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Gender Nonconformity, Sexual Orientation, and Psychological Well-Being

Gerulf Rieger · Ritch C. Savin-Williams

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Abstract Both a same-sex sexual orientation and gender nonconformity have been linked with poorer well-being; however, sexual orientation and gender nonconformity are also correlated. It is, therefore, critical to investigate their independent contributions to well-being. Based on survey responses of 230 female and 245 male high school seniors, the present study is one of the first to provide empirical data on this topic. Both childhood and adolescent gender nonconformity were negatively related to well-being. In the same analyses, neither sexual orientation nor biological sex was a significant predictor of well-being. These results suggest that gender-atypical traits may be more relevant for psychological health than a same-sex sexual orientation. Both environmental and biological influences may account for these findings.

Keywords Sexual orientation · Gender behavior · Gender nonconformity · Well-being · Satisfaction

Introduction

Several recent reviews conclude that homosexual and bisexual men and women report poorer psychological well-being than heterosexual men and women (Hatzenbuehler, 2009; Herek & Garnets, 2007; King et al., 2008; Meyer, 2003; Saewyc, 2007). Reviews of a different line of research indicate that same-sex oriented people are, on average, more gender nonconforming than heterosexual people (Bailey & Zucker, 1995; Lippa, 2005b). Gender nonconformity has also been negatively linked with well-

being, although this was more often studied and found in males than females (Aube & Koestner, 1992; Impett, Schooler, & Tolman, 2006; Meyer, Blissett, & Oldfield, 2001; Sandfort, Melendez, & Diaz, 2007; Skidmore, Linsenmeier, & Bailey, 2006; Strong, Singh, & Randall, 2000). Previous research, however, has largely ignored the independent contributions of sexual orientation and gender nonconformity to psychological well-being. We present research that examined how important each of these factors is in affecting well-being.

Sexual Orientation and Well-Being

Although doubt has been raised about the relationship between sexual orientation and mental health disturbance based on sampling, research design, and other methodological issues (Savin-Williams, 2001a, b), the association between homosexuality and increased mental health risk has been generally accepted (see meta-analysis by King et al., 2008). For example, recent research, including population-based research, found such association with clinically defined anxiety, mood, and substance abuse disorders (Gilman et al., 2001; Sandfort, de Graaf, Bijl, & Schnabel, 2001) and with suicidal ideation and attempts, even at young ages (Cochran & Mays, 2009; Cochran, Mays, Alegria, Ortega, & Takeuchi, 2007; de Graaf, Sandfort, & ten Have, 2006; Fergusson, Horwood, & Beautrais, 1999; Gilman et al., 2001; Russell & Joyner, 2001; Wichstrøm & Hegna, 2003). Depending on sex and type of psychological problem, the odds ratios (homosexual/heterosexual ratios) in these studies were generally larger than 1 and as high as 7. The average odds ratio calculated from these studies was 2.7, with a 95% confidence interval from 1.7 to 3.7. Likewise, a meta-analysis suggested that homosexual and bisexual men experience poorer well-being than heterosexual men, with an average odds ratio of 2.2 and an average 95% confidence interval from 1.6 to 2.9 (Meyer, 2003).

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Regardless of these general sexual orientation group differences, most nonheterosexual people do not have decreased psychological well-being (Frable, Wortman, & Joseph, 1997; Herek & Garnets, 2007; Russell, 2005; Savin-Williams, 2005). Moreover, the most commonly used effect sizes in previous studies are odds ratios. The strength of an effect is difficult to infer from odds ratios. In contrast, effects expressed as correlation coefficients can be interpreted as “small ($r = .1$),” “medium ($r = .3$),” and “strong ($r \geq .5$)” (Cohen, 1988). Thus, one goal of the present research was to employ statistical measures that would provide information on the strength of the effect.

Sexual Orientation and Gender Nonconformity

Same-sex oriented men and women are more gender nonconforming than heterosexual men and women, both in childhood (Bailey, Dunne, & Martin, 2000; Bailey & Zucker, 1995; Dunne, Bailey, Kirk, & Martin, 2000) and adulthood (Lippa, 2005b). These effects are large, with d 's exceeding 1. Prospective studies suggest this difference in gender nonconformity prior to the development of an adult sexual orientation (Drummond, Bradley, Peterson-Badali, & Zucker, 2008; Green, 1987; Rieger, Linsenmeier, Gygax, & Bailey, 2008). For example, Rieger et al. suggested that sexual orientation differences in gender nonconformity become significant by age four.

The gender nonconformity of homosexual and bisexual men and women extends into adulthood, including self-concepts (Bailey et al., 2000; Rieger et al., 2008), motor behavior (Ambady, Hallahan, & Conner, 1999; Johnson, Gill, Reichman, & Tassinari, 2007), speech patterns (Gaudio, 1994; Rieger, Linsenmeier, Gygax, Garcia, & Bailey, 2010), and, especially, occupational and recreational interests (Lippa, 2000, 2005c). Furthermore, sexual orientation differences in these traits tend to be correlated across both self-report and observer-rated measures and, thus, appear to be valid (Rieger et al., 2008).

