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Masculine discrepancy stress, substance use, assault and injury in a survey of US men

Dennis E Reidy[1], **Danielle S Berke**[2], **Brittany Gentile**[2], and **Amos Zeichner**[2]

[1]Division of Violence, Prevention, Centers for Disease Control and Prevention, Atlanta, Georgia, USA

[2]Department of Psychology, University of Georgia, Athens, Georgia, USA

Abstract

To understand and ultimately prevent injury and behavioural health outcomes associated with masculinity, we assessed the influence of masculine discrepancy stress (stress that occurs when men perceive themselves as falling short of the traditional gender norms) on the propensity to engage in stereotypically masculine behaviours (eg, substance use, risk taking and violence) as a means of demonstrating masculinity. Six-hundred men from the USA were recruited via Amazon's Mechanical Turk (MTurk) online data collection site to complete surveys assessing self-perceptions of gender role discrepancy and consequent discrepancy stress, substance use/abuse, driving while intoxicated (DWI) and violent assaults. Negative binomial regression analyses indicated significant interactive effects wherein men high on gender role discrepancy and attendant discrepancy stress reported significantly more assaults with a weapon (B=1.01; SE=0.63; IRR=2.74; p=0.05) and assaults causing injury (B=1.01; SE=0.51; IRR=2.74; p<0.05). There was no association of discrepancy stress to substance abuse, but there was a protective effect of gender role discrepancy for DWI among men low on discrepancy stress (B=−1.19, SE=0.48; IRR=0.30; p=0.01). These findings suggest that gender role discrepancy and associated discrepancy stress, in particular, represent important injury risk factors and that prevention of discrepancy stress may prevent acts of violence with the greatest consequences and costs to the victim, offender and society.

Relative to women, men are at greater risk of poor health and injury, likely due to their propensity for risk-taking behaviours.[1] For example, men demonstrate higher rates of substance use, binge drinking, reckless and aggressive driving, driving while intoxicated (DWI), weapon carrying and violence.[12] These behaviours put men of all ages at risk not

Correspondence to: Dr Dennis E Reidy, Division of Violence Prevention, Centers for Disease Control and Prevention, Atlanta, GA 30341, USA; dreidy@cdc.gov.

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just for self-injury, but injury to others as well. One reason for men's dangerous risk-taking behaviour may be due to masculine gender role *discrepancy stress*.[34] That is, when a man perceives himself to be hypomasculine relative to prevailing societal standards (ie, *gender role discrepancy*) and believes that others perceive him to be hypomasculine as well, stress may arise from the perceived discrepancy between the individual's subjective level of masculinity and his perception of predominant social mandates (ie, *discrepancy stress*). In other words, the self-perception of deficient masculinity (ie, gender role discrepancy) can be differentiated from the experience of stress that results from this discrepancy (ie, discrepancy stress) so that only when considered in conjunction with one another, we can truly understand men's heightened risk for deleterious behaviours.[1–7] In these instances, men experiencing distress about subjective perceptions of submasculinity may be more likely to act out in stereotypical masculine behaviours (eg, aggression, binge drinking and risk-taking behaviours) as a method of demonstrating that they are sufficiently masculine in congruence with socially accepted gender roles.[5] Importantly, perceived *gender role discrepancy* alone does not by itself constitute psychopathology or a maladaptive state. Only when one experiences associated *discrepancy distress* does this harbour potential for maladaptive behaviour and/or psychopathology.

For example, Reidy and colleagues[46] reported that men who endorsed discrepancy stress were more likely to engage in risky sexual behaviour, contract sexually transmitted diseases and perpetrate psychological, physical and sexual violence towards a female intimate partner. Additionally, in a sample of adolescent boys, discrepancy stress was found to be associated with the perpetration of sexual violence.[7] Considering the link between the male gender role in the USA and a number of deleterious behaviours associated with risk taking and injury such as aggression and substance abuse,[1589] it is important to clarify the role of masculine discrepancy stress in such forms of maladjustment in a sizeable US sample. Accordingly, we sought to address these gaps in the present research by investigating substance use/abuse and violence beyond sexual or intimate interactions. Specifically, we assessed whether men who experience psychological stress because they believe that others perceive them to be less masculine than the 'average' man are more likely to engage in substance abuse, DWI and violent assaults. We expected an interaction whereby men who endorsed self-perceptions of gender role discrepancy (ie, less masculine than the 'typical guy') *and* experience distress about this discrepancy (ie, discrepancy stress) would report higher rates of these behaviours.

