Resilience and Collective Action: Exploring Buffers Against Minority Stress for Transgender Individuals

Aaron S. Breslow, Melanie E. Brewster, Brandon L. Velez, Stephanie Wong, Elizabeth Geiger, and Blake Soderstrom
Columbia University

With a national sample of 552 transgender adults, the present study tested hypotheses drawn from minority stress theory and positive psychology research on stress-ameliorating processes. Specifically, the present study examined the relations of minority stressors (i.e., antitransgender discrimination, stigma awareness, and internalized transphobia) and individual- and group-level buffers (i.e., resilience and collective action) of minority stress. As expected, each minority stressor was positively correlated with psychological distress. In terms of buffers, resilience—though not collective action—was negatively correlated with psychological distress. Additionally, stigma awareness—but not internalized transphobia—mediated the relation of antitransgender discrimination with higher psychological distress. Moderation analyses indicated that resilience did not moderate any of the relations of the minority stressors with psychological distress. However, contrary to prediction, collective action strengthened the positive relation of internalized transphobia with psychological distress. Furthermore, at high levels of collective action, internalized transphobia became a significant mediator of the discrimination-distress relation. Strategies for developing individual (e.g., resilience building strategies) and group-level (e.g., engagement in collective action) interventions targeted toward transgender individuals who experience discrimination are discussed.

Keywords: collective action, LGBTQ, minority stress, resilience, transgender

Transgender people frequently face multiple manifestations of discrimination, including violence and harassment (Lombardi, Wilchins, Priesing, & Malouf, 2002), economic and employment discrimination (Brewster, Velez, DeBlare, & Moradi, 2012; Brewster, Velez, Mennicke, & Tebbe, 2014; Mizock & Mueser, 2014), and culturally incompetent health care (Bradford, Reisner, Hommold, & Xavier, 2013; Lombardi, 2007). Not surprisingly, transgender people experience disproportionately high rates of psychological distress (Budge, Adelson, & Howard, 2013). Illustratively, in a national survey of 6,456 transgender adults, 41% reported having attempted suicide at least once, as compared with the national average of less than 2% (Grant et al., 2010). Notably, the psychological processes through which antitransgender discrimination may precipitate psychological distress remain understudied. Minority stress theory—which posits that social stressors stemming from stigmatized identities account for poorer psychological functioning and compromised well-being among marginalized populations (Brooks, 1981; Meyer, 1995, 2003)—is a conceptual model that may be particularly relevant to understanding the discrimination experienced by transgender people.

Scholars have also called for research identifying individual-level (e.g., resilience) and group-level coping mechanisms (e.g., involvement in collective action for transgender issues) that may buffer against the deleterious associations of stressors experienced by transgender individuals (Riggle, Rostosky, McCants, & Pascale-Hague, 2011; Singh, 2013; Testa, Jimenez, & Rankin, 2014). Numerous qualitative studies have identified protective strategies used by transgender people to buffer against discrimination (Mizock & Lewis, 2008; Riggle et al., 2011; Singh, Hays, & Watson, 2011; Singh & McLeroy, 2011). As such, this study aims to build concomitantly on current conceptualizations of minority stress and protective strategies through a large-scale, national study with transgender participants. The current research expands on recent extensions of minority stress theory (Hatzenebucher, 2009) by examining proximal stressors (i.e., stigma awareness, internalized transphobia) as potential mediators of the relations between distal stressors (i.e., antitransgender discrimination) and psychological distress. In addition, we tested resilience and collective action as potential moderators of the relations of minority stressors with distress.

Transgender-Specific Minority Stressors and Psychological Distress

Most often used with lesbian, gay, and bisexual (LGB) populations, minority stress theory is a theoretical lens well positioned to explore the relations of discrimination and mental health with transgender populations. Building on work by Lazarus and Folk-
man (1984), Meyer (1995, 2003) proposed a model of minority stress with LGB people illustrating that both distal stressors (i.e., stressors external to the person such as experiences of heterosexist discrimination) and proximal stressors (i.e., stressors internal to the person, such as stigma awareness or internalized heterosexism) coalesce in disproportionately high rates of psychological distress. To establish a nuanced understanding of the relationships between discrimination and psychological distress, we propose an adapted model reflecting the unique distal and proximal minority stressors often experienced by transgender people.

First, transgender individuals are exposed to prejudice and harassment (i.e., experiences of antitransgender discrimination); such distal stressors are related to symptoms of psychological distress, including suicidal ideation, anxiety, and depression (Bazzargan & Galvan, 2012; Budge et al., 2013; Clements-Nolle, Marx, & Katz, 2006; Reisner et al., 2014), in addition to poor physical health outcomes (Reisner et al., 2014; Sugano, Nemoto, & Operario, 2006). Second, transgender individuals may incorporate society’s negative evaluations of transgender people into their self-concept; this proximal stressor is referred to as internalized transphobia, and can lead to negative self-appraisals (Hendricks & Testa, 2012; Testa et al., 2012). Third, experiences of antitransgender discrimination may promote the proximal stressor stigma awareness, an expectation or fear of encountering future discrimination that is associated with deficits in mental and physical health (Mizock & Fleming, 2011; Perry & Dyck, 2014). We aim to build on these limited data by examining multiple manifestations of minority stress simultaneously as predictors of mental health among transgender people.

The Mediating Roles of Proximal Minority Stressors

Drawing from clinical models of stress, recent elaborations on the original minority stress model have suggested that proximal stressors may actually mediate the relation between distal stressors and psychological outcomes (Grant et al., 2003; Hatzenbuehler, 2009). From this perspective, an external stressor (e.g., a discriminatory event) is the starting point in a causal chain leading to psychological distress. This process may be mediated by the subsequent emotional and cognitive appraisals of the external stressor—for example, becoming more aware of stigma toward one’s group (stigma awareness) and/or internalizing the antitransgender prejudice that sparked the discriminatory event (internalized transphobia). Support for this mediational model of minority stress has been demonstrated in recent research with cisgender sexual minority people (Brewster, Moradi, DeBlauere, & Velez, 2013; Burns, Kamen, Lehman, & Beach, 2012; Feinstein, Goldfried, & Davila, 2012; Puchankis et al., 2014; Szymanski, 2009; Szymanski & Izkizer, 2013; Velez, Moradi, & Brewster, 2013).

