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Gender Essentialism Predicts Prejudice against Gender Nonconformity in Two Cultural Contexts

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Funding: This work was supported by the National Institutes of Health R01 (Project No. 5R01HD092347-05) awarded to the second author and the National Science Foundation GRFP (Grant No. 1256260 DGE) awarded to the first author. Findings expressed in this material do not necessarily reflect the views of the NIH or NSF.

This is the author manuscript accepted for publication and has undergone full peer review but has not been through the copyediting, typesetting, pagination and proofreading process, which may lead to differences between this version and the Version of Record. Please cite this article as doi: 10.1002/sode.12720.

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Ethics Compliance: This study has been approved by the IRBs of both the University of Michigan and the University of Washington. Authors assert that this is original data that has not been published elsewhere. Data is available by contacting the first author.

Preregistration: We pre-registered the study and uploaded all study materials to OSF (see provided PDF; link includes information that makes authors identifiable and so is available to editor only).

Abstract

Gender-nonconforming children face a substantial amount of prejudice, making it important to investigate potential contributing factors. In a correlational study of 253 U.S. Midwestern and Pacific Northwestern 6- to 10-year-old gender-conforming children (Age *M* = 7.95, *SD* = 1.43; 54% girl, 46% boy; 77% White), we examined how gender essentialism (beliefs that gender is biological, discrete, informative, and immutable) and gender identity essentialism (beliefs that gender identity is immutable) relate to prejudice against gender-nonconforming children. We also examined whether these associations varied by the child's cultural context (rural, non-diverse, conservative vs. urban, more diverse, liberal). We found a positive correlation between gender essentialism and prejudice, in both cultural contexts. Additionally, children from the more rural context endorsed more essentialism and expressed more prejudice than did their counterparts from the more urban context. However, we found no differences in children's gender identity essentialism by cultural context and no association with prejudice.

Keywords: gender essentialism, gender identity, prejudice, urban, rural

Gender Essentialism Predicts Prejudice against Gender Nonconformity in Two Cultural Contexts

Gender-nonconforming (GNC) children, those who do not conform to cultural expectations of gender based on their sex assigned at birth (for a glossary of terms see Table 1), face a substantial degree of prejudice and discrimination (Horn, 2019; Kosciw et al., 2018; Kosciw et al., 2019; Riggs et al., 2022; Rubin et al., 2020). A 2019 survey found that 57% of LGBTQ school-aged children were

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verbally bullied and 22% were physically bullied due to their gender identity (Kosciw et al., 2019). Furthermore, bullying is associated with higher rates of depression, anxiety, and suicidality in gender-nonconforming people (Friedman et al., 2006; Hawker & Boulton, 2000; Roberts et al., 2013). These negative experiences are more common in students who do not conform to traditional gender norms than other students. For example, a 2012 report (Harris Interactive, 2012) indicated that students who do not conform to traditional gender norms are more likely than others to say they are called names, made fun of or bullied at least sometimes at school (56% vs. 33%), twice as likely as other students to say that other children at school have spread mean rumors or lies about them (43% vs. 20%), and three times as likely to report that another child at school has used the internet to call them names, make fun of them, or post mean things about them (7% vs. 2%). Additionally, this report found that students who do not conform to traditional gender norms are less likely than other students to feel very safe at school (42% vs. 61%) and are more likely than others to agree that they sometimes do not want to go to school because they feel unsafe or afraid there (35% vs. 15%). It is therefore important to understand when and why gender-conforming children hold prejudice against gender-nonconforming children that may lead to bullying (Camodeca et al., 2019).

Table 1

Glossary of Terms as Defined for this Study

Term	Definition
Gender Identity	One's identification with a gender category or place along a gender spectrum; common gender identities include boy, girl, and nonbinary
Gender Expression	Manner in which one conveys their gender to others, often in the form of clothing, hairstyles and activity preferences commonly gendered within their culture; gender expression can, but need not, align with one's gender identity

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Sex (assigned at birth)	Categorization declared (often by a doctor, midwife, or parent) at birth usually based on examination of the genitalia; common sex assignments are male and female.
Gender/Sex	A concept that incorporates the social and biological constructs of gender and sex, and also acknowledges that firm separation of gender and sex in individuals' minds and research studies is difficult (van Anders, 2015)
Gender Nonconforming Child	A child whose gender expression and/or identity often or always differ from those expected based on their sex assigned at birth and culture
Gender Conforming Child	A child whose gender expression and/or identity often or always align with those expected based on their sex assigned at birth and culture

One factor that may contribute to this prejudice, and the factor examined in the present work, is psychological essentialism. Essentialism is a lay theory that certain categories have a non-obvious, underlying reality that is innate, immutable (unchangeable), and predictive of innumerable other features (Gelman, 2003; Rhodes & Mandalaywala, 2017). Bigler and Liben (2006) theorized that essentializing a social category can contribute to forming and reinforcing stereotypes and prejudices about that category. Within the domain of gender, this theory has received extensive support in research with adults. Extant research reveals that gender essentialist beliefs have been linked to higher rates of sexism (Smiler & Gelman, 2008), prejudice against transgender people (Broussard & Warner, 2019), preference for cisgender groups (Gallagher & Bodenhausen, 2021), and opposition to women's and transgender persons' rights (Wilton et al., 2019). Gender essentialism

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has also been found to moderate the links between other factors (spirituality, authoritarianism, social dominance orientation) and transphobia (Ching et al., 2020).