Gender Nonconformity and Well-Being

Gender-nonconforming children and adolescents frequently suffer mockery and rejection by peers and parents (Caldera, Huston, & O'Brien, 1989; Carter & McCloskey, 1983; Fagot, 1985; Langlois & Downs, 1980; Maccoby, 1998; Smith & Leaper, 2006). Peers especially disparage gender-nonconforming behaviors; in particular, young males ridicule such behavior in other boys (Carter & McCloskey, 1983; Fagot, 1985; Langlois & Downs, 1980; Young & Sweeting, 2004). A recent study suggested that gender-nonconforming children are less accepted by same-sex peers than by opposite-sex peers (Wallien, Veenstra, Kreukels, & Cohen-Kettenis, 2010). Extremely feminine boys, referred to clinics for treatment of gender identity issues, also experience substantial difficulties with, and rejection from, peers (Cohen-Kettenis, Owen, Kaijser, Bradley, & Zucker,

2003; Green, 1987; Zucker, Bradley, & Sanikhani, 1997). Possibly as a consequence of problems with family members and peers, gender-nonconforming individuals may experience long-term psychological distress and have problematic relationships in adulthood (Landolt et al., 2004).

The negative link between gender nonconformity and well-being is more robust among men than women (Aube & Koestner, 1992; Harry, 1983b; Impett et al., 2006; Skidmore et al., 2006; Weinrich et al., 1992). For example, the early work of Harry (1983b) among heterosexual and homosexual men and women living in San Francisco indicated that recalled childhood gender nonconformity related to feelings of isolation and suicidal thoughts in men but not in women. In some cases, women may actually benefit from gender-nonconforming behaviors (Impett et al., 2006; Thornton & Leo, 1992; Wong, Kettlewell, & Sproule, 1985). The present study, therefore, also investigated sex differences in the relationships of sexual orientation and gender nonconformity with well-being.

Sexual Orientation, Gender Nonconformity, and Well-Being

Gender nonconformity may, in part, explain why same-sex oriented people report, on average, less well-being than heterosexual people. Empirical support for this hypothesis is limited, however, because the independent contributions of sexual orientation and gender nonconformity to psychological well-being have not been thoroughly investigated. Most research has studied the contribution of gender nonconformity *within* nonheterosexual people, but not *across* both heterosexual and nonheterosexual people. Among bisexual and homosexual men, gender nonconformity relates to less self-esteem (Harry, 1983a), more depression and anxiety (Skidmore et al., 2006; Weinrich et al., 1992), more eating disorders (Meyer et al., 2001), higher body dissatisfaction (Strong et al., 2000), less psychological well-being in general (Sandfort et al., 2007), and higher suicidal risks (Harry, 1983b; Plöderl & Fartacek, 2009; Proctor & Groze, 1994; Remafedi, French, Story, Resnick, & Blum, 1998; Savin-Williams & Ream, 2003).

Some previous studies explored the independent contributions of sexual orientation and gender nonconformity to well-being. Harry's (1983a) research indicated that, among male undergraduate students, both childhood and adulthood gender nonconformity negatively related to well-being, while sexual orientation did not. In a second study, results by Harry (1983b) suggested that both gender nonconformity and a homosexual orientation were negatively associated with suicidal thoughts in men, but similar patterns of results were not found in women. In another study, gender nonconformity, but not sexual orientation, was substantially related to suicide attempts in male youth (Savin-Williams & Ream, 2003). In men, gender nonconformity, but not sexual orientation, was found to affect body dissatisfaction (Strong et al., 2000). A final study suggested that both gender nonconformity and a same-sex orientation related to psychiatric

symptoms in men and women (Alanko et al., 2009). Across these studies, gender nonconformity appeared to be more strongly related to well-being than a same-sex orientation.

Method

Participants

A total of 475 high school seniors were recruited in 2008 from a rural town of 20,000 residents in upstate New York. Half of the participants (52%) were males. Ages ranged from 16 to 20 years ($M = 17.3$, $SD = .54$), with 97% of the students either 17 or 18 years old. The majority of participants was white (89%); 3% were Hispanic, 2% were Native American, 1% were African American, 1% were Asian, and the remainder were multiracial. Regarding religious beliefs, 58% were Catholic, 16% were Protestant, 19% were atheists, and the remainder had “other religions.” The largest proportion of students (41%) indicated that their father or mother had a high-school education. Six percent of parents had less than that, 19% of their parents had some college education, and 34% of parents had a college degree or more.

Measures

Sexual Orientation

Three Kinsey-type scales (Kinsey, Pomeroy, & Martin, 1948) assessed sexual attractions, fantasies, and infatuations, respectively. Each scale ranged from 0 (exclusive attractions/fantasies/infatuations towards females) to 6 (exclusive attractions/fantasies/infatuations towards males). The Appendix lists the exact wording of these scales. For female youth, responses were reverse-scored so that for both sexes, a score of 0 indicated an exclusively heterosexual score and a score of 6 indicated an exclusively homosexual score. For distribution of scores, please see Table 1. The three measures of sexual orientation were highly correlated for males (all p 's < .0001; r 's $\geq .97$) and females (all p 's < .0001; r 's $\geq .82$) and were averaged within each participant.