Unfortunately, only a few studies with transgender samples have begun to explore these mediational relations (Bockting, Miner, Swinburne Romine, Hamilton, & Coleman, 2013; Gamarel, Reisner, Laurenceau, Nemoto, & Operario, 2014; Hendricks & Testa, 2012; Reisner et al., 2014). Bockting and colleagues (2013), for example, established relations between antitransgender discrimination and psychological distress via stigma awareness (assessed by felt stigma) for transgender adults. A similar study established associations between antitransgender violence and suicide attempts via internalized transphobia, further supporting the applicability of the minority stress framework among transgender populations (Hendricks & Testa, 2012). Gamarel and colleagues (2014) established support for the mediating role of relationship stigma (similar to stigma awareness) in the relation between antitransgender discrimination and psychological distress experienced by transgender women and their cisgender (i.e., nontransgender) male partners. Additionally, scholars have called for empirical research with transgender people attending not only to stressors, but also to potential avenues of resilience and coping—at the individual (e.g., personal level of resilience) and group levels (e.g., engagement in collective action for transgender issues). We aim to explore how such strategies may buffer the impact of antitransgender discrimination on mental health.

Individual- and Group-Level Buffers of Minority Stress

Resilience

Meyer’s (2003) minority stress model proposed that both individual- and group-level resilience may moderate relations between minority stress and subsequent psychological distress. Transgender people, despite the impact of structural and interpersonal discrimination, demonstrate remarkable resilience — defined in this context as individual variables that protect minority group members from the deleterious effects of minority stressors (Meyer, 2003; Mizock & Lewis, 2008). Numerous studies have demonstrated that, among LGB people, resilience buffers the association of heterosexist minority stressors and psychological distress (Bowleg, Huang, Brooks, Black, & Burkholder, 2003; Russell, 2005). For example, self-esteem (an internal component of resilience) buffered the relation of heterosexist discrimination with psychological distress in a sample of gay and bisexual men (Szymanski, 2009).

A few recent studies have demonstrated ways transgender individuals harness resilience to buffer against discrimination (Bockting et al., 2013; Mizock & Lewis, 2008). Qualitative studies with diverse samples of transgender people have found that they use a variety of individual-level strategies to buffer minority stress, such as cultivating self-acceptance, gender and/or racial identity pride, a sense of personality mastery, self-esteem, and emotion-oriented coping (Grossman, D’augelli, & Frank, 2011; McFadden, Frankowski, Flick, & Witten, 2013; Singh et al., 2011; Singh & McKleroy, 2011). Despite the breadth of qualitative findings, little quantitative support exists about the buffering role of resilience in the relationship between transgender-specific minority stressors and psychological distress.

Collective Action

In addition to the individual-level buffering effects of resilience, transgender people who use social support and engage in an active transgender community often report reduced anxiety and isolation and improved well-being (Bockting et al., 2013; Lombardi, 1999; Nemoto, Bödeker, & Iwamoto, 2011). As such, the current study aims to explore how group-level coping may buffer the psychological associations with discrimination. The minority stress framework, after all, posits that group-level resilience (i.e., minority group community participation and social activism) may atten-
ulate the associations of discrimination with psychological distress (Meyer, 1995, 2003; Szymanski & Owens, 2009). These findings have been demonstrated among LGB people; those who engage in community participation often experience higher levels of self-acceptance, autonomy, and purpose in life, as well as lower levels of psychological distress (Kertzner, Meyer, Frost, & Stirrat, 2009; Kwon, 2013).

One such group-level coping factor used by transgender individuals may be collective action, or activities intended to enhance the status of transgender people in society. Collective action is an active form of community participation through which a member of a group acts as a representative of that group to promote its social conditions (Gamson, 1997; Wright, Taylor, & Mughaddam, 1990; Ashmore, Deaux, & McLaughlin-Volpe, 2004). A proactive form of coping, collective action grants people personal agency in improving their lives (Friedman & Leaper, 2010), and may attenuate the effects of minority stress among transgender people. Although numerous studies have established support for the protective qualities of collective action among LGB people in general (Bowleg, Craig, & Burkholder, 2004; Szymanski & Moffitt, 2012; Wright et al., 1990), HIV-positive gay Latino men (Ramirez-Valles, Fergus, Reisen, Poppen, & Zea, 2005), and sexual minority women (DeBlauere et al., 2014; Szymanski & Owens, 2009), no prior quantitative study has explicitly examined the moderating role of collective active with transgender people.

Exploring the minority stress buffering role of collective action is important, particularly given the recorded benefits of engaging in a transgender community. Illustratively, in a national survey with 3,087 transgender adults, a sense of connection to other transgender people was significantly associated with reduced fearfulness and anxiety, fewer instances of suicidal ideation, and an increase in personal comfort (Testa et al., 2014). Qualitative research with transgender individuals has established relations between collective action and psychological well-being (Levitt & Ippolito, 2014; Riggle et al., 2011). Singh and McKleroy (2011) explored these relations with 13 transgender youth of color to investigate resilience strategies in response to traumatic life events; they found that transgender activism was a major group-level coping strategy. Thus, the current study tests whether collective action, a group-level coping factor within transgender populations, may mitigate the psychological consequences of antigender discrimination via the minority stress mediational model proposed by Hatzenbuehler (2009).

The Present Study

The present study aimed to extend the minority stress framework by testing the associations of minority stressors—antigender discrimination, stigma awareness, and internalized transphobia—with psychological distress in a national sample of transgender people. Based on minority stress research with predominantly cisgender sexual minority samples (e.g., Brewster & Moradi, 2010; Mays & Cochran, 2001), we hypothesized that each minority stressor would be positively associated with psychological distress (Hypothesis 1). Furthermore, based on research in positive psychology (Seligman, 2002), we predicted that resilience and collective action would be negatively related to psychological distress (Hypothesis 2).