Importantly, however, the extent and even direction of the relation between essentialism and prejudice in adults may depend on the aspects of essentialism and the social category being evaluated. For example, although gender essentialism is associated with negative attitudes as summarized above, and race essentialism is associated with racial prejudice (Williams & Eberhardt, 2008), when reasoning about people who are gay or lesbian, more biologically-based essentialist beliefs about sexual orientation (but not all types of essentialist beliefs about people who are gay or lesbian) are associated with *less* prejudice (Haslam & Levy, 2006). Additionally, essentialism of sexual minority identities is associated with positive affirmations (Schudson & van Anders, 2022). These findings are important in the present context, as they indicate that essentialism does not necessarily or automatically result in greater prejudice. Rather, the effects of essentialism must be understood within the context of a person's other beliefs. Although it is beyond the scope of the present paper to draw conclusions as to why viewing sexual orientation as biological and fixed is linked to greater tolerance, we speculate that essentialist beliefs have the potential to indicate that sexual orientation is a legitimate identity, and not a matter of choice (Haslam & Levy, 2006; Schudson & van Anders, 2022).

We are aware of only one study that has examined how children's gender essentialism may relate to their attitudes toward gender-nonconforming others. In that paper, cisgender children ages 5-10 who categorized transgender children according to their sex assigned at birth (thus displaying essentialist beliefs about the biological basis and immutability of gender) showed greater dislike of transgender children than those who categorized transgender children according to their gender identity (Gülgöz et al., 2018). However, that study focused on one specific instantiation of essentialism (categorization based on sex at birth) rather than a broader set of essentialist beliefs. An additional limitation is that it focused exclusively on beliefs about transgender people. It remains

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to be seen if the patterns obtained would hold when considering those who are gender-nonconforming but not transgender. Transgender identities may be a special case, in that they directly contradict the essentialist assumption that gender is determined by one's sex assigned at birth. Furthermore, prior research has not yet addressed two important additional questions: (a) How may gender essentialism differ from gender identity essentialism? (b) What is the role of cultural context in these effects? We briefly sketch out these issues next.

Gender Identity Essentialism

Here we distinguish "gender essentialism" from "gender identity essentialism." Importantly, when discussing gender essentialism research, we adhere to a definition of gender (also referred to as gender/sex) proposed by van Anders (2015) that acknowledges people's tendency to view gender as a concept that encompasses both gender expression and sex. Whereas gender concepts are often measured in a way that conflates gender and sex (e.g., using terms such as "boy" and "girl," without explaining or defining them), gender identity concepts focus specifically on a person's conception of their own gender, independent of their sex at birth. For example, someone who is identified as a boy at birth (sex) may have a gender identity that is either congruent (boy) or incongruent (girl) with their sex. Relatedly, whereas a person's sex reflects their bodily or biological features, a person's gender identity reflects their identification or sense of self. Gender identity essentialism (the belief that one's gender *identity* is stable, genetically determined, etc.) is not necessarily equivalent to gender essentialism (the belief that one's gender/sex is stable, genetically determined, etc.). For example, a person may believe that gender is stable over a time (once a boy, always a boy) but that gender identity is variable over time (someone might feel like a girl at one age but feel like a boy at another age).

The relation between gender essentialism and prejudice may differ from that between gender-identity essentialism and prejudice. Indeed, one paper with adult participants found that essentialism of transgender *identities* corresponded to *lower* levels of transgender prejudice (Glazier

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et al., 2021)—in contrast to prior research with adults, reviewed earlier, that gender essentialism relating to gender broadly corresponds to higher levels of transgender prejudice (Ching et al., 2020; Ching & Xu, 2018; Wilton et al., 2019) .

Cultural Context

Prior research suggests that essentialism may vary in children as a function of their cultural context. For example, Pauker et al. (2016) found higher rates of race essentialism for children in Massachusetts versus Hawai'i, among the older children in a sample ranging from 4-11 years of age. In another example, Rhodes and Gelman (2009) found that children from two neighboring areas in Michigan differed substantially in their gender essentialist beliefs, on a task measuring beliefs about the objective nature of category boundaries. The two communities differed in multiple respects (including population size, ethnic and racial diversity, political beliefs, and parent income and occupation). Although the youngest children (5-7 years) did not differ from one another as a function of community, by about 10 years of age, children in the more urban, diverse, liberal cultural context endorsed lower levels of gender essentialism than those in the more rural, homogeneous, conservative cultural context.

More generally, rural and urban communities in the U.S. often differ in political orientation and demographic variables. Communities farther from metropolitan areas are often more conservative (Gimpel et al., 2020) and often have lower income and educational attainment on average (Byun et al., 2012). Yet we currently know relatively little regarding social cognitive development outside a rather narrow range of homogenous samples recruited for developmental research (Bornstein et al., 2013; Rowley & Camacho, 2015). In this regard, important open questions remain as to whether the difference found by Rhodes and Gelman (2009) would replicate with different measures of gender essentialism, whether the relation between gender essentialism and prejudice would similarly differ in these different cultural contexts, and whether gender-identity essentialism would vary by cultural context.

