

Original Article

**Cite this article:** Zentner M, von Aufsess C (2022). Is being gender nonconforming distressing? It depends where you live: gender equality across 15 nations predicts how much gender nonconformity is related to self-esteem. *Psychological Medicine* 52, 1857–1865. <https://doi.org/10.1017/S0033291720003645>

Received: 20 April 2020  
Revised: 24 July 2020  
Accepted: 9 September 2020  
First published online: 16 November 2020


**Key words:**

Cross-cultural; gender inequality; gender nonconformity; gender roles; self-esteem

**Author for correspondence:**

Marcel Zentner,  
E-mail: [Marcel.zentner@uibk.ac.at](mailto:Marcel.zentner@uibk.ac.at)

# Is being gender nonconforming distressing? It depends where you live: gender equality across 15 nations predicts how much gender nonconformity is related to self-esteem

Marcel Zentner  and Christian von Aufsess

University of Innsbruck, Innsbruck, Austria

**Abstract**

**Background.** Individuals exhibiting gender nonconforming behaviors experience low self-esteem and a number of other mental health conditions, including elevated suicide risk. Most of the relevant evidence is confined to US studies, however. Adopting a cross-national approach, we examined the pervasiveness of the psychological burden associated with gender nonconformity. Because self-esteem is sensitive to the fulfillment of societal expectations for gender conformity, we reasoned that the relationship between gender conformity and self-esteem ought to decrease as societies become less restrictive in their gender norms.

**Methods.** To test this proposition, we conducted two studies including 18 national samples from 15 countries varying in gender equality. Participants responded to an online survey that included measures of gender conformity and self-esteem ( $N = 4486$ ).

**Results.** Using multilevel analyses and meta-analytic statistics over the samples of both studies, we found that as gender equality increased, the association between gender conformity and self-esteem decreased.

**Conclusions.** The results suggest that rather than being inherently noxious, gender nonconformity becomes detrimental to self-esteem when it clashes with restrictive gender role norms that are enacted by the macrosocial context. We suggest that previous findings on psychological problems related to gender nonconformity be considered within a broader macrosocial context that may constrain people's freedom to move against gender role norms.

The view of gender as a fluid and flexible experience and expression that may vary across time, place, and relationships has been gaining increasing acceptance in recent years (Hyde, Bigler, Joel, Tate, & van Anders, 2019). In theory, this increased acceptance should benefit individuals whose physical appearance or behaviors do not align with societal expectations of their gender (also referred to as gender nonconforming or gender atypical), making them feel more at ease, experience less psychological distress, and enjoy a better self-image. Findings, however, tell a different story. Not only does gender nonconformity undermine self-esteem (e.g. DiDonato & Berenbaum, 2013; Egan & Perry, 2001; Tate, Bettergarcia, & Brent, 2015; see Table 1), but it is also linked to a high prevalence of depressive symptoms and suicide attempts (e.g. Lowry et al., 2018; Roberts, Rosario, Slopen, Calzo, & Austin, 2013).

Although the term gender nonconformity is frequently associated with sexual minorities, such as transgendered and non-binary persons, in the present work we use the term to denote a continuum that ranges from a gender nonconforming to a gender conforming extreme in the wider population. Apart from the difficulty of obtaining large cross-national samples of transgendered or non-binary individuals, several studies have shown that the minority stress experienced by LGBT persons is more about adverse experiences associated with gender-nonconforming behavior than about sexual orientation or gender identity *per se* (e.g. Jacobson, Cohen, & Diamond, 2016; Martin-Storey, 2016; Rieger & Savin-Williams, 2012). For example, the more transgender people are seen as gender nonconforming by others, the higher their likelihood of experiencing major discrimination and attempting suicide (Miller & Grollman, 2015). Furthermore, cisgender heterosexuals who display gender nonconforming traits are as vulnerable to the negative psychological repercussions of gender nonconformity as are those who identify as LGBT (Tate et al., 2015). By focusing on gender nonconformity as a dimension, rather than on categories of individuals with sexual minority status, results may have a wider range of application.

Of the psychological impairments associated with gender nonconformity, self-esteem is of particular significance. First, gender nonconformity is associated with low self-esteem beginning in childhood, whereas links to other psychological impairments are less clear (e.g. Yunger, Carver, & Perry, 2004). Second, distress across multiple domains, including ill health, underperformance at work, relationship dissatisfaction, and mental illness, has been shown to

**Table 1.** Overview of effect sizes for associations between gender conformity and self-esteem

Study	Population	Construct/Measure	Correlations with self-esteem	
			Female	Male
Egan and Perry (2001)	Children	Gender conformity <sup>a</sup>	0.36	0.48
Carver, Yunger, and Perry (2003)	Children	Gender conformity	0.26	0.13
Yunger et al. (2004)	Children	Gender conformity	0.38	0.38
Corby, Hodges, and Perry (2007)	Children	Gender conformity White/Black/Hispanic	0.42/0.21/0.23	0.41/0.13/0.47
Menon (2011)	Children	Gender conformity	0.29	0.39
DiDonato and Berenbaum (2011)	Adults	Gender-typed activities/interests	0.37	0.37
DiDonato and Berenbaum (2013)	Adults	Gender-conforming traits/activities Study 1-Study 2	0.28–0.38	0.33–0.37
Tate et al. (2015)	Adults	Gender conformity/BSRI Queer-Gay subgroups	0.22–0.25 0.20–0.34	0.28–0.42 0.34–0.63
Average			0.32	0.36

BSRI, Bem Sex Role Inventory.

<sup>a</sup>For the sake of consistency, we use the term 'gender conformity' throughout, although in some of the listed studies, 'gender typicality' was used.

be predicted by both low self-esteem (e.g. Donnellan, Trzesniewski, Robins, Moffitt, & Caspi, 2005; Reinherz et al., 1993; Sowislo & Orth, 2013) and gender nonconforming behavior (Bennett, Borczon, & Lewis, 2019). Thus, a fuller understanding of the mechanisms underlying this association should be an integral part of efforts to ensure that children can develop into happy adults. More broadly, understanding the link between low self-esteem and gender nonconformity has the potential to inform current debates as to which ought to be a target for intervention: gender nonconforming individuals who are experiencing low self-esteem and other forms of psychological distress, or society's intolerance for gender nonconformity (Vasey & Bartlett, 2007).