Next, building on Hatzenbuehler’s (2009) extension of minority stress theory and empirical tests with cisgender sexual minority samples (e.g., Brewster et al., 2013; Feinstein et al., 2012; Pachankis et al., 2014; Szymanski & Ikizler, 2013; Velez et al., 2013), we tested internalized transphobia and stigma awareness as mediators of the positive association of antigender discrimination with psychological distress (Hypothesis 3). These hypothesized mediated relations are depicted in Figure 1A.

Finally, based on literature suggesting that resilience and collective action buffer the deleterious associations of stress and trauma with mental health (Mizock & Lewis, 2008; Riggle et al., 2011; Singh et al., 2011; Singh & McKleroy, 2011) we predicted that both variables would weaken the direct associations of antigender discrimination, internalized transphobia, and stigma awareness with psychological distress (Hypothesis 4). We predicted that resilience and collective action would attenuate the positive indirect association of antigender discrimination with psychological distress by weakening the positive direct associations of internalized transphobia and stigma awareness with psychological distress (Hypothesis 5). This postulated mediated mediation model is depicted in Figure 1B.

Method

Participants

Data from 552 participants were analyzed in this study. Participants ranged in age from 18 to 71 years old (M = 26.42, SD = 9.85, Mdn = 23). About 45% of the sample identified as men of transgender experience (e.g., transgender man, FtM), 16% as women of transgender experience (e.g., transgender woman, MtF), and 39% opted to write in a preferred gender identity descriptor (e.g., gender queer, gender nonconforming, trans’). Importantly, all of these participants affirmed that they self-identified as a “person of transgender experience” when they completed the informed consent (described below). For all subsequent descriptive data, percentages may not sum to 100% because of small levels of missing descriptive data. Approximately 74% of the sample identified as White, 11% as Multiracial, 3% as Hispanic/Latino, 3% as African American/Black, 3% as Asian American/Pacific Islander, 1% as Native American, and 1% as other races or ethnicities. In terms of sexual orientation, 32% of the sample identified as queer, 14% as pansexual, 11% as bisexual, 9% as “mostly straight or heterosexual,” 8% as gay or lesbian, 7% as heterosexual, and 5% as “mostly gay or lesbian.” Further, 10% of participants provided other sexual orientation labels that captured personal nuances in their identities (e.g., asexual, demi-sexual, pan-romantic, “all except cis men”).

Approximately 35% of participants reported their highest educational attainment as some college education, 22% as a bachelor’s degree, 13% as a professional degree, 7% as an associate degree, 5% as some postgraduate work, 12% as a high school diploma, and 2% as some high school education. Thirty-six percent of participants were unemployed, 33% were employed full-time, and 27% were employed part-time. Moreover, about 37% of participants self-identified as middle class, 35% as working class, 11% as upper-middle class, 11% as poor, and 1% as upper class. In terms of annual household income, approximately 40% reported a range of zero to $20k, 23% reported $20k to $40k, 10% reported $40k to...
$60k, 10% reported $60k to $80k, 4% reported $80k to $100k, 6% reported $100k to $150k, and 3% reported above $150k. Participants reported residing in 44 of the 50 United States and in Washington DC, with no participants reporting their state of residence as Alabama, Alaska, Hawaii, North Dakota, South Dakota, or Wyoming. Most participants resided in urban (43%) or suburban (38%) regions; 15% resided in rural regions.

**Procedure**

Participants were recruited online through electronic mailing lists, discussion boards, and virtual communities for transgender people (e.g., Tumblr, Facebook, and Craigslist), as well as through online outreach to transgender and/or LGBTQ community and university centers. Tear tab flyers with study information were posted in venues hosted by people of transgender experience across New York City. The study was advertised as a survey of the marginalization and empowerment experiences of transgender people. Four expert reviewers (e.g., leading members of diverse transgender communities) provided feedback to inform scale modifications for use with transgender individuals. Participants were directed to an online survey that began with an informed consent page asking respondents to affirm they (a) identified as a person of transgender experience, (b) lived in the United States, and (c) were 18 years of age or older. Participants who affirmed they met study criteria and consented to participation were directed to a survey introduction, then prompted to respond carefully to the items. Data screening procedures resulted in a final sample of 552 participants. SPSS Impute Missing Data Values procedure was used to impute item-level missing data from expectation maximization parameters prior to computing scale or subscale scores used in the analyses.

---

![Diagram](image-url)

**Figure 1.** Visual depiction of hypothesized mediation model (A) and moderated mediation model (B).

---

1 A total of 995 submissions were received with a response to at least one item; 333, however, only included a response to the informed consent question and were removed from the dataset. Ninety cases were unusable because they were missing more than 20% of items (the 20% criterion is recommended by prior researchers; Parent, 2013). Of the remaining 532 cases, 15 were deleted because the respondents were below the age of 18. Two validity questions asking participants to mark a particular response (e.g., Please select “somewhat disagree”) were included to ensure participants were responding attentively; two entries were removed for responding incorrectly to both validity check items in the survey, which may indicate inattentive responding. Three additional participants were removed from the data set because their Mahalanobis distances indicated they were multivariate outliers (see Results section).
Measures

Antitransgender discrimination. Antitransgender discrimination was measured with an adapted form of the Heterosexist Harassment, Rejection, and Discrimination Scale (HHRDS; Szymanski, 2004). The original HHRDS is a self-report measure consisting of 14 items assessing experiences of heterosexist discrimination. For the present study, the HHRDS was adapted using feedback from expert reviewers to appraise participants’ experiences of antitransgender discrimination. For example, the sample item, “How many times have you been treated unfairly by teachers or professors because you are a lesbian?” was modified to, “In the past year, how many times have you been treated unfairly by teachers or professors because of your gender?” By suggestion of the expert reviewers, one item (“In the past year, how often have you been asked ‘what’s your real name’?, ‘what are you really’?, ‘what is your birth sex’?”) was added to capture the unique discrimination experiences faced by transgender people; one was removed for redundancy. Participants indicate the frequency of discrimination in the past year on a 6-point continuum: 1 (never) to 6 (almost all of the time). Participant ratings were then averaged; higher scores signify higher levels of antitransgender discrimination. Reliability for HHRDS items has not been assessed specifically with transgender samples, but has been reported for sexual minority people. Cronbach’s alpha for HHRDS items was .91 with gay and bisexual men (Szymanski, 2004), .90 with lesbian women (Szymanski, 2006), and .92 with a primarily White American sample of 564 LGB-identified persons (Denton, Rostosky, & Danner, 2014). Support for validity of the HHRDS is evidenced by its positive relation to psychological distress for sexual minority individuals (Szymanski & Meyer, 2008). Cronbach’s alpha for the HHRDS items in the present study was .89.