Childhood Gender Nonconformity

Participants completed an abbreviated 8-item version of The Recalled Childhood Gender Identity/Gender Role Questionnaire (Zucker et al., 2006). Similar scales have provided good psychometric quality (Zucker, 2005a). This scale consisted of items such as, “As a child, my favorite playmates were boys/girls” and “As a child, I had the reputation of a ‘tomboy’/‘sissy’.” Responses indicated agreement with each item using a 5-point scale. For each sex, item-reliability was high (Cronbach's α 's $\geq .80$); scores were averaged for each sex such that a higher number indicated greater childhood gender nonconformity.

Adolescent Gender Nonconformity

Interest in male-typical and female-typical hobbies and activities was assessed with the 22-item version of the Gender Diagnosticity Measure. This scale is highly valid and has repeatedly demonstrated strong differences in masculinity-femininity between men and women and between heterosexual and homosexual participants (Lippa, 2005a, b). Examples of male-typical interests included “working on cars” and “going fishing;” of female-typical interests, “watching romantic movies” and “going clothes shopping.” Participants used a 5-point scale, ranging from 1 = strongly dislike to 5 = strongly like, to indicate interest for each item.

For each sex, item-reliability (Cronbach's α) exceeded .67 for both male-typical and female-typical interests. For male youth, ratings of male-typical interests were reverse-coded such that higher numbers indicated less liking; for female youth, ratings of female-typical interests were reverse-coded such that higher numbers indicated less liking. Inter-item reliability across sex-atypical interests and reversed sex-typical interests exceeded .72 for each sex. For each male, we added to his average rating of female-typical interests the reverse of his average rating of male-typical interests. For each female, we added to her average rating of male-typical interests the reverse of her average rating of female-typical interests. Thus,

Table 1 Distribution of numbers and percentages of sexual orientation scores

Variable	High school young men ($N = 232$ maximum) ^a							High school young women ($N = 226$ maximum) ^a						
	Score ^b							Score ^b						
	0 <i>N</i> (%)	1 <i>N</i> (%)	2 <i>N</i> (%)	3 <i>N</i> (%)	4 <i>N</i> (%)	5 <i>N</i> (%)	6 <i>N</i> (%)	0 <i>N</i> (%)	1 <i>N</i> (%)	2 <i>N</i> (%)	3 <i>N</i> (%)	4 <i>N</i> (%)	5 <i>N</i> (%)	6 <i>N</i> (%)
Sexual attractions	211 (91)	8 (3)	0 (0)	1 (1)	0 (0)	2 (1)	10 (4)	203 (90)	8 (3)	4 (2)	9 (4)	0 (0)	0 (0)	2 (1)
Sexual fantasies	205 (93)	3 (1)	0 (0)	1 (1)	0 (0)	0 (0)	11 (5)	197 (89)	6 (3)	3 (2)	9 (5)	0 (0)	0 (0)	2 (1)
Sexual infatuations	212 (92)	5 (2)	1 (1)	0 (0)	0 (0)	2 (1)	10 (4)	202 (90)	8 (4)	3 (1)	9 (4)	0 (0)	0 (0)	3 (1)

For further description of scores, see Appendix

^a Some youth did not report on all variables, resulting in different total numbers across variables

^b A score of 0 represents “Towards the opposite sex only”; a score of 6 represents “Towards the same sex only”

for each sex, we computed a final average where higher scores indicated more gender-nonconforming interests.

Well-Being

Two frequently used measures assessed well-being. The 5-item version of the Satisfaction with Life Scale (Pavot & Diener, 1993) assessed a subjective sense of well-being, including feelings about life satisfaction and happiness. A sample item was, “In most ways, my life is close to my ideal.” Participants rated their agreement to each item on a 6-point Likert scale ranging from strongly disagree to strongly agree. Within each sex, Cronbach’s α for the five items exceeded .83.

The 18-item version of the Psychological Well-Being Scale (Ryff & Keyes, 1995) assessed general psychological well-being, that is, whether one possessed an objective set of core values necessary for a good life. Included were measures of items reflecting self-acceptance, growth, relations, environmental mastery, autonomy, and purpose in life. Within each sex and across all items, item reliability exceeded .72. Subsequently, scores were averaged within participants for a measure of their psychological well-being.

Both well-being scales have previously demonstrated validity (Keyes, Shmotkin, & Ryff, 2002). The two scales are used to assess distinct aspects of psychological well-being, and previous research has investigated their individual associations with other traits. However, in the present sample, average subjective well-being and average psychological well-being were strongly correlated, $r = .60$, $p < .0001$. Thus, to obtain the most reliable results, we also used a composite (an average score) of these two scales, which represented the participants’ general well-being.