Most explanations for the link between gender conformity and self-esteem derive from one form of social role theory or another. Common to these views is the notion that women and men are socialized in ways that will encourage them to internalize gender roles and acquire the skills and behaviors necessary to fulfill their respective roles. The reason this occurs is that gender role conformity is rewarding: It validates shared beliefs about men and women, thereby facilitating social interaction and promoting a sense of group belongingness (DiDonato & Berenbaum, 2013; Meyer, 2003). Even in the absence of others, internalized gender roles act as standards against which individuals continuously monitor and evaluate their own behavior. In turn, gender nonconformity triggers negative social reactions from an early age, including parental discomfort (Spivey, Huebner, & Diamond, 2018), peer rejection and victimization (Martin-Storey, 2016; Roberts et al., 2013), and negative self-evaluations when individuals fall short of their own standards for gender conformity (Wood & Eagly, 2012; see also Tobin et al., 2010).

Although it is plausible that the association between gender nonconformity and low self-esteem comes about through gender role socialization, most evidence in its support has so far come from US studies of children and adolescents, and some of the evidence is inconsistent. For example, the association between gender conformity and self-esteem was found to be exceptionally weak in a sample of Black preadolescent girls and boys ( $r_s = 0.21$  and  $0.13$ , respectively; see Table 1). This is all the more surprising because Black children reported more pressure to conform to gender roles than White children did, for whom the correlation

of self-esteem to gender conformity exceeded 0.40. Conflicting findings on the relationship between self-esteem and gender conformity have also been described in other studies (e.g. Good and Sanchez, 2010), raising questions about its pervasiveness.

To know whether associations between self-esteem and gender conformity are consistently linked to gender role expectations as enacted by the macrosocial context, it is indispensable to examine this relationship across several countries that vary in their gender role culture. If the fulfillment of societal expectations related to gender conformity affects self-esteem, as predicted by social role theory, individuals' self-esteem should be more strongly related to their gender nonconformity if they live in societies characterized by a traditional as opposed to a progressive gender role division. Conversely, if self-esteem turns out to be equally related to gender conformity across societies, regardless of the societies' prevailing gender role norms, this would pose a challenge for social role explanations of the psychological implications of gender nonconformity, warranting a search for alternative etiologies, such as the possibility of a common neurogenetic disposition underlying both gender nonconformity and psychiatric disorders (e.g. Shumer, Roberts, Reisner, Lyall, & Austin, 2015; Yildirim, Perdahlı Fis, Yazkan Akgul, & Ayaz, 2017). Because the DSM-5 defines mental disorders as dysfunctions in the individual and does not regard conflicts between the individual and society as mental disorders (American Psychiatric Association, 2013, p. 20), evaluating evidence related to these alternative positions is not only of scientific interest, but may also have a bearing on clinical considerations and practices.

### The current research

The central question to be examined in this study is whether associations between gender nonconformity and self-esteem vary across societal contexts that differ in their gender role norms. To this end, we conducted two cross-national studies. In Study 1, participants from nine nations that systematically differ in their gender role culture responded to an online survey that included a self-esteem scale and a gender conformity measure that asks respondents to self-categorize their gender conformity from a comparison with peers. We assessed national gender roles and

norms through two national gender equality indicators that not only reflect actual gender discrimination and gender role divisions in different areas of life, but that have also been shown to be sizably correlated with citizens' gender attitudes. Thus, individuals in high gender equality countries tend to be more open in their gender role attitudes compared with those in lower gender equality countries (e.g. Sani & Quaranta, 2017; Shu, Barnett, & Faris, 2020). Study 2 expanded the number of countries and types of gender conformity measures to evaluate the generalizability of the findings and address questions left unresolved by Study 1. Specifically, we examined whether findings obtained in Study 1 could be reproduced using a different gender conformity measure that defines gender identity in terms of personality attributes. We also assessed individuals' gender ideology to examine the extent to which nations' structural gender equality is reflected in gender attitudes among its citizens and to explore whether individual gender biases play a similar moderating role as that of societal gender biases. Because of the similarity in methods and measures between the two studies, results are presented for both studies combined following the Method section of Study 2.

## Study 1

### Method

#### Sample

A total of 2075 individuals (1201 females, 874 males, mean age 27.14 years, s.d. 8.49) provided complete data in response to an online survey concerning gender-related behaviors. As part of the survey, participants provided information about age, gender, nationality, sexual orientation, and educational and relationship status. Online Supplementary Table S1 provides demographic details for the nine individual nations – Austria, Germany, Greece, Italy, Hungary, Romania, Poland, Spain, and Sweden. Participants had lived more than 90% of their lifetime in their native country.

#### Measures

**Gender Equality.** Because no perfect index of gender equality exists, this study uses two of the most comprehensive national gender equality indices to date, the *Gender Inequality Index* (GII) and the *Global Gender Gap Index* (GGI). The GII is a composite measure of gender inequality developed by the United Nations (United Nations Development Programme, 2018). It captures inequality between women and men on three dimensions: (1) reproductive health, (2) empowerment, and (3) labor force participation. It ranges from a score of 0 (women and men fare equally) to a score of 1 (women or men fare poorly compared with the other in all dimensions). The second measure is the GGI, published by the World Economic Forum (Zahidi, Geiger, & Crotti, 2018). The GGI is a composite measure that includes 14 single indicators grouped in four dimensions: economic (e.g. labor force participation, wage equality), political (e.g. women in parliament, heads of state), educational attainment (e.g. literacy ratio, higher education enrolment), and health (e.g. life expectancy ratio, sex ratio at birth). The highest possible score is 1 (*parity*) and the lowest possible score is 0 (*imparity*).