Internalized transphobia. The Private subscale of the Collective Self-Esteem Scale (CSES; Luhtanen & Crocker, 1992) was used to assess internalized transphobia. For this study, the 4-item Private subscale of the CSES was modified; Luhtanen and Crocker (1992) provided evidence that rewording the scale to refer to specific groups does not compromise its psychometric properties. The item “I often regret that I belong to some of the social groups I do” was modified to “I often regret that I belong to my gender identity group.” Participants rate items on a 7-point continuum: 1 (strongly disagree) to 7 (strongly agree). Responses were averaged and coded; higher scores were indicative of more negative feelings toward one’s gender identity groups. Cronbach’s alpha for the Private subscale of the CSES with a sample of self-identified male-to-female transsexuals was .83 (Sánchez & Vilain, 2009). In support of its validity, higher scores on the CSE Private subscale (to assess internalized racism) were correlated negatively with self-esteem and life satisfaction in a sample of sexual minority Latina/o individuals (Velez, Moradi, & DeBlaere, 2015). Cronbach’s alpha in the present study was .78.

Stigma awareness. The four-item Public subscale of the Collective Self-Esteem Scale (CSES; Luhtanen & Crocker, 1992) was used to assess participants’ beliefs that other people devalue transgender people. Just as with the CSES Private scale above, CSES Public items were modified to assess participants’ perceptions of how others value their gender identity group. For example, the item, “In general, others think that the social groups I am a member of are unworthy” was modified to “In general, others think that my gender identity group is unworthy.” Responses were rated on a 7-point scale: 1 (strongly disagree) to 7 (strongly agree). Items were scored and averaged so that higher scores reflect greater awareness of stigma of transgender people. The reported internal consistency reliability for Public CSE items was .78 among a sample of bisexual individuals (Brewster & Moradi, 2010). In support of its validity, people with societally stigmatized identities reported higher scores than people with nonstigmatized identities (Richeson & Ambady, 2001). Cronbach’s alpha in the present study was .75.

Resilience. Personal resilience was assessed with the six-item Brief Resilience Scale (BRS; B. W. Smith et al., 2008). Participants responded to items (e.g., “I tend to bounce back quickly after hard times”) using a 5-point scale: 1 (strongly disagree) to 5 (strongly agree). Appropriate item responses were reverse scored and items responses were averaged to derive scale scores, with higher scores indicating greater ability to recover from stress. With a sample of young adult heterosexual women, BRS yielded an alpha of .88 (Szymanski & Feltman, 2014). In diverse samples, its validity has been supported via conceptually consistent associations with psychological distress, stigma, and well-being (Lyons, Hosking, & Rozbroj, 2015). Cronbach’s alpha in the present study was .91.

Collective action. Involvement in collective action, or actions to enhance transgender people’s status in society, was assessed using a modified version of the Involvement in Feminist Activities Scale (IFAS; Szymanski, 2004). The original IFAS is a 17-item self-report measure intended to assess involvement in activities supporting feminist ideologies. The current study adapted the IFAS to assess participants’ involvement in activities supporting transgender issues. The sample item, “I participate in feminist demonstrations, boycotts, marches, and/or rallies” was modified to “I participate in demonstrations, boycotts, marches, and/or rallies about transgender issues.” Participants rate their involvement on a 7-point scale: 1 (very untrue of me) to 7 (very true of me). Item responses were averaged to derive scale scores, with higher scores indicating greater engagement in collective action on transgender issues. In samples of sexual minority women, IFAS items yielded Cronbach’s alpha of .91 and .94 with the scale development sample of sexual minority women (Szymanski, 2004; Szymanski & Owens, 2009). IFAS scores yielded positive correlations with scores on measures of feminist activity involvement and attitudes (Szymanski, 2004). Cronbach’s alpha in the present study was .94.

Psychological distress. The Hopkins Symptom Checklist-21 (HSCL-21; Green, Walkley, McCormick, & Taylor, 1988) was used to measure psychological distress. The HSCL-21 is an abbreviated 21-item version of the 58-item Hopkins Symptom Checklist (Derogatis, Lipman, Rickels, Uhlenhuth, & Covi, 1974). Participants rated the extent to which they were bothered by symptoms (e.g., “Feeling lonely,” “Blaming yourself for things,” “Feeling others do not understand you or are unsympathetic”) using a 4-point scale: 1 (not at all) to 4 (extremely). Item responses were averaged to derive a scale score, with higher scores indicating greater psychological distress. In terms of reliability, HSCL-21 items yielded Cronbach’s alphas of .89 and .91 in sexual minority samples (Szymanski & Owens, 2009; Velez et al., 2013). Support for the validity of the HSCL-21 is demonstrated in expected correlations between HSCL-21 scores and other measures of psy-
chological distress in college samples of men and women (Moller, Fouladi, McCarthy, & Hatch, 2003). Cronbach’s alpha in the present study was .92.

Results

Data Screening

Before conducting the primary analyses, data were screened and determined to meet guidelines for univariate normality (i.e., skewness <3 and kurtosis <10; Weston & Gore, 2006). Moreover, the absolute value of the standardized residuals were less than 3 and Cook’s distances were less than 1, suggesting there were no univariate outliers unduly affecting subsequent analyses (Field, 2009). Three cases had significant Mahalanobis distances (p < .001), and visual inspection suggested they could have responded randomly (e.g., providing the same responses to each item in multiitem scales). Subsequently, these participants were removed from the data set.