METHOD

Participants and procedure

Six-hundred men from the USA were recruited via Amazon's Mechanical Turk (MTurk) website and completed survey measures in 2012. This site permits the collection of national data from individuals via an online method that proffers greater diversity than traditional convenience sampling methods, although MTurk respondents tend to be slightly more educated and of lower income than the general population.[10] Because gender socialisation is culturally driven and its influence on health behaviours may differ by country,[8] we restricted our sample to men from the USA. Likewise, because injury related to violence and risky

substance use behaviour is highest among men ages 18–44,[1] which also happens to be the largest group of the male US population,[11] we restricted our sample to men ages 18–50. Individuals were compensated US$2.00 for completion of the questionnaires. All materials and procedures were approved for this study by the University Institutional Review Board.

Measures

Gender role discrepancy and discrepancy stress—Participants completed the Masculine Gender Role Discrepancy Stress Scale.[46] Men responded to a series of Likert-type questions pertaining to the experience of (1) perceived *gender role discrepancy* (eg, 'I am less masculine than the average guy', 'Most women I know would say that I'm not as masculine as my friends') and (2) *discrepancy stress*—distress stemming from the gender role discrepancy (eg, 'I wish I was more manly', 'I worry that women find me less attractive because I'm not as macho as other guys'). Response options for each question ranged from 1 (strongly disagree) to 7 (strongly agree). This scale has demonstrated construct and criterion validity in prior studies of men and adolescent boys.[467] Cronbach's αs for the 5-item discrepancy and 5-item discrepancy stress scales were 0.91 and 0.86, respectively.

Substance use behaviour—Participants responded to three questions pertaining to current substance use and lifetime history of DWI's: (1) *Alcohol use:* 'On average, how many times per month do you drink alcohol until intoxicated (ie, get drunk)'? (2) *Drug use:* 'On average, how many days per month do you use *illegal* drugs (eg, marijuana, hashish, cocaine, ecstasy, mushrooms, heroin, speed, pills, etc.)'? (3) *DWI:* 'How many times have you been arrested for driving under the influence of drugs or alcohol in your LIFETIME'?

Violent behaviour—Participants responded to four questions pertaining to lifetime history of violence: (1) *Fighting*: 'How many times have you been in a *physical* fight with another individual'? (2) *Assault*: 'How many times have you attacked someone with *intent* to harm, injure, rape, or kill'? (3) *Assault with a weapon*: 'How many times have you attacked someone *with a weapon* intending to harm, injure, rape, or kill them'? and (4) *Injury*: 'How many times have you *intentionally* hurt someone to a degree that he/she needed bandages or a doctor'?

ANALYSIS

Due to the nature of the outcome variable distributions common to count data, we performed negative binomial regressions with robust SEs. Importantly, results of negative binomial models provide parameter estimates based on the log value of the outcome variable which precludes meaningful interpretation of regression coefficient. Therefore, interpretation of the regression parameters are better expressed in terms of IRRs, which are obtained by exponentiation of the regression coefficients. An IRR can be interpreted similar to an OR except that outcome of interest is the rate of incidents rather than the odds of an incident occurring. That is, for each one unit change in the predictor variable, the rate of outcome incidents changes by a factor of (IRR−1)×100%. Thus, an IRR of 2.0 indicates that for each unit increase in the predictor variable, the rate of the incidents increases by 100%. See Hilbe[12] for in-depth explanation of negative binomial regression.