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The Present Study

The present study was designed to examine the relations among gender essentialism, gender identity essentialism, and prejudice toward gender-nonconforming individuals in children 6-10 years of age, from two different cultural contexts. We selected this age range because children at these ages have been shown to demonstrate gender essentialism as well as the beginning of some malleability as a function of community context (Rhodes & Gelman, 2009). Past research has also found that children's gender essentialism starts to decline at about 9-10 years of age (Davoodi et al., 2020; Taylor et al., 2009), so we focused on children both before and during this dip. Additionally, as noted below, the tasks that we selected are ones that have been used with children within this age range.

We assessed gender essentialism (using a broad measure with 16 items tapping into a range of essentialist concepts) and gender-identity essentialism (with a focus on immutability), and we sampled from two distinct types of communities in the U.S. that showed different levels of gender essentialism in prior work (Rhodes & Gelman, 2009). As a baseline comparison, we also measured sex essentialism, specifically, the belief that biological sex does not change. Prior research indicates that by 5-6 years of age, children are at ceiling in reporting that the bodies and sex-linked physical attributes of boys and girls are immutable (Gülgöz et al., 2021; Taylor et al., 2009). Thus, we hypothesized that responses on this measure would be consistently high across cultural contexts. We pre-registered the study and uploaded all study materials to OSF (https://osf.io/e2t8d/?view_only=e997c8fd11b54be2864a427b5f2081a5).

Method

Participants

We preregistered that we planned to interview 240 participants: 120 children from rural, conservative-leaning towns in the U.S. state of Michigan and 120 children from an urban, liberal

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community in the U.S. state of Washington, with each sample evenly distributed by age (6-10 years old). We arrived at this sample size because of discussions at the time suggesting minimal sample sizes should be around 100 participants (Vazire, 2014) and by estimating the largest sample we could recruit in a reasonable timeframe from rural areas, which are more difficult to reach. The rural communities were selected as those with a population size no greater than 30,000, an average annual household income no greater than $60,000, and a voting record indicating that a majority voted for the Republican presidential candidate in 2008 (the 2008 election was chosen because patterns of voting in 2016 were anomalous; Michigan does not register voters by political party). Henceforth, for ease of exposition, we refer to the children recruited from the urban, liberal community in Washington state as “urban children”, and we refer to the children recruited from the rural, more conservative-leaning communities as “rural children.” Participants from Washington state were recruited via the University of Washington’s subject pool. Children were recruited into the database as infants. Letters were mailed to parents of newborns in King and Snohomish counties using birth records and parents had the option to sign up that child or any other child in their family for the pool at that time. In addition, some families learned about the pool from other families or through community contacts. The Michigan sample was recruited by posts on social media targeting adults in areas that met our criteria for a rural community. When clicked on, the ads brought potential participants’ parents to a landing page on UMhealthresearch.org with more details about the study and how to contact the researcher. For both samples, prior to scheduling an appointment to participate, parents and guardians were made aware that we were studying how children think about gender and how this relates to their attitudes toward children who do not conform to gender norms. Possible implications related to the characterization of these samples are further considered in the Discussion.

Anticipating that some participants would schedule appointments but cancel, we overscheduled, resulting in a total of 253 participants (13 more than planned), who were recruited and run between April 2019 and January 2021. The results were the same with or without the 13

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participants who were over-recruited (see Supplemental Materials), so we report results with all participants. Due to the COVID-19 pandemic, 65 participants from rural communities completed our study online via Zoom. We found no significant differences in the results from participants who completed the study online during the COVID-19 pandemic versus in-person prior to the pandemic. There was no significant interaction of in-person versus online video-enabled participation on the relation between gender essentialism and prejudice (p = .66) or gender identity essentialism and prejudice (p = .47) in our rural sample. See Table 2 for demographic information.

Table 2

Participant Gender, Race, Age, Caretaker Political Leaning, Household Income, Primary and Secondary Caretaker Education, and Participation Type by Site and t-Test of Differences between Cultural Contexts for Ordinal and Continuous Variables

		Rural	Urban	Total	*df*	*t*	*p*
Gender *N*s							
	Girl	71	65	136			
	Boy	56	61	117			
Race *N*s							
	White/European American	93	101	194			
	Multiracial	9	20	29			
	Asian/Asian American	0	3	3			
	Middle Eastern	2	0	2			
	Black/African American	1	1	2			
	Unknown	22	1	23			
Age *N*s							
	6	28	27	55			
	7	25	25	50			

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8	24	24	48			
9	27	25	52			
10	23	25	48			
Age in Year. *M(SD)*	7.94(1.42)	7.97(1.44)	7.95(1.43)	251	1.08	.28
Political Orientation *M(SD)*	3.21(1.53)	2.17(1.14)	2.69(1.44)	230.88	6.11	<.001
Household Income *M(SD)*	3.72(1.06)	4.33(1.11)	4.02(1.13)	250	-4.41	<.001
<$25k/year	2	4	6			
$25k-$50k/year	15	4	19			
$50,001-$75k/year	26	7	33			
$75,001-$125k/year	51	33	84			
>$125k/year	31	76	107			
Unknown	1	2	3			
Primary Caretaker Education *M(SD)*	4.13(.80)	4.36(.88)	4.24(.85)	250	-2.17	.03
Less than High School	0	0	0			
High School	4	1	5			
Some College/Associate's Degree	21	11	32			
College/Bachelor’s Degree	56	46	102			
Advanced Degree (MA, MD, PhD)	45	66	111			
Unknown	1	2	3			
Secondary Caretaker Education *M(SD)*	3.70(.99)	4.06(1.00)	3.88(1.01)	250	-2.84	.01
Less than High School	0	1	1			
High School	13	3	16			
Some College/Associate's Degree	44	14	58			
College/Bachelor’s Degree	32	62	94			
Advanced Degree (MA, MD, PhD)	33	42	75			
Unknown/No 2nd Caregiver	5	4	9			

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Participation *N*s

Online starting July 2021	65	0	65
In-person before July 2021	62	126	188

Note. Political leaning was measured on a scale from 1 = very liberal to 7 = very conservative.