Associations of Minority Stressors and Protective Factors With Psychological Distress

Descriptive statistics, Cronbach’s alphas, and bivariate correlations for the variables of interest and the demographic covariates are reported in Table 1. Correlations were characterized as small (r = .10), medium (r = .30), or large (r = .50) using Cohen’s benchmarks. Consistent with Hypothesis 1, antitransgender discrimination, internalized transphobia, and stigma awareness yielded significant small to medium positive correlations with psychological distress. In partial support of Hypothesis 2, resilience yielded a significant large negative correlation with psychological distress. However, contrary to expectation, the correlation of collective action with psychological distress was nonsignificant. Consistent with prior research exploring demographic correlates of psychological distress, age, education, household income, employment status, and perceived social class, each yielded significant small negative correlations with psychological distress. Thus, these demographic variables were included as covariates in all subsequent analyses to provide more stringent tests of the hypotheses.

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>M</th>
<th>SD</th>
<th>Possible range</th>
<th>α</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discrimination</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.30</td>
<td>0.86</td>
<td>1.00–6.00</td>
<td>.89</td>
</tr>
<tr>
<td>Internalized transphobia</td>
<td>.09</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.77</td>
<td>1.29</td>
<td>1.00–7.00</td>
<td>.78</td>
</tr>
<tr>
<td>Stigma awareness</td>
<td>.35</td>
<td>.18</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.93</td>
<td>1.83</td>
<td>1.00–3.00</td>
<td>.53</td>
</tr>
<tr>
<td>Resilience</td>
<td>-.22</td>
<td>-.17</td>
<td>-.24</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.82</td>
<td>.23</td>
<td>1.00–5.00</td>
<td>.87</td>
</tr>
<tr>
<td>Collective action</td>
<td>.21</td>
<td>—</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3.38</td>
<td>1.60</td>
<td>1.00–7.00</td>
<td>.94</td>
</tr>
<tr>
<td>Distress</td>
<td>.42</td>
<td>.11</td>
<td>.27</td>
<td>-.52</td>
<td>-.07</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.36</td>
<td>0.64</td>
<td>1.00–4.00</td>
<td>.92</td>
</tr>
<tr>
<td>Age</td>
<td>-.21</td>
<td>-.07</td>
<td>-.03</td>
<td>.19</td>
<td>-.13</td>
<td>-.25</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
<td>26.42</td>
<td>9.85</td>
<td>18.00–71.00</td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>-.21</td>
<td>.01</td>
<td>-.03</td>
<td>.19</td>
<td>-.20</td>
<td>-.23</td>
<td>-.47</td>
<td>—</td>
<td></td>
<td></td>
<td>4.06</td>
<td>1.64</td>
<td>1.00–7.00</td>
<td></td>
</tr>
<tr>
<td>Household income</td>
<td>-.12</td>
<td>.00</td>
<td>-.06</td>
<td>.11</td>
<td>-.03</td>
<td>-.12</td>
<td>.21</td>
<td>.14</td>
<td>—</td>
<td></td>
<td>2.39</td>
<td>1.69</td>
<td>1.00–7.00</td>
<td></td>
</tr>
<tr>
<td>Employment status</td>
<td>-.09</td>
<td>-.02</td>
<td>-.10</td>
<td>.24</td>
<td>-.16</td>
<td>-.20</td>
<td>-.31</td>
<td>.40</td>
<td>.17</td>
<td>—</td>
<td>1.97</td>
<td>0.85</td>
<td>1.00–3.00</td>
<td></td>
</tr>
<tr>
<td>Social class</td>
<td>-.16</td>
<td>.00</td>
<td>-.05</td>
<td>.09</td>
<td>-.07</td>
<td>-.14</td>
<td>-.03</td>
<td>.11</td>
<td>.50</td>
<td>.06</td>
<td>2.55</td>
<td>0.89</td>
<td>1.00–5.00</td>
<td></td>
</tr>
</tbody>
</table>

* 18.00–71.00 is the observed range of age.

Mediating Roles of Internalized Transphobia and Stigma Awareness

The PROCESS SPSS macro (Hayes, 2012) was used to test the direct and indirect relations of antitransgender discrimination with psychological distress through the mediating roles of internalized transphobia and stigma awareness. A 1000-sample bootstrap procedure with heteroscedasticity-consistent standard errors was used to estimate bias-corrected confidence intervals (CIs) to test the significance of indirect relations. If CIs do not contain 0, indirect relations are significant, indicating significant mediation (Mallinckrodt, Abraham, Wei, & Russell, 2006).

The mediation model is depicted in Figure 2. In terms of predictor-mediator relations, antitransgender discrimination yielded a significant positive relation with stigma awareness. However, the direct relation of antitransgender discrimination with internalized transphobia was nonsignificant. With regard to mediator-criterion relations, stigma awareness yielded a significant unique positive relation with psychological distress, but the unique relation of internalized transphobia with psychological distress was nonsignificant. In addition, antitransgender discrimination yielded a significant unique positive direct relation with psychological distress. Tests of indirect relations indicated that antitransgender discrimination yielded a significant positive total indirect relation with psychological distress, B = .04, 95% CI (.018, .065), β = .05. However, the unique indirect relation of antitransgender discrimination with psychological distress through internalized transphobia was nonsignificant, B = .00, 95% CI (−.001, .017), β = .00. Thus, in partial support of Hypothesis 3, stigma awareness—but not internalized transphobia—partially mediated the association of antitransgender discrimination with psychological distress.