Procedure

High school seniors who were recruited for a general study that was not explicitly about their sexuality. The high school was situated in a rural, conservative, working-class community with high unemployment, a context noted for particular resistance to non-normative expressions of gender and sexuality (Poon & Saewyc, 2009).

A letter was sent by the school district to all parents of seniors describing the Adolescent Strengths study’s purpose: “We are interested in what you do in your spare time, sports and activities that interest you, what you believe in, and the people you like to hang out with.” Although the study was not presented as targeting sexual orientation or gender expression, parents were informed that the study would ask their child questions regarding “their beliefs and behaviors about sexuality and how boys and girls are supposed to act.” The school district and the submitting university’s institutional review board approved this letter, and the study questionnaires and procedures.

No parent withdrew a youth from the study; neither did any students use their right to withdraw. Thus, the present sample represented the population of seniors at the particular high school during two consecutive years (Spring and Fall, 2008). Participants were given the questionnaire in mandatory English classes. Questions about sexual orientation, gender nonconformity, and well-being were embedded in a range of questions, which asked about friendships, school-sponsored activities, private activities, and other behaviors. Participants were given approximately 40 min to complete the questionnaire, at which point they were compensated with \$5.

Results

Exclusively Heterosexual Compared to Any Same-Sex Orientation

Table 2 shows, for both males and females, mean values of childhood and adolescent gender nonconformity, and psychological well-being measures for both exclusively heterosexual youth (Kinsey scores = 0) and youth who had any same-sex orientation (Kinsey scores = 1–6). The breakdown into these two groups was only done for initial statistics; for subsequent analyses, we used a continuous metric of sexual orientation.

On average, participants with any same-sex orientation scored significantly higher on measures of gender nonconformity. Same-sex oriented participants were significantly lower, on average, on measures of well-being. For more detailed information on these and other comparisons, see Table 3. Reported effect sizes, β ’s, are standardized regression coefficients that can be interpreted similarly to correlation coefficients.

Sexual Orientation, Gender Nonconformity, and Well-Being

To explore the associations of sexual orientation and gender nonconformity with measures of well-being, we correlated these measures within each sex (Table 4). Gender-nonconformity measures and sexual orientation were positively correlated in both sexes. For both male and female participants, gender-nonconformity measures were generally and slightly more negatively related to well-being than was sexual orientation.

Given that sexual orientation and gender nonconformity were correlated, their unique contributions to well-being were not obvious from simple correlations. Thus, to better interpret their contributions, several multiple regression analyses were conducted, one each for subjective well-being, psychological well-being, and their composite as the dependent variable. In each analysis, predictor variables were sexual orientation and childhood and adolescent gender nonconformity. Also included were interactions of sexual orientation with gender

Table 2 Mean values and *SDs* of sexual orientation, gender nonconformity, and well-being

Variable	High school men (<i>N</i> = 232) ^a		High school women (<i>N</i> = 228) ^a	
	Exclusively heterosexual (<i>N</i> = 208) <i>M</i> (<i>SD</i>)	Any same-sex orientation (<i>N</i> = 24) <i>M</i> (<i>SD</i>)	Exclusively heterosexual (<i>N</i> = 198) <i>M</i> (<i>SD</i>)	Any same-sex orientation (<i>N</i> = 30) <i>M</i> (<i>SD</i>)
Sexual orientation ^b	0 (0)	3.3 (2.7)	0 (0)	1.9 (1.5)
Childhood gender nonconformity ^c	1.7 (.5)	2.3 (.4)	1.9 (.7)	2.6 (1.0)
Adolescent gender nonconformity ^c	2.4 (.6)	2.9 (.5)	2.6 (.3)	2.7 (.4)
Subjective well-being ^d	4.2 (1.1)	3.3 (.9)	4.2 (1.2)	3.7 (1.2)
Psychological well-being ^d	4.4 (.6)	4.1 (.7)	4.5 (.5)	4.3 (.6)
Well-being composite ^d	4.4 (.6)	3.9 (.7)	4.5 (.5)	4.2 (.6)

Note: Sexual orientation was a composite of attractions, fantasies, and infatuations

^a Fifteen high school seniors did not report their sexual orientation (i.e., neither attractions, nor fantasies, nor infatuations)

^b Absolute range, 0 (exclusively heterosexual) to 6 (exclusively homosexual)

^c Absolute range, 1 (very gender conforming) to 5 (very gender nonconforming)

^d Absolute range, 1 (low well-being) to 6 (high well-being)

Table 3 Multiple regression analyses for variables predicting sexual orientation, gender nonconformity, and well-being

Variables	Childhood gender nonconformity			Adolescent gender nonconformity			Subjective well-being			Psychological well-being			Well-being composite		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
Exclusively heterosexual compared to Any Same-Sex Orientation (SO) ^a	.62	.09	.30***	.37	.05	.30***	-.66	.16	-.19***	-.26	.08	-.16**	-.32	.08	-.18**
Females compared to males (S) ^a	-.27	.06	-.20***	-.29	.03	-.35***	-.08	.10	-.03	-.09	.05	-.08	-.09	.05	-.08
SO $\times$ S	.01	.18	.01	.62	.10	.25***	-.44	.33	-.06	-.11	.16	-.03	-.15	.17	-.04