Measures

The Gender Essentialism Scale for Children (GES-C; Fine, 2021). This new 16-item measure evaluated participants' essentialist beliefs about gender. It is commonly acknowledged that essentialism is not a single reasoning bias but rather a cluster of interrelated beliefs (Gelman, 2003; Gelman et al., 2007; Rhodes & Mandalaywala, 2017). The items were designed to broadly assess gender essentialism, including the concepts of biological basis, discreteness, informativeness, and immutability. In our primary analyses, we treat the scale as unidimensional (see Table 3 for items, see Supplemental Materials for factor analyses and results by component). Children indicated if they agreed or disagreed with each item by pointing to an image of, or demonstrating, a thumbs-up or -down, or saying 'agree' or 'disagree.' They then indicated if they agreed or disagreed 'a little' or 'a lot.' This provided us with a 4-point scale from 1 = 'disagree a lot' to 4 = 'agree a lot', with higher numbers indicating more essentialist beliefs after all reverse-coded items were recoded. Participants were randomly asked about either 'boys' or 'girls' (e.g., "A girl is a girl even before she is born.") and randomly asked about either 'boys and girls' or 'girls and boys' (e.g., "Girls and boys are the same."), depending on the item. We found the full scale to be reliable [α = .80, 95% CI(.76, .83)].

Table 3

The GES-C Items

Items

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A kid can choose to be a girl or a boy [boy or a girl]; it doesn't matter what their body looks like. [Rev]

Girls/boys do girl [boy] things because they have girl [boy] bodies.

You know a kid is a girl or boy [boy or girl] because of what their body look like.

A girl/boy is a girl [boy], even before she [he] is born.

Girls and boys [boys and girls] are the same. [Rev]

A kid can feel like a girl [boy] sometimes and a boy [girl] other times. [Rev]

A kid can feel like a girl [boy] and a boy [girl] at the same time. [Rev]

Girls and boys [boys and girls] are opposites.

Girls [boys] all over the world act the same.

It's easy to tell if a kid is a girl or a boy [boy or girl] by how they act.

Girls [boys] all act very different from one another. [Rev]

It's easy to tell if a kid is a girl or a boy [boy or a girl] by the toys they like.

A kid can change from a girl [boy] to a boy [girl]. [Rev]

A girl [boy] can become a boy/girl if she [he] wants. [Rev]

If a kid is a girl [boy] when they're born, they will be a girl [boy] when they grow up, too.

A girl [boy] can't change that she [he] is a girl [boy].

Note: [Rev] indicates reverse-coded items.

Gender Identity Essentialism and Sex Essentialism (adapted from Gülgöz et al., 2021). This measure presented participants with 10 items, describing: a gender-conforming girl, a gender-conforming boy, four gender-nonconforming children assigned female at birth, and four gender-nonconforming children assigned male at birth. The questions assess two constructs, *gender identity* essentialism and *sex* essentialism, which are distinct from one another (as gender identity and sex need not be in alignment), as well as the broader gender essentialism construct measured by the GES-C. Participants were told each character child's name, age (6-year-old), body parts (boy body or girl body), and gender identity (feels like a girl or feels like a boy). For example, one item was

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introduced as follows: “Eleanor is a 6-year-old. Eleanor has girl body parts and feels like a boy.” Participants received a memory check that asked them to recall the body parts and gender identity of the target child and corrected them if needed before moving on to the test questions. We planned to exclude participants who did not answer at least half of the memory check questions correctly; no participants were excluded on this basis. Then participants were asked the target questions about the body parts the target was born with (sex essentialism), and the gender the target felt like at birth (gender identity essentialism), in that order. For example, “When Eleanor was born and came out of Eleanor’s mom’s tummy, did Eleanor have boy body parts or girl body parts?” and “When Eleanor was born and came out of Eleanor’s mom’s tummy, did Eleanor feel like a boy or like a girl?” For the sex essentialism score, we computed the proportion of times participants reported that body parts at birth matched those at age 6. For the gender identity essentialism score, we computed the proportion of times participants reported that gender identity at birth matched that at age 6. Proportions were calculated separately for gender-nonconforming and gender-conforming child targets. Higher proportions indicate higher essentialism scores.