The GII scale was inverted to match the direction of the GGI scores, so that higher values indicate higher gender equality regardless of the index. Because index values of single years can deviate markedly from a nation's characteristic standing on gender equality, the index scores were averaged across the 5 years

leading up to the time of data collection (2013–2017). To capture gender equality as comprehensively as possible, we averaged across the values of the GII and GGI, obtaining an aggregate index termed gender equality in all subsequent analyses (see online Supplementary Table S2 for details).

**Gender conformity.** The extent of self-perceived gender conformity was assessed with the Adult Gender Typicality scale (AGT; Tate et al., 2015), which is an adaptation from Egan and Perry's (2001) measure of gender typicality for children and adolescents. Participants were presented with six statements that reflected the typicality of their stated gender membership. For women, sample items of the AGT were, 'I feel I fit in with other women' or 'I feel that my personality is similar to most women's personalities'. For men, the parallel items were, 'I feel I fit in with other men' and 'I feel that my personality is similar to most men's personalities'. Participants had to rate their agreement with each statement on a Likert scale from 1 (*totally disagree*) to 7 (*totally agree*). For women, Cronbach's  $\alpha$  ranged from 0.82 (Spain) to 0.88 (Germany); for men, it ranged from 0.78 (Romania) to 0.89 (Poland).

**Global self-esteem.** Self-esteem was measured with the Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965). It contains 10 items, five of them negatively keyed. Respondents answered on a five-point Likert scale from 1 (*strongly disagree*) to 5 (*strongly agree*). Higher scores denote higher levels of global self-esteem. Cronbach's  $\alpha$  ranged from 0.86 (Spain) to 0.92 (Sweden).

Unless adaptations were already available, all questionnaires were translated into the language of each of the included countries. For each language, one bilingual native speaker translated the questionnaire into the target language, and another provided the back-translation into English. A third bilingual speaker resolved any discrepancies between the original version and the back-translation.

#### Procedure

An online version of these measures was created with LimeSurvey software. To help raise awareness of the survey in as wide a population as possible, we placed targeted email announcements and postings across a variety of social media in the target countries. The conditions for participation stated that prospective participants be nationals and have spent a minimum of 50% of their lifetime in their respective home countries. In an informed consent clause, participants were informed about the nature of the study and assured of the study's anonymity and confidentiality and their right to withdraw from the study at any point.

## Study 2

### Method

#### Sample

A total of 2411 individuals (1382 females, 1029 males) from a second batch of nine nations that varied slightly more widely in the range of gender equality completed the online survey: Austria, Brazil, Czech Republic, Finland, Germany, Guatemala, Norway, Sweden, and the USA. Participants' mean age was 29.63 years (s.d. 10.87) and they had lived more than 90% of their lifetime in their native country. Additional demographic information can be found in online Supplementary Table S3.<sup>1</sup>

### Measures and procedure

These were the same as in Study 1, with two additions:

1. The Bem Sex Role Inventory (BSRI; Bem, 1974) was included as a measure of the endorsement of personality traits that have traditionally been associated with masculinity and femininity. In the present study, we used the short version developed by Fernández and Coelleo (2010; see also Ahmed, Vafaei, Auais, Guralnik, & Zunzunegui, 2016). Participants were asked to rate the extent to which each of the six masculine (agentic) and feminine (communal) items describes them on a Likert scale from 1 (*never or almost never true*) to 7 (*always or almost always true*). For men, BSRI gender-conforming traits were scores on the masculinity subscale; for women, gender-conforming traits were scores on the femininity subscale. Thus, men with higher scores saw themselves as possessing more traditionally masculine traits, and women with higher scores saw themselves as possessing more traditionally feminine traits. Cronbach's  $\alpha$  ranged from 0.73 (Czech Republic) to 0.89 (USA).
2. The Ambivalent Sexism Inventory (ASI; Glick & Fiske, 1996) was included as a measure of sexist attitudes toward women. In the present study, we used the 12-item short form by Rollero, Glick, and Tartaglia (2014). Participants rated their agreement to six statements that represented hostile sexism and six statements that represented benevolent sexism on a Likert scale from 1 (*disagree strongly*) to 6 (*agree strongly*). Cronbach's  $\alpha$  ranged from 0.78 (Guatemala) to 0.88 (Sweden).

As in Study 1, questionnaires were translated into the language of each of the included countries by using the back-translation method unless adaptations already existed. Eighty-eight participants did not complete the Ambivalent Sexism Inventory; thus, analyses involving sexism were confined to 96.4% of the sample.

### Data analysis

#### Moderation analyses using ordinary least squares regression

To test the hypothesis that the association between gender conformity and self-esteem increases as gender equality decreases in Studies 1 and 2, we first ran a multivariate regression by using PROCESS Model 1 (Hayes, 2018), which estimates the effect of gender conformity on self-esteem at different levels of the moderator. Predictor and outcome variables were standardized in Studies 1 and 2 to have a mean of 0 and a standard deviation of 1 in order to allow for effect size interpretations and to ensure commensurateness across the studies. Analyses were conducted by using module *processr* in the R software environment (version 3.6.1.). We controlled for age, sex, and educational background due to these variables' relevance to self-esteem.

#### Moderation analyses using multilevel modeling

To account for the nested structure of the data, we used multilevel modeling techniques (using R package *lme4*, version 3.6.1). Level 1 represented variation among individuals within nations and Level 2 represented variation between nations. Because estimates for cross-level interactions are of uncertain accuracy when the number of Level 2 clusters is small, particularly below 10 (e.g. McNeish & Stapleton, 2016; Stegmueller, 2013), and given the similarity in the methods and measures of Studies 1 and 2, we combined the samples of both studies into one single sample with a total of 4486 participants nested within 15 countries.

(Although each study involved nine countries, the combined sample consisted of 15 countries because of the presence of Austria, Germany, and Sweden in both studies.)