Note: R^2 's are .13, .26, .03, .02, and .03, respectively. The overall effect of each regression model was significant, with p 's < .003

** p < .001; *** p < .0001

^a For these particular statistical comparisons, groups were coded as 1 compared to 0. For other analyses, sexual orientation was used as continuous variable

nonconformity as predictors because of the possibility that the relation of gender nonconformity and well-being differed by sexual orientation. Finally, in each analysis, sex differences in these effects were tested by including sex and all interactions of the aforementioned independent variables with sex as predictors.

Results from these regression analyses are summarized in Table 5. Across all analyses, male youth reported significantly less well-being than female youth. However, across analyses, no interactions of measures of gender nonconformity or sexual orientation with sex were significant, suggesting that these effects were similar for males and females. Interactions of gender nonconformity with sexual orientation were also not significant, suggesting similar results for heterosexual and same-sex oriented participants.

Both childhood and adolescent gender nonconformity were negatively related to measures of well-being. This was the case for subjective well-being, psychological well-being, and their

composite. In no analysis was sexual orientation significantly related to a measure of well-being.

To illustrate these findings, we graphed the relationships of childhood gender nonconformity, adolescent gender nonconformity, and sexual orientation with the well-being composite (Fig. 1). The upper graphs represent the simple relationships of each of the predictor variables with well-being across both male and female youth. The lower graphs represent the same relationship of each predictor variable with the well-being composite after statistically controlling for all other predictor variables.

The final set of analyses assessed the possible influences of the aforementioned demographic variables (ethnicity, religiousness, and parent's education) on the patterns of results. Multiple regression analyses were conducted, similar to those described in Table 5, but we further included ethnicity, religiousness, and parent's education as predictor variables. For these analyses, ethnicity was coded as Caucasian as compared to "other." Religiousness was included as an ordinal variable

Table 4 Correlations between sexual orientation, gender nonconformity, and well-being, across male ($N = 245$, above diagonal) and female ($N = 230$, below diagonal) participants

Measure	Sexual orientation	Childhood gender nonconformity	Adolescent gender nonconformity	Subjective well-being	Psychological well-being	Well-being composite
Sexual orientation		.34 (232)***	.53 (232)***	-.18 (232)*	-.07 (232)	-.10 (232)
Childhood gender nonconformity	.26 (228)***		.40 (241)***	-.15 (241)*	-.13 (241)*	-.15 (241)*
Adolescent gender nonconformity	.13 (228)*	.38 (230)***		-.29 (245)***	-.16 (245)*	-.20 (245)*
Subjective well-being	-.15 (226)*	-.17 (228)*	-.13 (228)*		.61 (245)***	.76 (245)***
Psychological well-being	-.11 (226)	-.22 (228)**	-.13 (228)*	.60 (228)***		.98 (245)***
Well-being composite	-.13 (226)*	-.22 (228)**	-.14 (228)*	.78 (228)***	.96 (228)***	

Note: Numbers in parentheses are df for each correlation coefficient

* $p < .05$; ** $p < .001$; *** $p < .0001$

Table 5 Multiple regression analysis for variables predicting well-being

Variables	Subjective well-being			Psychological well-being			Well-being composite		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
Childhood gender nonconformity (CGN)	-.21	.09	-.12*	-.15	.05	-.19**	-.16	.05	-.19**
Adolescent gender nonconformity (AGN)	-.48	.16	-.17**	-.13	.08	-.10 [†]	-.18	.08	-.13*
Sexual orientation (SO)	-.07	.05	-.07	-.01	.03	-.01	-.01	.03	-.02
Sex (S)	-.25	.11	-.11*	-.16	.05	-.15*	-.18	.06	-.15*
CGN $\times$ SO	-.04	.08	-.04	-.03	.04	-.07	-.04	.04	-.07
AGN $\times$ SO	.11	.19	.08	.10	.06	.14	.16	.10	.22
CGN $\times$ S	-.10	.19	-.03	-.07	.09	-.04	-.08	.10	-.04
AGN $\times$ S	-.45	.31	-.07	-.13	.15	-.04	-.17	.16	-.06
SO $\times$ S	.16	.11	.08	.06	.05	.06	.07	.06	.07
CGN $\times$ SO $\times$ S	-.11	.16	.05	.06	.08	.06	.03	.08	.03
AGN $\times$ SO $\times$ S	.64	.38	.22	-.15	.18	-.11	-.04	.19	-.02

Note: R^2 's are .07, .04, and .06, respectively. The overall effect of each regression model was significant, with p 's $< .001$

[†] $p < .10$; * $p < .05$; ** $p < .001$; *** $p < .0001$

comparing the groups “Catholic,” “Protestant,” “other religions,” and “atheist.” Parents’ education (which ranged from less to higher education) was included as a continuous variable.