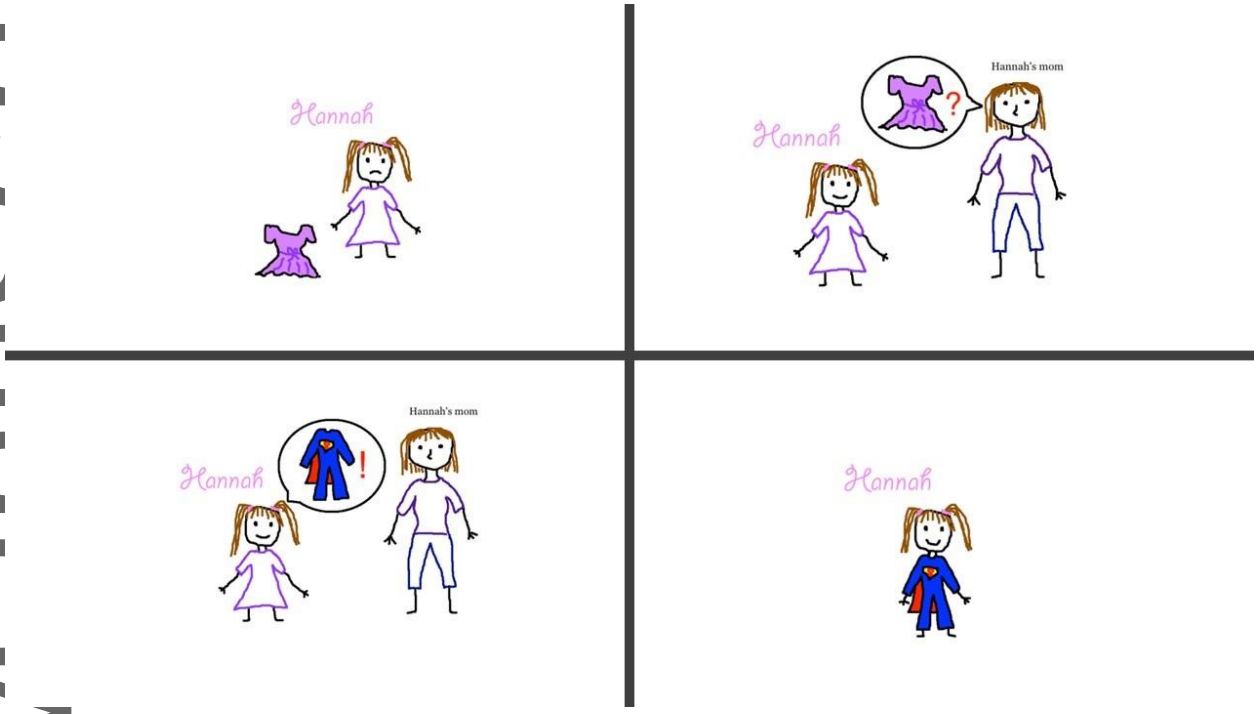
Prejudice against Gender-Nonconforming (GNC) Children (adapted from Gülgöz et al., 2018). Participants watched four short cartoon clips about a gender-conforming girl, a gender-nonconforming girl, a gender-conforming boy, and a gender-nonconforming boy, in random order. Each clip provided the character’s name, sex assigned at birth, and toy preference (see Figure 1). GNC children were described as preferring toys counter-stereotypical for the sex assigned to them at birth. After each clip, the participant answered attention check questions about the gender associated with each child target, and the toy each child preferred to play with. All participants met the preregistered requirement of answering at least half of the memory check questions correctly to be included in the analyses with this measure. Participants then were asked “How much do you like this kid?” and responded on a six-point scale from ‘really don’t like’ to ‘really like’ (with accompanying frowning and smiling faces). We computed a prejudice score by subtracting the average liking score of GNC targets from the average liking score of gender-conforming targets.

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Figure 1

Select Screenshots of a GNC Target



Note. These screenshots feature Hannah, a child with a girl body, who doesn't like playing with her ballerina costumes and toy unicorns. Hannah's mom asks why she does not want to play with the costumes and toys. Hannah informs her mom that she wants to "with superman costumes and trucks, just like my brother." After hearing Hannah's answer, Hannah's parents buy Hannah superman costumes and trucks.

Procedure

Children were tested individually. After the participants' parents or guardians completed the consent and demographic forms, participants assented to participate and completed the three measures in a randomly assigned order. To encourage participants to stay engaged with our study, in-person participants entered ink-stamps of animals into a booklet ("passport") to track how much of the study they completed. Those who participated via Zoom watched brief nature clips of the same animals in lieu of the animal stamps.

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Results

We have outlined our analysis plan in our preregistration on OSF (https://osf.io/e2t8d/?view_only=e997c8fd11b54be2864a427b5f2081a5).

Our primary preregistered analyses included a series of one-sample t-tests to compare the three main dependent variables to the midpoint, including gender essentialism, gender identity essentialism, and prejudice (we preregistered using t-tests to compare means to the top of the scales, but due to the statistical issues with this approach, now provide them in the Supplemental Materials). We also proposed independent-sample t-tests to assess whether our two samples differed on any of these measures. We proposed a regression analysis using gender essentialism and gender identity essentialism to predict prejudice. Finally, we proposed two moderation models asking whether cultural context moderated the association between gender essentialism (or gender identity essentialism) and prejudice.

Preliminary Analyses

We also conducted an additional set of analyses that were not preregistered but provide a preliminary check of the data, specifically to determine whether the order of the measures influenced results. We found no significant order effect on the relation between gender essentialism and prejudice (interactions of order and gender essentialism predicting prejudice *p*s > .24). Therefore, we present the results collapsed across task order.