Moderation analyses were performed according to procedures described by Aiken and West.[13] To reduce multicollinearity between interaction terms and their constituent lower-order terms, raw scores for gender role discrepancy and discrepancy stress were standardised to have a mean of 0 and SD of 1. The interaction term was calculated by obtaining the cross-product of the standardised first-order variables (ie, gender role discrepancy and discrepancy stress). Seven separate negative binomial regression models were computed with gender role discrepancy, discrepancy stress and their interaction entered into the model simultaneously as predictors. In addition, age was standardised and entered into each regression equation as a control variable. In each model, these predictors were regressed on a unique criterion variable (ie, alcohol use, drug use, DWI, fighting, assault, assault with a weapon and injury). A significant coefficient for the interaction term indicates a need to explicate the interaction via simple slope analysis. Specifically, simple slopes were computed at one SD below the mean of the moderator (ie, men low on discrepancy stress) and one SD above the mean of the moderator (ie, men high on discrepancy stress). This allows for the identification of the effect of gender role discrepancy on behavioural outcomes for men high on discrepancy stress versus men low on discrepancy stress. See Aiken and West[13] for more detail on interpreting interactions in regression.

Based on previous studies examining the effects of men's discrepancy stress on engagement in intimate partner violence and risky sexual behaviour,[4,6,7] a small to medium effect was expected for the interaction term on each criterion variable. Power analysis indicated a minimum of 436 participants to achieve an acceptable level of power for the negative binomial regression procedures. As such, the current sample was of sufficient size to detect modest effects.

RESULTS

Descriptive statistics of the study sample revealed it to be relatively consistent with the general US population in terms of ethnicity (72% Caucasian, 13% Asian, 7% Black or African–American, 7% Hispanic or Latino) and income (median=US$37 500; mode=US $55 000; range=≤US$5000 to ≥US$100 000) but slightly younger (mean=27.2; SD=6.8; median=25.5; range=18–50) and slightly more educated (median=some college; mode=some college; range=≤7 years of school to graduate school or professional training) compared with the general population of males.[11] Table 1 presents descriptive statistics and the proportion of men endorsing each outcome variable, table 2 presents results of all negative binomial regressions testing interactions between gender role discrepancy and discrepancy stress controlling for age and table 3 present results of simple slope regression analyses.

When current alcohol use and drug use were entered into the regression equations as the outcome, no significant interaction or main effects were identified for gender role discrepancy or discrepancy stress. When arrest for DWI was entered as the outcome variable, the interaction term was significant (see table 2). Simple slope analysis indicated that for men high on discrepancy stress, gender role discrepancy was unrelated to DWI, whereas for men low on discrepancy stress, a one SD increase gender role discrepancy was associated with a 70% reduction in the rate of DWIs (see table 3, figure 1A).

When fighting was entered as the outcome variable, the interaction term did not reach significance and main effects were non-significant. When assault was entered as the outcome variable, a significant interaction was evident (see table 2). Simple slope analysis indicated that for men high on discrepancy stress, there was a trend towards positive association between gender role discrepancy and assault; for men low on discrepancy stress, a one SD increase in gender role discrepancy was associated with 51% decrease in the rate of assaults (see table 3, figure 1B). When assault with a weapon was entered as the outcome variable, the interaction term was significant (see table 2). Explication of simple slopes revealed that among men high on discrepancy stress, a one SD increase in gender role discrepancy was associated with a 174% increase in the rate of assault with a weapon, whereas for men low on discrepancy stress one SD increase in gender role discrepancy was associated with a 68% reduction in the rate of assault with a weapon (see table 3, figure 1C). For injury, a significant interaction was identified (see table 2). Specifically, men high on both gender role discrepancy and discrepancy stress reported rates of assaults causing injury 348% higher than men low on discrepancy stress (see table 3, figure 1D).

DISCUSSION

The present study sought to assess the influence that masculine discrepancy stress may exert on substance use/abuse, DWI and violent assaults. It was expected that men who perceived themselves as submasculine (ie, gender role discrepancy) *and* experienced distress about this discrepancy (ie, discrepancy stress) would endorse higher rates of these harmful behaviours. Contrary to expectation, discrepancy stress was not associated with frequency of alcohol or drug use. This may suggest that substance use/abuse behaviours are less salient methods of demonstrating traditional masculinity in contrast to behaviours related to sex and violence, [4–714] perhaps due to the potentially private nature of the habit. Alternatively, the present results may have been obtained due, in part, to the way these variables were assessed. For example, questions about substance use sought information about current average frequency of the behaviour but not contextual relevance to interpersonal relationships or situations. The myriad of substance use determinants may have ‘washed out’ possible relationships with gender role driven behaviour and masculinity. Notably, there was a protective effect of gender role discrepancy (ie, non-conforming to masculine norms) for DWI among men who were low on discrepancy stress. However, the presence of discrepancy stress negated this protective effect among non-conforming men. Hence, men high in discrepancy stress reported the highest rates of arrest for DWI, which represents clear evidence of risk-taking conduct.