In a first step, we ran a fully unconditional model (Model 1), which partitions the total variance in the outcome measure into within-country and between-country components, yielding a measure of the importance of the grouping effect via the intraclass coefficient (see online Supplementary Table S4, Equation 1). In a second step, we ran a multilevel analysis with a random intercept model (Model 2) to examine whether gender equality, individuals' gender conformity, and the gender equality  $\times$  gender conformity interaction were related to self-esteem (see online Supplementary Table S4, Equation 2). Finally, we extended this model so as to include the additional Level 1 independent variables (Model 3) age, sex, and educational background as control variables. In all three models, we used maximum likelihood estimators (see online Supplementary Table S4, Equation 3).

### Meta-analysis and meta-regression

To analyze country-level effects, we used meta-analytic statistics, which allow for an assessment of heterogeneity in country-level effect sizes and its moderation (e.g. Hedges & Olkin, 2014). We used a mixed-effects model, that is, a random-effects model followed by meta-regression with mixed effects. R package *lme4* and *metaphor* under R version 3.6.1 were used to perform these analyses (Viechtbauer, 2010).

### Variable-aggregation

We conducted all analyses using the AGT (Studies 1 and 2), and the BSRI (Study 2). We also created a composite gender conformity variable by aggregating across the AGT and BSRI, which were significantly correlated in Study 2 ( $r = 0.28, p < 0.001$ ). Since the results replicated regardless of which of the three measures was used, we report the results for the composite variable (termed gender conformity) in the main text where not otherwise specified. This choice was made for the economy of presentation and because assessments of constructs based on multiple relevant indicators tend to be more reliable and content-valid. For analyses conducted on the combined samples of Study 1 and Study 2, the composite variable consists of standardized AGT values for participants of Study 1, and the averaged standardized values of the AGT and the BSRI for participants in Study 2. Results obtained with the component measures (AGT or BSRI) are available in online Supplementary Tables.

### Statistical power considerations

Statistical power to detect cross-level interactions in multilevel models is determined by a variety of factors, including the magnitude of the cross-level interaction, the standard deviation of lower level slopes, the lower and upper level sample sizes, and the intraclass coefficient. Since some of these quantities were unknowable, an optimal sample size could not be calculated from an *a priori* power analysis and we followed general recommendations instead (e.g. McNeish & Stapleton, 2016; Stegmueller, 2013). For the meta-analysis, we relied on the correlational point of stability concept, according to which correlations around  $r \approx 0.3$  stabilize at sample sizes between  $N = 200$  and  $N = 250$  (Schönbrodt & Perugini, 2013).

## Results

### Descriptive associations

Computed across all nations, the associations between self-esteem and gender conformity were in the order of magnitude reported in previous studies (see Table 1), regardless of which gender conformity measure was used, the AGT (Study 1,  $r = 0.282$ ; Study 2,  $r = 0.332$ ,  $ps < 0.001$ ), or the BSRI (Study 2,  $r = 0.266$ ,  $p < 0.001$ ). When controlling for sex, age, and educational background, the partial correlations remained in the same order of magnitude for both measures: AGT (Study 1,  $r = 0.284$ ; Study 2,  $r = 0.311$ ,  $ps < 0.001$ ) and BSRI (Study 2,  $r = 0.275$ ,  $p < 0.001$ ).

### Ordinary least squares regression

In both studies, the association between gender conformity and self-esteem became increasingly stronger as gender equality decreased, as indicated by an interaction between gender conformity and gender parity in Study 1,  $b = -0.04$ ,  $t(2071) = -1.73$ ,  $p = 0.07$ , and in Study 2,  $b = -0.08$ ,  $t(2407) = -4.22$ ,  $p < 0.001$ . Study 2 also provided evidence for a significant association between national levels of gender equality and individuals' ambivalent sexism scores, on both the country level,  $r(7) = 0.69$ ,  $p < 0.05$ , and on the individual level,  $r(2321) = 0.25$ ,  $p < 0.001$ . This result is consistent with previous reports on correlations between citizens' gender attitudes and national gender equality levels.

We explored the possibility that individual-level sexism might moderate the association between self-esteem and gender conformity, just as this association is moderated by societal gender inequality, but found no evidence in its support. Specifically, regressing self-esteem on ambivalent sexism scores and the AGT, we obtained a main effect for gender conformity,  $b = 0.33$ ,  $t(2319) = 16.28$ ,  $p < 0.001$ ; no main effect for personal gender ideology,  $b = 0.01$ ,  $t(2319) < 1$ , ns; and no interaction between gender conformity and sexism,  $b = 0.03$ ,  $t(2319) = 1.43$ ,  $p = 0.15$ . Conversely, the moderating effect of national gender equality on the association between gender conformity and self-esteem remained significant after sexism was controlled for,  $b = -0.07$ ,  $t(2317) = 3.52$ ,  $p < 0.001$ , indicating that individual gender attitudes were overpowered by societal gender equality.

### Multilevel analyses

The multilevel analysis yielded a significant main effect of gender conformity,  $b = 0.30$ ,  $t(4479) = 20.18$ ,  $p < 0.01$ ; no main effect of gender equality; and, crucially, a significant cross-level interaction between gender conformity and gender equality,  $b = -0.05$ ,  $t(4481) = -2.89$ ,  $p = 0.004$ . The cross-level interaction remained significant when we controlled for participants' age, sex, and educational background,  $b = -0.03$ ,  $t(4473) = -2.17$ ,  $p = 0.03$ . Table 2 provides the complete parameter estimates in accordance with the procedures described in the Data analysis section (see online Supplementary Table S4 for the relevant equations). Results obtained by using AGT and BSRI separately were similar and are reported in online Supplementary Tables S5 and S6.