Results for these regression analyses were comparable to those shown in Table 5. For example, regarding the composite of well-being, there was no significant relationship with sexual orientation, $p = .61$, $\beta = -.03$. However, both childhood gender nonconformity and adolescent gender nonconformity were significantly related to the well-being composite, $p = .004$, $\beta = -.16$, and $p = .01$, $\beta = -.14$, respectively. In addition, youth who had an ethnicity other than Caucasian reported somewhat less well-being than those who were Caucasian, $p = .06$, $\beta = -.09$. Religiousness had no overall significant association with well-being, $p = .12$, $\beta = .04$. The specific comparisons indicated the strongest difference in the direction that youth who were atheists reported less well-being than youth who had religious beliefs other than Catholic or Protestant. However, this difference was not significant, $p = .21$, $\beta = -.09$. Youth whose

parents had higher degrees of education reported significantly higher well-being, $p = .008$, $\beta = .12$. In sum, these demographic variables showed some associations with well-being. However, the previously reported patterns of results for the relationships of sexual orientation and gender nonconformity with well-being remained.

Discussion

Results suggested that both childhood and adolescent gender nonconformity were more directly linked to well-being than was sexual orientation. These effects were similar for both male and female youth and those with different sexual orientations. All obtained effects of either sexual orientation or gender nonconformity on well-being, however, were small in size as suggested by statistical guidelines (Cohen, 1988). Effect sizes (r 's and β 's) were generally between $-.2$ and 0 . Figure 1 illustrates

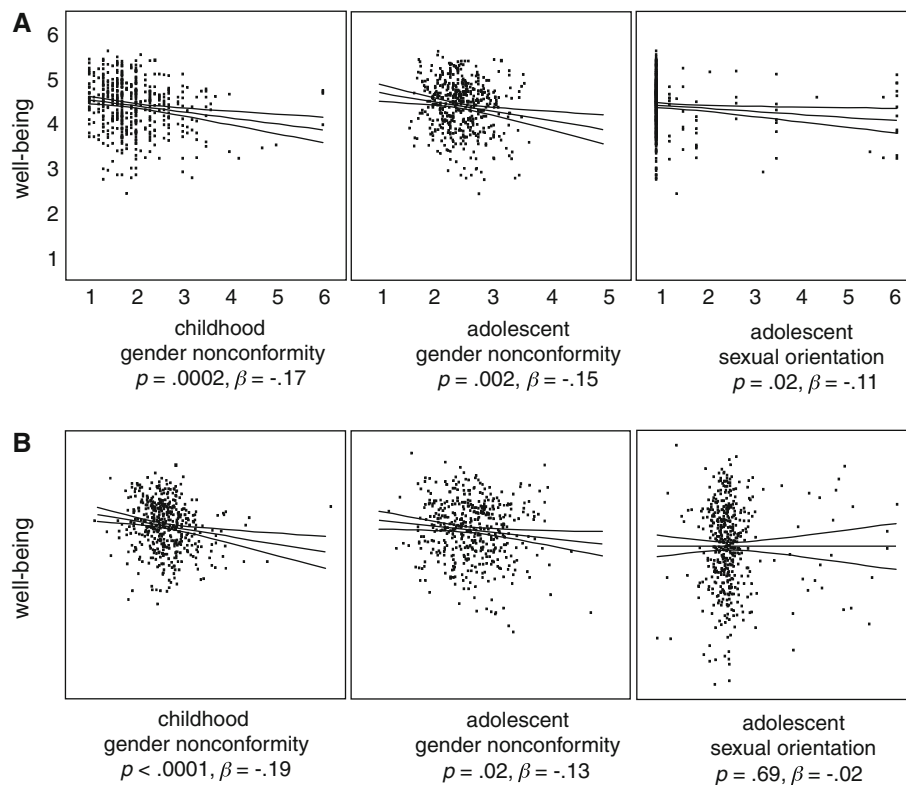


Fig. 1 The relationships of childhood and adolescent gender nonconformity and of sexual orientation with well-being across both male youth ($N = 232$) and female youth ($N = 228$). *Centered lines* represent the regression coefficients. *Outer lines* represent their 95% confidence intervals. **a** Upper graphs represent the simple relations of each of the predictor variables with the well-being composite. On the X axis, higher scores

indicate higher gender nonconformity or more of a homosexual orientation. On the Y axis, higher scores indicate higher well-being. **b** Lower graphs represent the same relationships for each predictor variable with well-being after statistically controlling for the other predictor variables. Scores on the X axis and Y axis are residual scores, not raw scores, and are therefore only meaningful in relation to each other

the small gender nonconformity and sexual orientation differences in well-being. Hence, even though differences in well-being were significant—especially with respect to gender nonconformity—these differences were not too obvious, on average.