Resilience and Collective Action as Moderators

PROCESS was also used to test the moderating roles of resilience and collective action in (a) the direct relations of antitransgender discrimination, internalized transphobia, and stigma aware-
ness with psychological distress (Hypothesis 4), and (b) the indirect relation of antitransgender discrimination with psychological distress through internalized transphobia and stigma awareness (Hypothesis 5). Two moderated mediation models were tested: (a) one with resilience as the moderator and (b) one with collective action as the moderator. For these analyses, the predictor, mediators, and moderators were centered to reduced multicollinearity (Aiken & West, 1991). A significant regression coefficient for the interaction of antitransgender discrimination and a moderator (resilience, collective action) predicting psychological distress would indicate that the direct predictor-criterion relation was moderated. Significant regression coefficients for the interactions of internalized transphobia and stigma awareness and a moderator predicting psychological distress would mean that the mediator-criterion relations were moderated. Moreover, significant moderation of mediator-criterion relations signify moderated mediation—that is, that the indirect relation of antitransgender discrimination with distress through the mediator is conditional on levels of the moderator (Hayes, 2012). In the case of significant moderation, PROCESS was used to examine the predictor-criterion or mediator-criterion relations at high (i.e., 1 standard deviation above the mean), mean, and low (i.e., 1 standard deviation below the mean) levels of the moderator.

Moderating Role of Resilience

The results of the tests of the moderating role of resilience are reported in Table 2. Beyond the role of each of the minority stress variables and the demographic covariates, resilience yielded a significant unique negative relation with psychological distress. However, contrary to Hypothesis 4 (and by extension, Hypothesis 5), none of the interactions involving resilience were significant.

Moderating Role of Collective Action

The results of the tests of the moderating role of collective action in the relations of the minority stressors with psychological distress are reported in Table 2. Collective action did not yield a significant unique relation with psychological distress. In partial support of Hypothesis 4, the Internalized transphobia × Collective action interaction was significant. No other interactions involving collective action were significant.

We performed follow-up simple slope analyses to determine the nature of the Internalized transphobia × Collective action interaction. Results indicated that the relation of internalized transphobia with psychological distress was nonsignificant at low and mean levels of collective action, \( \beta = -0.02, t(509) = -0.34, p = .737 \) and \( \beta = 0.08, t(509) = 1.44, p = .053 \), respectively. However, internalized transphobia was significantly positively associated with psychological distress at high levels of collective action, \( \beta = 0.18, t(509) = 2.88, p = .004 \). Furthermore, the significant regression coefficient for this interaction indicates that the magnitudes of these slopes differ significantly (i.e., are increasing). This interaction is depicted in Figure 3. Thus, although the Internalized transphobia × Collective action interaction was significant as predicted, contrary to expectation, higher levels of collective action did not buffer but actually strengthened the relation of internalized transphobia with psychological distress.

Because moderation of a mediator-criterion relation reflects moderated mediation (Hayes, 2012), we tested Hypothesis 5 by examining the indirect relation of antitransgender discrimination with psychological distress through internalized transphobia at low, mean, and high levels of collective action. As previously described, internalized transphobia was not a mediator of the antitransgender discrimination-psychological distress relation when collective action was not included in the analyses. Similarly, at low and mean levels of collective action, the indirect relation of antitransgender discrimination with psychological distress through internalized transphobia remained nonsignificant, \( B = 0.00, 95\% \text{ CI} (-0.011, 0.005), \beta = -0.00 \) and \( B = 0.00, 95\% \text{ CI} (-0.000, 0.016), \beta = 0.01 \), respectively. However, at high levels of collective action, the indirect relation of antitransgender discrimination with psychological distress through internalized transphobia became significant, \( B = 0.01, 95\% \text{ CI} (0.001, 0.030), \beta = 0.01 \). Notably, contrary to expectation, higher collective action strengthened rather than weakened the indirect relation of antitransgender discrimination with psychological distress through internalized transphobia. At high levels of collective action, the total indirect relation of antitransgender discrimination with psychological distress is \( B = 0.05, \)
Tests of Resilience and Collective Action as Moderators of Relations of Minority Stressors With Psychological Distress

<table>
<thead>
<tr>
<th>Predictor variables</th>
<th>B</th>
<th>β</th>
<th>95% CI of β</th>
<th>t</th>
<th>R²</th>
<th>F</th>
<th>df</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Moderator: Resilience</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>-.01</td>
<td>-.11</td>
<td>(-.18, -.03)</td>
<td>-2.90</td>
<td>.39</td>
<td>33.53***</td>
<td>(12.509)</td>
</tr>
<tr>
<td>Education</td>
<td>-.01</td>
<td>-.03</td>
<td>(-.11, -.05)</td>
<td>-0.73</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Household income</td>
<td>.01</td>
<td>.03</td>
<td>(-.06, .12)</td>
<td>0.70</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employment status</td>
<td>-.02</td>
<td>-.03</td>
<td>(-.11, -.05)</td>
<td>-0.66</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social class</td>
<td>-.06</td>
<td>-.08</td>
<td>(-.17, -.02)</td>
<td>-1.59</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discrimination</td>
<td>.18</td>
<td>.25</td>
<td>(1.6, 3.3)</td>
<td>5.70***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internalized transphobia</td>
<td>.00</td>
<td>.00</td>
<td>(-.07, .07)</td>
<td>0.04</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stigma awareness</td>
<td>.04</td>
<td>.07</td>
<td>(-.00, .15)</td>
<td>1.91</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resilience</td>
<td>-.28</td>
<td>-.41</td>
<td>(-.49, -.34)</td>
<td>-10.64***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discrimination × Resilience</td>
<td>-.03</td>
<td>-.03</td>
<td>(-.11, -.04)</td>
<td>-0.90</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internalized transphobia × Resilience</td>
<td>-.01</td>
<td>-.03</td>
<td>(-.09, -.03)</td>
<td>-0.86</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stigma awareness × Resilience</td>
<td>.03</td>
<td>.05</td>
<td>(-.03, .12)</td>
<td>1.20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Moderator: Collective action</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>-.01</td>
<td>-.13</td>
<td>(-.20, -.06)</td>
<td>-3.51***</td>
<td>.26</td>
<td>17.55***</td>
<td>(12.509)</td>
</tr>
<tr>
<td>Education</td>
<td>-.03</td>
<td>-.07</td>
<td>(-.17, -.02)</td>
<td>-1.54</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Household income</td>
<td>.01</td>
<td>.03</td>
<td>(-.07, .12)</td>
<td>0.59</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employment status</td>
<td>-.08</td>
<td>-.10</td>
<td>(-.19, -.02)</td>
<td>-2.38*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social class</td>
<td>-.08</td>
<td>-.11</td>
<td>(-.20, -.01)</td>
<td>-2.15*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discrimination</td>
<td>.20</td>
<td>.27</td>
<td>(.17, .36)</td>
<td>5.62***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internalized transphobia</td>
<td>.04</td>
<td>.08</td>
<td>(-.00, .16)</td>
<td>1.92</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stigma awareness</td>
<td>.08</td>
<td>.16</td>
<td>(.08, .24)</td>
<td>3.81***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collective action</td>
<td>.03</td>
<td>.08</td>
<td>(-.00, .17)</td>
<td>1.94</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discrimination × Collective action</td>
<td>.03</td>
<td>.07</td>
<td>(-.02, .16)</td>
<td>1.52</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internalized transphobia × Collective action</td>
<td>.03</td>
<td>.10</td>
<td>(.01, .19)</td>
<td>2.28*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stigma awareness × Collective action</td>
<td>-.02</td>
<td>-.08</td>
<td>(-.16, -.01)</td>
<td>-1.77</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. Degrees of Freedom (df) reflect the fact that 30 of the participants were excluded from the analysis because of missing data for the demographic covariates.