### Meta-analysis and meta-regression

Using the random-effects model, we found significant cross-national heterogeneity in self-esteem-to-gender conformity effect sizes,  $Q(14) = 33.33$ ,  $p = 0.01$ ,  $I^2 = 58\%$ . To examine whether

country-level gender equality significantly moderated the association between gender conformity and self-esteem, we ran a mixed-effects meta-regression (method of moments model; see Borenstein, Hedges, Higgins, & Rothstein, 2010). Gender equality significantly accounted for the dispersion of self-esteem-to-gender conformity effects across countries,  $b = -0.78$ ,  $Z = 4.21$ ,  $p < 0.001$ . Because nations' gender equality was positively related to nations' GDP per capita ( $r = 0.78$ ), to countries' main religion ( $r = 0.63$ ; coded 1 = Catholic/Orthodox; 2 = Protestant), and to the national average of our participants' educational background ( $r = 0.21$ ), we controlled for these variables and found that the moderation by gender equality remained significant ( $b = -0.84$ ,  $Z = 2.39$ ,  $p = 0.02$ ).<sup>2</sup> The relationship between gender equality and the self-esteem-to-gender conformity association across countries is illustrated in Fig. 1.

## Discussion

The current research shows that gender nonconformity is linked to low self-esteem across countries, highlighting the wide-ranging nature of the problem. At the same time, the cross-national nature of the study allowed us to identify societal gender inequality as an influential factor in the association between gender nonconformity and self-esteem. The association was weakest in countries with the highest level of gender equality, being indeed smaller than the associations previously reported in US studies (see Table 1) and strongest in countries with the lowest gender equality, exceeding the associations previously reported in US studies. The results held up when potential confounds such as age, sex, education, countries' GDP per capita, and religion were held constant, and they reproduced across two types of gender conformity measures and different data-analytic approaches (ordinary least squares regression, multilevel analysis, and meta-analysis). Taken together, these results suggest that proximal gender role effects on the relationship between self-esteem and gender nonconformity identified in previous research, such as gender contentedness or felt gender conformity pressure (e.g. Tobin et al., 2010), need to be considered within a broader macro-social context that constrains people's freedom to move against gender role norms to a greater or lesser degree.

### Conceptual and clinical implications

The findings have both theoretical and practical implications. Prior to this study, empirical support for explanations of the psychological difficulties associated with gender nonconformity derived from social-role theory centered on proximal gender role effects as identified in US studies. Having shown that associations between gender nonconformity and self-esteem vary across countries that differ in their gender role culture broadens the support for social role-based explanations of the distress associated with gender nonconformity.

In addition to contributing to an understanding of the psychological implications of gender nonconformity, the current findings also have clinical implications. Low self-esteem is a sensitive predictor of various psychological disorders, notably depression (e.g. Sowislo & Orth, 2013). Hence, even relatively minor shifts in self-esteem can have a significant impact on the risk for depression. For instance, individuals who developed major depressive disorder and those who did not were found to score approximately 2 points apart on the RSES at the premorbid stage, which corresponds to an effect size difference of  $d = 0.38$

**Table 2.** Parameter estimates of multilevel model: (A) two-level unconditional model, (B) two-level random intercept model for effects of individual-level gender conformity and country-level gender equality on self-esteem, (C) is same as B with control variables included

A	Estimate	Std. Err	t value	Pr(> t )
Level 1: Individual-level fixed effects				
Intercept	-0.01	0.07	-0.15	0.88
Random effects				
Nation (Intercept)	0.08	0.28		
Residual	0.93	0.96		
ICC	0.08			
B	Estimate	Std. Err	t value	Pr(> t )
Level 1: Individual-level fixed effects				
Intercept	-0.03	0.06	-0.43	0.68
Gender conformity <sup>a</sup>	0.30	0.02	20.18	<0.001
Level 2: Country-level fixed effects				
Gender equality <sup>b</sup>	-0.08	0.06	-1.33	0.20
Cross-level interaction effect				
Gender conformity × Gender equality	-0.05	0.02	-2.89	0.004
Random effects				
Nation (Intercept)	0.05	0.22	-	-
Residual	0.85	0.92	-	-
C	Estimate	Std. Err	t value	Pr(> t )
Level 1: Individual-level fixed effects				
Intercept	0.11	0.07	1.67	0.10
Gender conformity	0.30	0.01	20.31	<0.001
Age	0.15	0.01	10.00	<0.001
Education	0.05	0.01	3.77	<0.001
Sex	-0.09	0.03	-3.08	0.002
Level 2: Country-level fixed effects				
Gender equality	-0.05	0.05	-1.04	0.31
Cross-level interaction effect				
Gender conformity × Gender equality	-0.03	0.02	-2.17	0.03
Random effects				
Nation (Intercept)	0.83	0.91	-	-
Residual	0.04	0.19	-	-

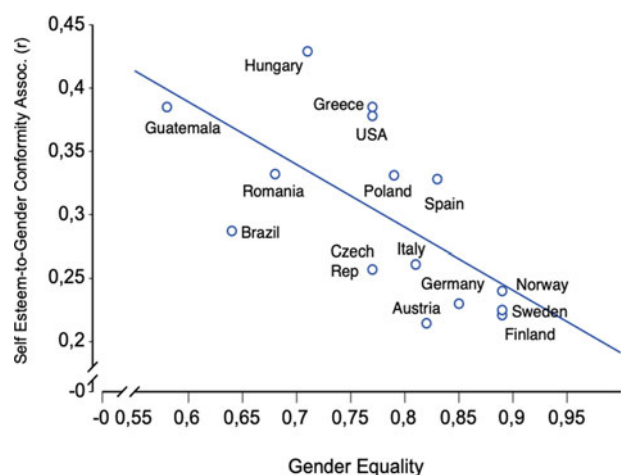
ICC, Intraclass Correlation Coefficient.

<sup>a</sup>see 'Variable-aggregation' section for details.<sup>b</sup>see 'Measures' section for details.

(Ormel, Oldehinkel, & Vollebergh, 2004). Differences in self-esteem related to national gender equality levels were of a similar order of magnitude for individuals with marked gender nonconformity (those falling in the top quintile of the distribution).<sup>3</sup> In other words, and all other things being equal, prevailing gender role norms could be the factor that tips the balance toward mental health or illness for individuals with marked gender nonconformity.

