001	-0.03 (-0.07, 0.01)	0.106
Educational Attainment (Continuous 1-4)	0.03 (-0.01, 0.07)	0.183	-0.02 (-0.07, 0.02)	0.262
Unstably Housed vs Stably Housed	0.39 (0.30, 0.48)	<0.0001	0.24 (0.15, 0.33)	<0.0001
Sexual Minority vs Heterosexual/Straight	-0.12 (-0.23, -0.01)	0.034	0.04 (-0.08, 0.15)	0.533
Online vs In-Person Survey Mode	-0.30 (-0.43, -0.18)	<0.0001	-0.47 (-0.60, -0.34)	<0.0001
R-Squared:	0.323		0.296	
F-Value:	57.28	<0.0001	47.74	<0.0001

[†]Z-scored variables: Everyday Discrimination Scale Scores, Number of Attributed Domains of Discrimination, PTSD Symptoms, Age.