Primary Analyses

Participants' essentialist reasoning on the three scales and prejudice measure

We first compared participants' scores on the GES-C, the gender identity essentialism measure, and the prejudice measure to the midpoint of each scale, to examine whether participants were showing high or low levels of essentialism and prejudice (see Table 4; see also Supplemental

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Materials Table S6 for results collapsed across participant location). As can be seen in the table, children were more essentialist than not on the Gender ID essentialism measure (M = .64, SD = .39; $t(233) = 5.51$, $p < .001$), but not on the GES-C (M = 2.44, SD = .53; $t(237) = -1.64$, $p = .10$). As a secondary analysis (see pre-registration), we also found that children were more essentialist than not on the Sex essentialism measure (see Table 4). Overall, participants did not show prejudice toward gender-nonconforming or gender-conforming targets (M = .09, SD = 1.36; $t(236) = 1.03$, p = .31).

Comparisons between Cultural Contexts for All Measures

Participants from rural communities reported more gender essentialism via the GES-C [$t(250) = 5.46$, $p < .001$; Cohen's d = .67] and more prejudice against gender-nonconforming children [$t(248) = 3.84$, $p < .001$; Cohen's d = .49] than participants from urban communities. There were no significant differences in participants' scores for gender identity essentialism or sex essentialism by cultural context ($ps \geq .73$). Nor were there differences in participants' scores by cultural context on the sex essentialism questions for gender-nonconforming or gender-conforming targets ($ps \geq .80$; not a preregistered analysis).

Because there were differences in levels of essentialism by cultural context, we conducted secondary analyses comparing scores on each essentialism measure separate for each sample. For the gender essentialism measure (GES-C), essentialism varied by cultural context, with rural children responding above the scale midpoint, and urban children responding below the scale midpoint. On the prejudice measure, rural children displayed more prejudice against gender-nonconforming than gender-conforming children, whereas urban children did not. Urban children expressed a non-significant preference for gender-nonconforming children [M = -.22, SD = 1.26; $t(123) = -1.92$, p = .06] whereas rural children expressed a significant but numerically small preference for gender-

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conforming children [*M* = .42, *SD* = 1.37; *t*(125) = 3.48, *p* = .001; prejudice scale ranged from -5 to 5]. Results for these analyses can be seen in Table 4.

Table 4

Means (Standard Deviations) and T-Test Results from Differences from Midpoint for All Measures by Cultural Context (Rural or Urban)

		Diff from Midpoint			
	M(SD)	*df*	*t*	*p*	Cohen's *d*
GES-C[A]					
Rural	2.62(.50)	126	2.77	.001	.24
Urban	2.28(.51)	124	-4.92	< .001	.43
Gender ID Essentialism[B]					
Gender Nonconforming Rural	.64(.39)	123	4.10	< .001	.36
Gender Conforming Rural	.94(.15)	123	25.40	< .001	2.93
Gender Nonconforming Urban	.63(.38)	122	3.67	< .001	.34
Gender Conforming Urban	.94(.16)	124	30.16	< .001	2.75
Sex Essentialism					
Gender Nonconforming Rural	.93(.15)	125	33.18	< .001	2.87
Gender Conforming Rural	.96(.14)	125	36.21	< .001	3.29
Gender Nonconforming Urban	.94(.13)	124	38.89	< .001	3.38
Gender Conforming Urban	.96(.14)	124	35.91	< .001	3.14
Prejudice[A]					
Rural	.42(1.37)	125	3.48	.001	.31
Urban	-.22(1.26)	123	-1.92	.06	.17

Notes. Gender Conforming = gender-conforming items; Gender Nonconforming = gender-nonconforming items. The GES-C (Gender Essentialism Scale for Children) is measured on a scale of 1

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to 4, with 4 representing the most essentialism. Gender Identity (ID) and Sex Essentialism are proportions. Higher proportions represent more essentialism. The Prejudice scale ranges from -5 = strong preference for gender-nonconforming children to +5 = strong preference for gender-conforming children. A denotes a significant difference between cultural contexts. B denotes significant differences between gender nonconforming and gender conforming targets in the gender identity and sex essentialism measures (these differences, when found, were present in both cultural contexts). Results from participants collapsed across location can be found in the Supplemental Materials Table S6.

Associations Among Prejudice, GES-C, and Gender Identity Essentialism

To address one of our primary questions, namely, whether gender essentialism and gender identity essentialism related to prejudice, we built a model that used both types of essentialism as predictors of prejudice. To test if there were effects of cultural context in this association, we conducted a moderation analysis that examined the interaction of gender essentialism and cultural context to predict prejudice. In the following section we report the results of these analyses, as well as preliminary analyses that build on these main analyses.

Collapsing across cultural contexts, higher gender essentialism measured with the GES-C significantly correlated with more prejudice against gender-nonconforming children (r = .47, p < .001), whereas gender identity essentialism of gender-nonconforming targets did not significantly correlate with prejudice (p = .66). Interestingly, gender identity essentialism and gender essentialism also did not correlate with one another (r = .02, p = .81). These correlations show the associations without controlling for any other variable. In a regression model, higher gender essentialism significantly predicted more prejudice (B = 1.21, SE = .15, t = 8.32, p < .001) but gender identity essentialism did not predict prejudice (B = 0.13, SE = .20, t = -0.65, p = .52) when both variables were entered in the model. See Table 5 for correlations between all measures (the analyses in Table 5 were not preregistered).

Table 5

Correlations between All Measures

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	1	2	3	4	5
1. GES-C	-				
2. GNC Gender ID Essentialism	.02	-			
3. Gender Conforming Gender ID Essentialism	-.03	.08	-		
4. GNC Sex Essentialism	-.14*	.02	.32**	-	
5. Gender Conforming Sex Essentialism	-.07	.07	.40**	.50**	-
6. Prejudice	.47**	-.03	.04	-.09	-.09

Note. * $p < .05$. ** $p < .001$.