Sexual Orientation, Gender Nonconformity, and Well-Being

In the present study, gender nonconformity related more negatively to well-being than sexual orientation. If this finding is reliable, it can, in part, explain why most same-sex oriented individuals experience few well-being problems (Frable et al., 1997; Herek & Garnets, 2007; Savin-Williams, 2005). Same-sex oriented males and females vary considerably in their degree of gender nonconformity, from overtly masculine to overtly feminine (Lippa, 2005b; Rieger et al., 2008). Thus, although not all homosexual and bisexual males and females are gender nonconforming, those who are may experience poorer psychological well-being.

The suggestion that gender-nonconforming, same-sex oriented individuals experience less psychological well-being has

been made before, as noted in our literature review. The present findings indicate, however, that similar conclusions can be made for heterosexual people who are gender nonconforming: The relationship between gender nonconformity and well-being was not significantly moderated by sexual orientation. Thus, whatever is causing gender nonconforming homosexual or bisexual people to suffer psychologically may also apply to heterosexual people. This interpretation is consistent with the suggestion that sexual orientation per se has little explanatory power for understanding the link between homosexuality and well-being. Rather, the association exists within a context in which the gender-atypical expressions related to homosexuality evoke reactions that cause a compromised psychological state (Savin-Williams & Ream, 2003). This interpretation is also consistent with recent experimental data suggesting that males, especially, discriminate against violation of male gender norms and that these patterns mediate or even fully account for discrimination against male homosexuality (Horn, 2007; Parrott, 2009). Discrimination against gender nonconformity has also been found in other research; for example, gender nonconforming men and women are viewed as less attractive potential romantic or sexual partners (Bailey, Kim, Hills, & Linsenmeier, 1997).

Sex, Gender Nonconformity, and Well-Being

Our results suggest similar patterns for both sexes. Intuitively, it makes sense that not only gender-nonconforming male youth but also gender-nonconforming female youth experience poorer well-being. Yet, other studies indicate that gender nonconformity can be beneficial for females (Impett et al., 2006; Thornton & Leo, 1992; Wong et al., 1985). These previous studies focused on the effects of female masculinity for self-concepts and behaviors related to interpersonal relations and career making. Masculinity is likely associated with assertiveness and, thus, may be beneficial in specific situations that demand assertiveness. In contrast to these previous studies, the present study investigated the association of female masculinity with broad aspects of well-being and may, therefore, have explored a broader relationship of female masculinity with well-being.

Childhood and Adolescent Gender Nonconformity

Our regression analyses indicated that childhood and adolescent gender nonconformity were independently related to well-being. Because childhood and adolescent gender nonconformity were modestly, but not perfectly, correlated (Table 4), it was possible for each measure to make an individual contribution to well-being. This may stem either from the fact that the childhood and adolescent scales measured somewhat different aspects of gender nonconformity or that the two scales measured two different time periods. The childhood measure asked about behaviors and feelings; the adolescent measure asked about activities and interests. Different aspects of gender nonconformity, regardless of time period, may individually contribute to well-being. Alternatively, it is possible that childhood and adolescent gender nonconformity have one “core,” regardless of measure (Lippa, 2005b; Rieger et al., 2008); however, the expression of this core in childhood and adolescence may vary somewhat and thus differently affect well-being in adolescence. Perhaps childhood gender nonconformity is more closely related to long-lasting and stable aspects of psychological well-being while adolescent gender nonconformity is more closely related to temporary aspects of well-being. This hypothesis needs, of course, further testing.

Possible Reasons for the Link between Gender Nonconformity and Well-Being

The present results do not clarify how or why gender nonconformity is related to well-being. The most commonly applied model to account for the pathway is a “minority stress model.” This model proposes that experienced discrimination, societal stigma, and the consequential stress due to actual or perceived membership in a minority group cause psychological disruption in daily life and can, therefore, lead to depression, anxiety,

substance abuse, and even escalated levels of suicidality (Hatzembuehler, 2009; Herek & Garnets, 2007; King et al., 2008; Meyer, 2003; Saewyc, 2007). In line with this perspective, bisexual or homosexual individuals, or those who are perceived to be so because of their gender nonconformity, may face peer harassment from an early age, and consequently experience prolonged levels of elevated stress that can lead to compromised well-being. Hence, the social environment may play a critical role in explaining the pathway from gender nonconformity to experienced well-being.

Even though the minority-stress model has widespread intuitive and heuristic appeal, it is difficult to find empirical evidence that demonstrates the direct causal mechanism by which societal stigma is translated into negative mental health effects. Hence, the minority-stress model may or may not be an actual explanation for mental health discrepancies among sexual orientation groups. As a result, we believe that it is important to consider possible influences other than the social environment. For example, family and twin studies indicate genetic contributions to variations in both gender behavior (Alanko et al., 2010; Lippa & Hershberger, 1999) and well-being (Hettema, Neale, & Kendler, 2001; Stubbe, Posthuma, Boomsma, & De Geus, 2005). Furthermore, there appears to be a genetic contribution to the association of sexual orientation with well-being (Zietsch, Verweij, Bailey, Wright, & Martin, 2009). These genetic influences on the link of sexual orientation with wellbeing can be in addition to stressful environmental influences (Frisell, Lichtenstein, Rahman, & Långström, 2010). There may also be a genetic contribution to the relationship between gender nonconformity and well-being. To this date, only inconclusive support for this hypothesis exists. Several studies, some of which used clinical populations, indicate a correlation of mothers’ distress with sons’ gender nonconformity (Bailey, Willerman, & Parks, 1991; Bradley & Zucker, 1997; Van den Aardweg, 1984; Zucker, 2005b). Despite their limitations, these results are in line with the hypothesis that familial (e.g., genetic) influences contribute to the association of gender nonconformity with well-being.