*p < .05. **p < .01. ***p < .001.

95% CI (.027, .081), β = .07. This is somewhat higher than the total indirect relation of antitransgender discrimination with psychological distress when collective action is not taken into account, which is reported above.

Discussion

The present study expanded prior research on minority stress processes and mental health promoting variables—conducted primarily with LGB people—to explore the unique experiences of transgender individuals. Specifically, the study tested the relations of three minority stressors (i.e., antitransgender discrimination, internalized transphobia, and stigma awareness) and individual- and group-level buffers (resilience and engagement in collective action, respectively) posited to promote mental health within marginalized groups with psychological distress. Additionally, the study examined the applicability of recent conceptualizations of minority stress theory, which posit that proximal minority stressors (i.e., internalized transphobia and stigma awareness) mediate the relation of distal minority stress (i.e., antitransgender discrimination) with psychological distress (Hatzenbuhler, 2009). Importantly, the study also aimed to redress a historic lack of focus on variables that may have ameliorative effects on minority stress by examining the moderating roles of resilience and collective action in the aforementioned mediation model. Findings from the present research can be used to offer directions for future research, clinical practice, and resilience-building interventions with transgender people.

In partial support of our first set of hypotheses, the pattern of correlations among variables of interest was largely consistent with prior research on minority stress with transgender samples (e.g., Bockting et al., 2013). Specifically, higher levels of minority stress (antitransgender discrimination, internalized transphobia, and stigma awareness) were each associated with greater psychological distress, with correlations ranging from small to medium in magnitude. Such effect sizes are consistent with prior findings on minority stress theory with transgender samples (e.g., Bockting, 2014; Bockting et al., 2013; Gamarel et al., 2014; Hendricks & Testa, 2012; Reisner et al., 2014). In partial support of our second hypothesis, resilience was strongly associated with lower levels of psychological distress. Whereas relations between resilience and dimensions of distress—such as depression or PTSD—have been supported qualitatively with transgender samples (Singh et al., 2011; Singh & McKleroy, 2011), results from the present study are among the first quantitative data to support this relation. Unsurprisingly, resilience was related negatively with antitransgender discrimination, internalized transphobia, and stigma awareness—adding further support to prior research finding that resilience may protect marginalized groups from minority stressors (e.g., Singh et al., 2011).

Collective action, contrary to expectation, was not related to psychological distress. This finding parallels results from a recent study in which collective action was unrelated to psychological distress for sexual minority women of color (DeBlaere et al., 2014). Additionally, within the present study, collective action was
related positively with antitransgender discrimination and negatively with internalized transphobia. This pattern may suggest that transgender individuals who engage in collective action experience more discrimination, or conversely, that experiencing higher levels of discrimination is a motivator to engage in collective action. The negative relation between collective action and internalized transphobia likely underscores the identity-affirming side effects of engaging in community building with other transgender people (e.g., Singh, 2013; Testa et al., 2014).

Examination of mediation patterns provided partial support for our third set of hypotheses: that proximal minority stressors (e.g., internalized transphobia and stigma awareness) would mediate relations between distal minority stress (antitransgender discrimination) and psychological distress (Brewster et al., 2013; Hatzenbuehler, 2009). First, regarding predictor to mediator relations, antitransgender discrimination was significantly and positively related to stigma awareness, but unrelated to internalized transphobia. In a study with bisexual individuals, parallel direct relations between bisexual specific prejudice, internalized biphobia, and stigma awareness were reported (Brewster et al., 2013). Prior research has found mixed support for the relation between indicators of distal minority stressors (e.g., discrimination) and proximal minority stressors (e.g., internalized oppression) for marginalized groups—with some studies reporting no significant relation (Szymanski & Meyer, 2008; Szymanski & Sung, 2010) and others finding small positive relations (Feinstein et al., 2012; Velez et al., 2013; Velez et al., 2015). Although causal conclusions cannot be drawn from these cross-sectional data, such findings suggest that experiencing antitransgender discrimination does not necessarily translate into internalized transphobia; and conversely, higher levels of internalized transphobia may not promote perception and experiences of discrimination.

Additionally, antitransgender discrimination yielded a positive and unique indirect relation with psychological distress through stigma awareness, but not through internalized transphobia. This finding is in line with prior research in which stigma awareness mediated the positive relation between discrimination and distress in a sample of lesbian women and gay men (Feinstein et al., 2012) and partially mediated this relation for bisexual individuals (Brewster et al., 2013). Thus, internal negative evaluation of one’s identity may be less influential on mental health than the expectation that other individuals will reject or stigmatize one’s identity. These mixed findings underscore prior calls to assess both internal and external evaluations of oppression in mental health research (Velez et al., 2015).