Moderation of the Associations Between GES-C and Prejudice, and Gender Identity Essentialism and Prejudice, by Cultural Context

To examine whether the association between gender essentialism and prejudice differed by cultural context, we conducted a moderation model in PROCESS (Hayes, 2016) with cultural context moderating the essentialism-to-prejudice association. In this model, both the GES-C and cultural context were mean-centered in order to interpret the results of the main effects. We found no significant difference in the association between gender essentialism and prejudice by cultural context [GES-C x Cultural context B = .14, SE = .30, t = .48, p = .64, 95% CI (-.45, .74)]. Only gender essentialism significantly predicted prejudice [GES-C B = 1.13, SE = .15, t = 7.48, $p < .001$, 95% CI (.83, 1.43)].

We conducted a similar regression model to examine whether the gender identity essentialism-to-prejudice association was moderated by cultural context. Again, we used PROCESS (Hayes, 2016) and mean-centered gender identity essentialism and cultural context. Cultural context did not moderate the gender identity essentialism and prejudice relation [Gender Identity Essentialism x Cultural context B = .21, SE = .44, t = .47, p = .64, 95% CI (-.66, 1.07)]. There was no

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main effect of gender identity essentialism (p = .59). However, the main effect of cultural context was significant [Cultural context B = -.64, SE = .17, t = 3.80, p < .001, 95% CI (-.97, -.31].

Additional Exploratory Analyses

We conducted exploratory (not preregistered) analyses examining if there were effects of participant gender and target gender on prejudice and the relation between gender essentialism and prejudice. We found that boy participants expressed more prejudice against the boy gender-nonconforming target than the girl gender-nonconforming target (t(113) = 6.48, p < .001, Cohen's d = 1.79), but no other analyses were significant. We also conducted exploratory (not preregistered) analyses examining if there were effects of age on the association between prejudice and essentialism. Age did correlate with prejudice (r = -.17, p = .01) and essentialism (r = -.38, p < .001). However, there was no significant moderation of the essentialism and prejudice association by age, indicating that the relation between essentialism and prejudice did not change with age (see Supplemental Materials for additional analyses).

Discussion

In this preregistered study, we examined how gender and gender identity essentialism related to prejudice against gender-nonconforming children. We found that gender essentialism was a strong predictor of prejudice. Importantly, although gender essentialism and prejudice were higher among the participants from rural, conservative, less diverse contexts than the participants from urban, liberal, more diverse contexts, the relation between gender essentialism and prejudice did not differ across the two samples. These findings suggest the robustness of the link between gender essentialist beliefs and prejudice against gender nonconformity.

In contrast to the effects summarized above, gender-identity essentialism (i.e., a belief that gender identity is immutable) did not relate to gender-nonconforming prejudice. Nor did we find any significant differences in how children from the two different cultural contexts essentialized gender

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identity. Children from both cultural contexts endorsed gender-identity essentialism at rates above the midpoint of the scale, mostly endorsing that the gender a child feels they are at 6 years old was the gender they felt at birth. In future research it will be important to examine how beliefs about gender-identity essentialism may develop over time, particularly given that in adult samples, gender-identity essentialism corresponds to *less* prejudice against transgender individuals (Glazier et al., 2021). Additionally, examination of means for gender identity essentialism in gender-conforming and gender-nonconforming targets (Table 4) suggests a distinction in how children might reason about these two types of cases. Even though participants expressed that gender-nonconforming targets' gender identities were more likely stable than not, they did so to a lesser extent than for gender-conforming targets.

The differences in how gender essentialism versus gender identity essentialism related to prejudice in children are worthy of further theorizing and study. As noted earlier, gender is a complex concept intertwined with sex (Schudson & van Anders, 2021), comprising identities even adults can struggle to understand (Buck, 2016), and essentialism is also a complex theory composed of multiple components (Gelman, 2003; Gelman et al., 2007; Rhodes & Mandalaywala, 2017). The GES-C and the gender identity essentialism measure did not correlate in our study, suggesting that these may indeed be different concepts. For example, perhaps some children had not given much thought to the gender identity of gender non-conforming children prior to participation in this study, and thus did not have well-formed beliefs about how stable such identities would be (in contrast to children's overall strong and well-documented essentialism of gender). Nonetheless, it is also important to note that the gender essentialism and gender identity essentialism measures used in this study differed in scope. Whereas gender essentialism was a 16-item scale designed to assess multiple facets of essentialism (biological basis, discreteness, informativeness, and immutability), gender identity essentialism was measured with only 2 questions, focused exclusively on stability. An important question for future research is whether the two constructs would show more consistency if measured in the same way. For example, it may be that a more expansive measure of gender

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identity essentialism that assesses other components would lead to different relations with prejudice against gender-nonconforming targets. Past work using a more nuanced measure of transgender essentialism (a measure related to the concept of gender identity essentialism), was found to be related to essentialism in adults (Glazier et al, 2021).