The association of gender nonconformity and psychological well-being may also be due to other combinations of biologic and social influences. For example, gonadal hormones may influence the variation in gender nonconformity across all sexual orientations and, at the same time, it has been suggested that environmental factors may further affect this variation within same-sex oriented people (Lippa, 2005b). Some same-sex oriented individuals live in gay-friendly environments that encourage gender nonconformity; others live in heterosexual environments that discourage homosexuality and gender nonconformity. If encouragement and discouragement have indeed additional effects on the expression of gender nonconformity, then it is possible that the same environmental factors also affect the association of gender nonconformity with psychological well-being, in addition to biologic influences.

Limitations

The present study had several methodological limitations. First, all measures were self-report, which can lead to inaccurate results if participants were not able or willing to report their actual feelings and behaviors. This may be especially true for sensitive topics, such as sexual orientation, gender nonconformity, and well-being. However, as outlined above, the measures have previously demonstrated validity. Thus, their general relationships with each other should also be valid. The actual size of effects might be affected by self-report methodology. Future studies should investigate this possibility, for example, by comparing self-report with behavioral observations.

A second limitation was that all results were correlational and cannot inform actual cause and effect relationships. Although the minority-stress model proposes that discrimination and harassment due to sexual orientation or gender nonconformity affects psychological well-being, other pathways are also possible, including biologic influences.

Furthermore, assumptions made by the minority stress-model include the proposition that sexual-minority individuals are discriminated against because they are open about their same-sex sexual orientation. We did not, however, administer measures that would indicate whether participants were indeed open about their sexual orientation. It is possible, for example, that a measure of “outness” would mediate or moderate the relationship of sexual orientation and well-being. Similarly, a person’s internal acceptance may influence the relationship of sexual orientation or of gender nonconformity with well-being. For example, youth who are more self-accepting of their homosexuality or gender nonconformity may experience better well-being than those who are not. These possible effects should be explored in future research.

Finally, this study focused on very general relationships of sexual orientation and gender nonconformity with well-being. It is possible that patterns of results would be different if we had assessed specific components of mental health—for example, feelings of depression, anxiety, distress, or loneliness. Specific components of well-being may yield different results, in general, and possibly different patterns of results between the sexes and between heterosexual people and people with same-sex sexual orientations.

Conclusions

The present study suggests that it is not sexual orientation per se that is driving same-sex oriented people to report poorer well-being. What appears to be more important is the tendency to be more gender nonconforming in behavior, feelings, activities, and interests. We emphasize that these effects of gender nonconformity are not limited to same-sex oriented individuals but appear to be similar for both sexes and for heterosexual and nonheterosexual people. Future studies should try to disentangle the possible biological and social reasons for the association of

gender nonconformity and well-being. For example, further family and twin studies could assess whether there is a genetic predisposition to their association or whether the social environment is more powerful than genetic background in explaining the relationship of gender expression and well-being.

Appendix

Three Kinsey-type scales assessing sexual attractions, fantasies, and infatuations, respectively

Score	Description
0	Sexual attractions towards females only
1	Most sexual attractions towards females, but an occasional sexual attraction about males
2	Most sexual attractions towards females, but some definite sexual attractions towards males
3	Sexual attractions about equally divided between males and females
4	Most sexual attractions towards males, but some definite sexual attractions towards females
5	Most sexual attractions towards males, but an occasional sexual attraction about females
6	Sexual attractions towards males only

Score	Description
0	Sexual fantasies towards females only
1	Most sexual fantasies towards females, but an occasional sexual fantasy about males
2	Most sexual fantasies towards females, but some definite sexual fantasies towards males
3	Sexual fantasies about equally divided between males and females
4	Most sexual fantasies towards males, but some definite sexual fantasies towards females
5	Most sexual fantasies towards males, but an occasional sexual fantasy about females
6	Sexual fantasies towards males only

Score	Description
0	Sexual infatuations towards females only
1	Most sexual infatuations towards females, but an occasional sexual infatuation about males
2	Most sexual infatuations towards females, but some definite sexual infatuations towards males
3	Sexual infatuations about equally divided between males and females
4	Most sexual infatuations towards males, but some definite sexual infatuations towards females
5	Most sexual infatuations towards males, but an occasional sexual infatuation about females
6	Sexual infatuations towards males only

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