Our last set of hypotheses (4 and 5), regarding the moderating roles of resilience and collective action, were only partially supported. Contrary to expectation, the moderating (and subsequently, moderated mediational) role of resilience was not supported. Such a finding may suggest that intrapersonal resources such as resilience, although important, are less efficacious at countering the pernicious impact of minority stressors on mental health. In the context of research with people from marginalized groups, this result is not surprising; internal resources such as resilience and “personal hardness” can be related to individuals faring better in the face of discrimination and trauma, but other external factors such as social and family support are often equally, if not more vital to mental health (Moody & Smith, 2013; Smith & Gray, 2009). The scale used to measure resilience in the present study may not have fully captured transgender-specific strategies used to counter discrimination such as evolving a self-generated definition of identity, becoming a role model, and embracing self-worth (Singh et al., 2011).

In partial support of our last set of hypotheses, collective action did perform as a moderator, though not as expected. Although collective action has been found to attenuate relations between minority stressors and dimensions of psychological distress (DeBlaere et al., 2014; Szymanski & Owens, 2009), no prior quantitative study to our knowledge has examined its potential buffering role for transgender individuals. In the present study, higher collective action actually strengthened the association of one minority stressor—internalized transphobia—with psychological distress. Such a pattern may point to the complex risks of high levels of activism, including fatigue, burnout, or depression (Vaccaro & Mena, 2011). Specifically, high levels of collective action may require transgender people to be exposed to transphobic contexts that, in turn, may heighten their levels of internalized transphobia.

This interaction also indicated a case of moderated mediation. Although internalized transphobia did not mediate the relation of antitransgender discrimination with distress at low and mean levels of collective action, internalized transphobia did mediate this relation at high levels of collective action. This pattern of results reflects our prior finding of a stronger relation between internalized transphobia and psychological distress when collective action is high, and points to the complicated relation of activist behaviors with minority stress and mental health. Some research finds that collective action is an effective buffer against some forms of minority stressors (DeBlaere et al., 2014), whereas other studies have found that activist behaviors are only effective buffers if levels of discrimination are not too high (Szymanski & Owens, 2009).
Findings from the present study must be interpreted in light of a few limitations. First, although the Internet is useful for accessing marginalized groups (e.g., provides access to geographically restricted groups and people not “out” in-person), it limits participation to respondents with Internet access and may promote premature termination. Further, most participants were White and a majority had at least some college education. Because national census data collection processes do not capture transgender identifiers, it is unclear whether these demographic descriptors are representative of national transgender populations.

Another limitation is the cross-sectional nature of the data, which cannot conclusively address causal or temporal hypotheses. Although future experimental and longitudinal studies should be used to complement cross-sectional data and begin to address the directional assumptions embedded in minority stress theory, alternative models should also be explored. It may be possible that proximal minority stressors (internalized transphobia, awareness of stigma) actually promote one’s perception of discrimination, as individuals learn to chronically perceive environments as hostile. Future researchers should begin to more closely examine the directionality of relations between collective action and discrimination. Historically, researchers have assumed that experiences of discrimination spark involvement in group-level action; however, engaging in collective action may also make one a target of more discrimination. Future work should begin to disentangle the causal relations between the minority stress experiences and resilience, specifically by examining whether discrimination actually decreases resilience or whether resilient individuals perceive or experience less prejudice (Kwon, 2013).

Despite such limitations, these results provide further support for the applicability of the minority stress model (Meyer, 1995, 2003) among transgender people—including patterns of mediation posited in recent expansions (Hatzenbuehler, 2009). These findings also hold implications for future research. First, we encourage continued, nuanced investigations of transgender-specific minority stressors. As transgender women carry a disproportionate burden in terms of the prevalence and incidence of HIV in the United States (Herbst et al., 2008), we encourage researchers to expand the minority stress model by explicating relations between distal and proximal stressors and HIV risk behavior (Bockting et al., 2013). Such findings may present guidance for future targeted HIV prevention strategies.

Additionally, these findings present helpful suggestions for clinical practice. First, such high levels of experiences of discrimination—and subsequent relations with stigma awareness, internalized transphobia, and psychological distress—provide further support for considering the role of oppression in the lives of transgender clients (Korell & Lorah, 2007). Second, our study found that high (but not low) levels of collective action strengthened the relation between experiences of discrimination and psychological distress. We encourage mental health practitioners to navigate potential vulnerabilities concomitant with carrying one’s community on one’s shoulders. Third, our results suggest that resilience, although associated negatively with psychological distress, did not moderate the relation between minority stressors and distress. As such, we suggest that outreach campaigns geared toward transgender people work to hone their missions to not only promote individual-level resiliency, but also encourage group-resiliency and health via creating structures for social support and community involvement. Indeed, individual resiliency may be less powerful as a buffer for transgender individuals when they are faced with overwhelmingly bleak social and environmental circumstances.

We hope that findings from the present study offer groundwork for these future efforts and additional research—and community-based interventions—that will centralize the experiences of transgender individuals within the broader minority stress framework.

References


Budge, S. L., Adelson, J. L., & Howard, K. A. (2013). Anxiety and depression in transgender individuals: The roles of transition status, loss,


Correction to Currin, Gibson, and Hubach (2015)

In the article “Multidimensional Assessment of Sexual Orientation and the Fraternal Birth Order Effect” by Joseph M. Currin, Linzi Gibson, and Randoph D. Hubach (Psychology of Sexual Orientation and Gender Diversity, 2015, Vol. 2, No. 2, pp. 113–122. http://dx.doi.org/10.1037/sgd0000103), there were two errors in Table 1. The mean number of older sisters based on Self ID was set incorrectly as .82, and the standard deviation was set incorrectly as .76. The mean number of older sisters based on Self ID should have been .48, and the standard deviation should have been .82.

http://dx.doi.org/10.1037/sgd0000125