A second clinical implication of our findings relates to the conceptualization of mental disorders of the DSM-5, noted in the introduction, as dysfunctions within the individual rather than

as outcomes arising from a conflict between the individual and society. The interdependence of self-esteem, gender-related behaviors, and societal contexts highlighted by the current findings implies that rather than being inherently noxious, gender nonconformity becomes detrimental to self-esteem when it clashes with restrictive gender role norms that are enacted by the macro-social context. Such clashes are particularly likely to occur when individuals exhibit the more extreme forms of gender nonconformity distress, such as gender dysphoria. An interesting question for future research to explore is whether gender-dysphoric individuals living in societies with rigid gender role



**Fig. 1.** Strength of relationship (Pearson  $r$ ) between gender conformity and self-esteem (Y-axis) as a function of nations' gender equality (X-axis). The scores on the Y-axis are self-esteem correlations with the AGT, which was used in both studies.

norms might have a higher incidence of co-morbid conditions, and possibly even a greater desire to transition to the opposite sex, because the more prescriptive a culture's binary gender roles are, the more challenging it may become to live outside these roles.

### Unexpected findings

Although most country-level effects fell in line with predictions, there were some exceptions to the general trend illustrated in Fig. 1 that can help shed light on how and when gender equality may affect outcomes linked to gender nonconformity. In Hungary, for instance, the association between gender conformity and self-esteem was stronger and in Brazil it was weaker than would have been expected from the countries' respective standing on gender equality. One possible explanation is that the congruence between structural gender equality and citizens' attitudes toward gender equality varies from country to country. Where the two diverge substantially, the nexus between self-esteem and gender conformity may be less clearly aligned with national gender equality. Thus, although Brazil ranks comparatively low on structural gender equality, a recent survey on global attitudes toward gender equality revealed that 48% of Brazilian women said that there were more advantages of being a man, whereas 76% of Hungarian women did so. Similarly, 39% of Brazilian men defined themselves as 'feminist', whereas only 17% Hungarian men did, reflecting some of the highest and lowest proportions of self-defined feminist men worldwide (Beaver, Kaur-Ballagan, & Hall, 2019).

### Limitations

The current study should be seen as a first step toward a cross-culturally informed understanding of the psychological implications of gender nonconformity. It leaves several open questions for future studies to address and has a number of limitations. First, the concept of gender equality is unquestionably complex, involving a confluence of demographic, economic, and religious factors. Although the effect of gender equality held up when these potentially confounding factors were controlled for, we cannot rule out the possibility that some other relevant factor might

have escaped our attention. Second, although our studies included a relatively broad assortment of countries with reasonably large sample sizes, future research should seek to expand the range of nations and populations. On one hand, our samples cannot be viewed as representative of the populations in each country, and on the other, the countries did not capture the full spectrum of gender equality levels. Thus, none of our countries fell into the bottom tertile of the worldwide gender equality distribution. Even a mild range restriction, such as when the bottom 20% of a distribution is truncated, can markedly decrease statistical power and bias the observed effect sizes downward (e.g. Aguinis & Stone-Romero, 1997). In light of this, it is perhaps all the more notable that moderation effects could be detected. A final limitation of the present research concerns the size of some of the effects. Although we were impressed that the results emerged across studies and types of gender conformity measures, the moderating effect of gender equality on the self-esteem-to-gender nonconformity association was quite small, especially if individual-level rather than country-level analyses are used as the source of evidence.

### Conclusions and outlook

These limitations notwithstanding, our findings offer the first large-scale evidence suggesting that the probability with which departures from gender conformity result in low self-esteem and possibly in other mental health conditions is related to societies' gender role culture. The power of societal factors highlighted herein gives rise to two types of outlooks for the future of gender-related expressions. In the longer term, the outlook should improve because of the dynamic nature of gender attitudes within societies (Eagly, Nater, Miller, Kaufmann, & Sczesny, 2020) and a gradual shift toward more gender-equal attitudes and policies in many parts of the world (Zahidi et al., 2018). Consider the Scandinavian countries, where the nexus between gender nonconformity and self-esteem is crumbling already. Only a generation ago, these countries used to have gender parity levels typical of today's Western European countries. The latter, in turn, had levels of gender equity typical in today's Southern Europe a generation earlier (Zahidi et al., 2018). If this macrosocial movement toward more gender-equal norms is maintained, headwinds against crossing gender role boundaries can be expected to lessen over the long term.

In the short and midterm, crossing gender role boundaries is likely to remain difficult to sustain to any significant degree, when at the same time systemic factors impart a sense of inferiority to gender nonconforming individuals. The mixed findings of isolated efforts at changing individual gender attitudes seem consistent with this view (see Levy et al., 2020, for a review), as well as with our own findings suggesting that personal gender attitudes are less influential than the broader gender role culture in moderating the associations between gender nonconformity and self-esteem. These results serve as a reminder that effective coping with distress arising from gender nonconformity should be judged or addressed not only on a personal level, but also on a societal level. Actions at the societal level may include policies supporting early intervention programs designed to foster positive attitudes toward gender nonconforming boys and girls (Kwan et al., 2020), or raising awareness for gender-atypical professions that reward rather than sanction gender nonconformity.<sup>4</sup>

**Supplementary material.** The supplementary material for this article can be found at <https://doi.org/10.1017/S0033291720003645>.

**Acknowledgements.** We are grateful to Pia Gmyrek and Laura Odenwald for their help during the initial phase of the project, to Hannah Strauß for assistance with data collection, and to Dr Alexander Korte for comments on the manuscript.

## Notes

1 In addition to the demographic information presented in online Supplementary Tables S1 and S3, we examined sources of potential bias in our samples. Differences in Internet penetration rates can be a source of bias, but were relatively high and comparable across the countries of our samples, ranging from 65% in Guatemala to 96% in Norway (mean 81.0, s.d. 9.3; see <https://data.worldbank.org/indicator/IT.NET.USER.ZS>). We also compared means, variances, and well-known associations relating to self-esteem from our study with the distributions and associations reported for the same variables in two of the largest cross-national studies on self-esteem to date (Helwig & Ruprecht, 2017; Schmitt & Allik, 2005). The correlations between age and self-esteem ( $r=0.20$ ), gender and self-esteem ( $r=-0.01$ ), as well as the RSES averages and variances were similar to those reported in the above-mentioned large-scale studies (details of these comparisons are available on request). While not representative, our samples may thus be seen as resembling those of studies that captured a relatively broad spectrum of the population.