An additional methodological issue involving gender identity essentialism is that children were asked to speculate about the gender identity of a baby. This raises the question as to whether children believe babies have a gender identity. Some evidence for the validity of the task is that, when asked about the gender identity of a *gender-consistent* child as a baby, participants consistently answered that the baby's gender identity matched their gender identity at six years old. (In contrast, if they thought that the baby had no gender identity, they might be expected to answer randomly.) In contrast, when the question referred to the gender identity of a gender-nonconforming child as a baby, there was notably more variation in the answers, although participants still tended to report that the child's gender identity was constant (i.e., the same at birth as at age six). Nonetheless, future work could avoid this potential issue by choosing an older age of the target character for the current gender identity measure (e.g., a child's gender identity at 6 years old when told their gender identity at 12 years old—or vice versa). Given that gender identity essentialism is just beginning to be examined empirically in children, there are many interesting avenues to explore in order to better understand how children think about gender identity.

The two tasks also differed in that the gender essentialism measure asked participants to reason about girls and boys as *categories*, whereas the gender identity essentialism task focused on children's inferences about *specific individuals*. Whether categorical beliefs about gender identity would predict lower levels of prejudice in children, as they do for adults (Glazier et al., 2021), remains an open question. And more broadly, an important unresolved issue that remains is whether children's beliefs about individuals are consistent with their beliefs concerning the more

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abstract categories to which they belong. These are fruitful future directions for understanding which types of beliefs need to be targeted in trying to mitigate prejudice.

Finally, the different levels of gender essentialism and gender-nonconforming prejudice found in participants from our two cultural contexts (in both cases, higher in the rural sample) warrant more discussion and exploration. It is notable that we conceptually replicated the context difference in gender essentialism reported by Rhodes and Gelman (2009) with a different measure, pointing to a robustness of this cultural effect. Furthermore, we obtained comparable context differences in children's prejudice against gender-nonconforming individuals. These findings demonstrate that cultural differences need not be at a macro-level (e.g., different nationalities, different languages, different parts of the world), as we obtained differences between two U.S., English-speaking, majority-White samples. At the same time, it is also notable that overall, participants did not show prejudice toward gender-nonconforming targets. An important question for the future is why this was the case. For example, perhaps there are cultural or generational shifts in young people's attitudes toward gender nonconformity, and/or perhaps families with more negative attitudes toward gender diversity opted not to participate in this study.

What is still unknown is what aspect(s) of these communities account for these differences. An important point is that the two samples differed in multiple dimensions, including: urban/rural, liberal/conservative, more vs. less racially and ethnically diverse, more vs. less family income, more vs. less formal education. We speculate that families in the more liberal, urban, racially and ethnically diverse cultural context might also have more explicitly encouraged gender equality and/or tolerance of gender diversity. To this point, we conducted an exploratory analysis of the predictive value of income, political orientation, and primary caregiver education (see Supplemental Materials). It revealed that a more conservative political orientation significantly predicted more essentialism, and that both conservative political orientation and less education for the primary caregiver significantly predicted more prejudice. Yet this analysis is purely exploratory, was not pre-

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registered, and we did not power our sample to conduct this analysis. Given extensive political rhetoric around gender when the data were collected, it is unsurprising that children of more conservative parents were more gender essentialist and prejudiced. However, there remains the question of the causal direction of these factors (e.g., whether it is political orientation per se that evokes essentialism and prejudice, whether essentialist and prejudicial beliefs led families to support more conservative politics, or some other factors or combination of factors are operative). Uncovering the mechanism(s) that account for this difference in participants by cultural context may allow researchers to better identify who may endorse more gender essentialist beliefs and prejudice than others. Examining concepts such as social dominance orientation in relation to this prejudice may be a fruitful line of future inquiry. At minimum, an important conclusion is that developmental changes in children's gender concepts cannot be fully understood as resulting from general changes in cognitive flexibility, but rather must take into account the cultural context, both at the micro (e.g., regions within a country) and macro (e.g., nations) levels of culture.

Although the present study advances our understanding of the relation between essentialism and prejudice across a diverse sample of participants, it is not without its limitations. Our study was correlational, and thus we cannot draw causal conclusions about the relation between gender essentialism and gender-nonconforming prejudice. Future research should determine the causal links among these variables, which may include (for example): essentialism leading to prejudice, prejudice leading to essentialism, a third variable accounting for this relation, or a more general set of interrelated beliefs, including ones not studied here.

Relatedly, many measures of gender essentialism and prejudice exist, and it is not possible to exhaustively measure any one concept in a single study. Our prejudice measure operationalized prejudice as ingroup preference, in this case, relative to a particular outgroup. Following others in the developmental literature, we considered ingroup preference to be an indication of prejudice (e.g., Burkholder et al., 2019). This is especially so with our scale, which explicitly asked for attitudes

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(degree of like or dislike). However, it is also important to note that our measure of prejudice is a measure of relative preference, and thus may differ from other measures of prejudice or discrimination. To further our work, a behavioral measure of discrimination or another measure of prejudiced attitudes may add to our understanding of the essentialism and prejudice link by addressing the long-standing question of the relation between attitudes and behaviors. It would also be useful in establishing how robust our finding is that young children do not demonstrate extreme amounts of prejudice toward gender-nonconforming children.

Conclusion

It is important to uncover the factors contributing to the prejudice faced by gender-nonconforming children in order create more tolerant environments for all children. Our study suggests gender essentialism may be one underlying source of this prejudice for children in both cultural contexts that we examined. This work opens potentially promising avenues of research to develop interventions that tackle gender essentialism and prejudice.

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