2 Results were similar when self-esteem was correlated with the AGT or the BSRI instead of the aggregate gender conformity index. These analyses are available from the authors on request.

3 Individuals in the top quintile of the gender nonconformity distribution scored 2.02 points below the Rosenberg scale mean if living in one of the top five gender equality nations (Finland, Germany, Norway, Spain, Sweden) but 3.94 points below the mean if living in one of the bottom five gender equality nations (Brazil, Greece, Guatemala, Hungary, Romania), corresponding to an effect size difference of  $d=0.32$ .

4 An example is provided by active-duty female firefighters who have been shown to experience less male coworker hostility and less trauma symptomatology if they exhibited gender non-conforming behaviors as opposed to gender conforming behaviors (Smith, 2020).

## References

- Aguinis, H., & Stone-Romero, E. F. (1997). Methodological artifacts in moderated multiple regression and their effects on statistical power. *Journal of Applied Psychology, 82*, 192–205.
- Ahmed, T., Vafaei, A., Auais, M., Guralnik, J., & Zunzunegui, M. V. (2016). Gender roles and physical function in older adults: Cross-sectional analysis of the International Mobility in Aging Study (IMIAS). *PLoS ONE, 11*(6), e0156828.
- American Psychiatric Association (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: APA.
- Beaver, K., Kaur-Ballagan, K., & Hall, S. (2019). International women's day 2019: Global attitudes towards gender equality. Retrieved from <https://www.kcl.ac.uk/giwl/assets/iwd-giwl-main.pdf>.
- Bem, S. L. (1974). The measurement of psychological androgyny. *Journal of Consulting and Clinical Psychology, 42*, 155–162.
- Bennett, D. S., Borczon, E., & Lewis, M. (2019). Does gender nonconforming behavior in early childhood predict adolescents' depressive symptoms? *Sex Roles, 81*(7–8), 521–528.
- Borenstein, M., Hedges, L. V., Higgins, J. P., & Rothstein, H. R. (2010). A basic introduction to fixed-effect and random-effects models for meta-analysis. *Research Synthesis Methods, 1*, 97–111.
- Carver, P. R., Yunger, J. L., & Perry, D. G. (2003). Gender identity and adjustment in middle childhood. *Sex Roles, 49*(3–4), 95–109.
- Corby, B. C., Hodges, E. V., & Perry, D. G. (2007). Gender identity and adjustment in black, Hispanic, and white preadolescents. *Developmental Psychology, 43*, 261–266.
- DiDonato, M. D., & Berenbaum, S. A. (2011). The benefits and drawbacks of gender typing: How different dimensions are related to psychological adjustment. *Archives of Sexual Behavior, 40*, 457–463.
- DiDonato, M. D., & Berenbaum, S. A. (2013). Predictors and consequences of gender typicality: The mediating role of communality. *Archives of Sexual Behavior, 42*, 429–436.
- Donnellan, M. B., Trzesniewski, K. H., Robins, R. W., Moffitt, T. E., & Caspi, A. (2005). Low self-esteem is related to aggression, antisocial behavior, and delinquency. *Psychological Science, 16*, 328–335.
- Eagly, A. H., Nater, C., Miller, D. I., Kaufmann, M., & Sczesny, S. (2020). Gender stereotypes have changed: A cross-temporal meta-analysis of U.S. public opinion polls from 1946 to 2018. *American Psychologist, 75*, 301–315.
- Egan, S. K., & Perry, D. G. (2001). Gender identity: A multidimensional analysis with implications for psychosocial adjustment. *Developmental Psychology, 37*, 451–463.
- Fernández, J., & Coello, T. (2010). Do the BSRI and PAQ really measure masculinity and femininity? *The Spanish Journal of Psychology, 13*, 1000–1009.
- Glick, P., & Fiske, S. T. (1996). The Ambivalent Sexism Inventory: Differentiating hostile and benevolent sexism. *Journal of Personality and Social Psychology, 70*, 491–512.
- Good, J. J., & Sanchez, D. T. (2010). Doing gender for different reasons: Why gender conformity positively and negatively predicts self-esteem. *Psychology of Women Quarterly, 34*, 203–214.
- Hayes, A. F. (2018). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach* (2nd ed.). New York, London: Guilford Press.
- Hedges, L. V., & Olkin, I. (2014). *Statistical methods for meta-analysis*. New York: Academic Press.
- Helwig, N. E., & Ruprecht, M. R. (2017). Age, gender, and self-esteem: A sociocultural look through a nonparametric lens. *Archives of Scientific Psychology, 5*, 19–31.
- Hyde, J. S., Bigler, R. S., Joel, D., Tate, C. C., & van Anders, S. M. (2019). The future of sex and gender in psychology: Five challenges to the gender binary. *The American Psychologist, 74*, 171–193.
- Jacobson, R., Cohen, H., & Diamond, G. M. (2016). Gender atypicality and anxiety response to social interaction stress in homosexual and heterosexual men. *Archives of Sexual Behavior, 45*, 713–723.
- Kwan, K. M. W., Shi, S. Y., Nabbjohn, A. N., MacMullin, L. N., VanderLaan, D. P., & Wong, W. I. (2020). Children's appraisals of gender nonconformity: Developmental pattern and intervention. *Child Development, 91*, 780–798.
- Levy, J. K., Darmstadt, G. L., Ashby, C., Quandt, M., Halsey, E., Nagar, A., & Greene, M. E. (2020). Characteristics of successful programmes targeting gender inequality and restrictive gender norms for the health and wellbeing of children, adolescents, and young adults: A systematic review. *The Lancet Global Health, 8*(2), e225–e236.
- Lowry, R., Johns, M. M., Gordon, A. R., Austin, S. B., Robin, L. E., & Kann, L. K. (2018). Nonconforming gender expression and associated mental distress and substance use among high school students. *Journal of the American Medical Association Pediatrics, 172*, 1020–1028.
- Martin-Storey, A. (2016). Gender, sexuality, and gender nonconformity: Understanding variation in functioning. *Child Development Perspectives, 10*, 257–262.
- McNeish, D. M., & Stapleton, L. M. (2016). The effect of small sample size on two-level model estimates: A review and illustration. *Educational Psychology Review, 28*, 295–314.
- Menon, M. (2011). Does felt gender compatibility mediate influences of self-perceived gender nonconformity on early adolescents' psychosocial adjustment? *Child Development, 82*, 1152–1162.
- Meyer, I. H. (2003). Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: Conceptual issues and research evidence. *Psychological Bulletin, 129*, 674–697.
- Miller, L. R., & Grollman, E. A. (2015). The social costs of gender nonconformity for transgender adults: Implications for discrimination and health. *Sociological Forum, 30*, 809–831.
- Ormel, J., Oldehinkel, A. J., & Vollebergh, W. (2004). Vulnerability before, during, and after a major depressive episode: A 3-wave population-based study. *Archives of General Psychiatry, 61*, 990–996.
- Reinherz, H. Z., Giaconia, R. M., Pakiz, B., Silverman, A. B., Frost, A. K., & Lefkowitz, E. S. (1993). Psychosocial risks for major depression in late



- adolescence: A longitudinal community study. *Journal of the American Academy of Child and Adolescent Psychiatry*, 32, 1155–1163.
- Rieger, G., & Savin-Williams, R. C. (2012). Gender nonconformity, sexual orientation, and psychological well-being. *Archives of Sexual Behavior*, 41, 611–621.
- Roberts, A. L., Rosario, M., Slopen, N., Calzo, J. P., & Austin, S. B. (2013). Childhood gender nonconformity, bullying victimization, and depressive symptoms across adolescence and early adulthood: An 11-year longitudinal study. *Journal of the American Academy of Child and Adolescent Psychiatry*, 52, 143–152.
- Rollero, C., Glick, P., & Tartaglia, S. (2014). Psychometric properties of short versions of the Ambivalent Sexism Inventory and Ambivalence Toward Men Inventory. *TPM-Testing, Psychometrics, Methodology in Applied Psychology*, 21, 149–159.
- Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton: Princeton University Press.
- Sani, G. M. D., & Quaranta, M. (2017). The best is yet to come? Attitudes toward gender roles among adolescents in 36 countries. *Sex Roles*, 77(1–2), 30–45.
- Schmitt, D. P., & Allik, J. (2005). Simultaneous administration of the Rosenberg Self-Esteem Scale in 53 nations: Exploring the universal and culture-specific features of global self-esteem. *Journal of Personality and Social Psychology*, 89, 623–642.
- Schönbrodt, F. D., & Perugini, M. (2013). At what sample size do correlations stabilize? *Journal of Research in Personality*, 47(5), 609–612.
- Shu, X., Barnett, G., & Faris, R. (2020). Telecommunication ties and gender ideologies in the age of globalization: International telephone networks and gender attitudes in 47 countries. *Chinese Journal of Sociology*, 6, 3–34.
- Shumer, D. E., Roberts, A. L., Reisner, S. L., Lyall, K., & Austin, S. B. (2015). Autistic traits in mothers and children associated with child's gender nonconformity. *Journal of Autism and Developmental Disorders*, 45, 1489–1494.
- Smith, E. R. (2020). Women in the fire service: Investigating the influence of conformity to masculine gender role norms and perceived social support on trauma symptomology (Doctoral dissertation). The University of Texas. Austin, Texas.
- Sowislo, J. F., & Orth, U. (2013). Does low self-esteem predict depression and anxiety? A meta-analysis of longitudinal studies. *Psychological Bulletin*, 139, 213–240.
- Spivey, L. A., Huebner, D. M., & Diamond, L. M. (2018). Parent responses to childhood gender nonconformity: Effects of parent and child characteristics. *Psychology of Sexual Orientation and Gender Diversity*, 5(3), 360–370.
- Stegmueller, D. (2013). How many countries for multilevel modeling? A comparison of frequentist and Bayesian approaches. *American Journal of Political Science*, 57, 748–761.
- Tate, C. C., Bettergarcia, J. N., & Brent, L. M. (2015). Re-assessing the role of gender-related cognitions for self-esteem: The importance of gender typicality for cisgender adults. *Sex Roles*, 72(5–6), 221–236.
- Tobin, D. D., Menon, M., Menon, M., Spatta, B. C., Hodges, E. V., & Perry, D. G. (2010). The intrapsychics of gender: A model of self-socialization. *Psychological Review*, 117, 601–622.
- United Nations Development Programme (2018). Human development indices and indicators: Gender Inequality Index (GII). Retrieved from <http://hdr.undp.org/en/data>.
- Vasey, P. L., & Bartlett, N. H. (2007). What can the Samoan 'Fa'afafine' teach us about the Western concept of gender identity disorder in childhood? *Perspectives in Biology and Medicine*, 50, 481–490.
- Viechtbauer, W. (2010). Conducting meta-analyses in R with the metafor package. *Journal of Statistical Software*, 36, 1–48.
- Wood, W., & Eagly, A. H. (2012). Biosocial construction of sex differences and similarities in behavior. In M. Zanna & J. Olson (Eds.), *Advances in experimental social psychology* (Vol. 46, pp. 55–123). New York: Academic Press.
- Yildirim, B., Perdahlı Fis, N., Yazkan Akgul, G., & Ayaz, A. B. (2017). Gender dysphoria and attention problems: Possible clue for biological underpinnings. *Psychiatry and Clinical Psychopharmacology*, 27, 283–290.
- Yunger, J. L., Carver, P. R., & Perry, D. G. (2004). Does gender identity influence children's psychological well-being? *Developmental Psychology*, 40, 572–582.
- Zahidi, S., Geiger, T., & Crotti, R. (2018). *The global gender gap report 2018*. Geneva: World Economic Forum.