Predominantly evident was the association of discrepancy stress to the most severe acts of assault, those involving weapons and those causing injury. These findings suggest prevention of discrepancy stress may likewise prevent acts of violence with the greatest consequences and costs to the victim, offender and society. Thus, discrepancy stress may offer implications for the public health and criminal justice systems alike. Specifically, development of interventions aimed at averting the psychological stresses precipitated by gender role socialisation in early male development may prove to be effective primary prevention strategies for violence-associated injury. Preventing such behaviours would not only reduce burdens and cost associated with medical care, lost wages and mental health anguish, it

would also alleviate costs to the criminal justice system related to investigation, court proceedings, incarceration and monitoring. While the state of the literature on masculine discrepancy stress is still nascent and it is far too early to draw conclusions or make recommendations about specific prevention strategies, it seems that the social norms approach[15] may be relevant considering the role that social norms play in gender socialisation.

It bears mentioning that base rates of men endorsing violence were generally low (eg, only 4% of men reported using a weapon and only 11% reported causing injury). However, this is largely consistent with what we know about the small proportion of the population that commits the majority of violent crime, especially the most severe violence.[1617] Moreover, considering the impact of such violent behaviours we would argue that these base rates are not insignificant. Clearly, this segment of the population can have a non-trivial effect on the individual victims and society as a whole: the average cost of a single non-fatal violent assault in 2010 ranged from US$6578 for injuries treated in an emergency department to US $146 934 for injuries requiring hospitalisation.[18] Violent assaults that resulted in death cost an average of US$1 541 976 per incident.[18] However, these figures only include medical costs and lost wages. The high costs to the criminal just system and unquantifiable emotional costs suffered by each victim are far greater than these singular estimates indicate. Considering the association between masculine discrepancy stress and severe acts of violence in the present sample, targeting discrepancy stress via primary prevention strategies may have significant effect on collective levels of violence and injury.

The present results are informative as they suggest that some men who are low on masculine conformity may be at comparable risk to incur and inflict injury via acts of severe violence, as are their high masculine conforming counterparts. This information is pertinent for the development of prevention strategies aimed at modifying social construction of gender roles. Attempting to only alter perceptions about the need to conform and the behaviours that would constitute acceptable conformity standards may fail to address the aetiological motivations of men at one end of the discrepancy/conformity continuum. That is, both high-conforming/low-stress men and low-conforming/high-stress men seem to possess the highest risk for similar deleterious injury-related behaviours. Therefore, it is feasible that each group of men may likely require a uniquely tailored prevention strategy aimed at negating the influence of gender socialisation on risky and injurious behaviour.

The present study is not without limitations. The design of the study does not allow for causal determinations regarding the role of discrepancy stress on DWI and violent assaults. Additionally, self-report measures may not accurately reflect the nature of real-world behaviours and their prevalence rates. It is reasonable to suspect that some men may have under-reported substance use and criminal behaviour. Likewise, retrospective report may reflect biased recall of behaviour. Future studies employing longitudinal designs, especially among developing adolescents, would permit assessment of temporal associations among gender role socialisation, discrepancy stress and injury-related behaviours while reducing error due to retrospective reporting. Nevertheless, the present research adds to the extant literature and has pertinent implications for understanding and preventing men’s risk for injury to self and others. These data suggest that efforts to reduce men’s risk of behaviour

likely to result in injury should, in part, focus on the means by which masculine socialisation and acceptance of gender norms may induce distress in boys and men.

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What is already known on the subject

- Men experiencing discrepancy stress are more likely to commit intimate partner violence and to engage in risky sexual behaviour resulting in higher rates of sexually transmitted diseases.
- Adolescent boys experiencing discrepancy stress are more likely to perpetrate sexual violence.

What this study adds

- Men experiencing discrepancy stress commit more violent assaults with a weapon.
- Men experiencing discrepancy stress commit more violent assaults resulting in injury.

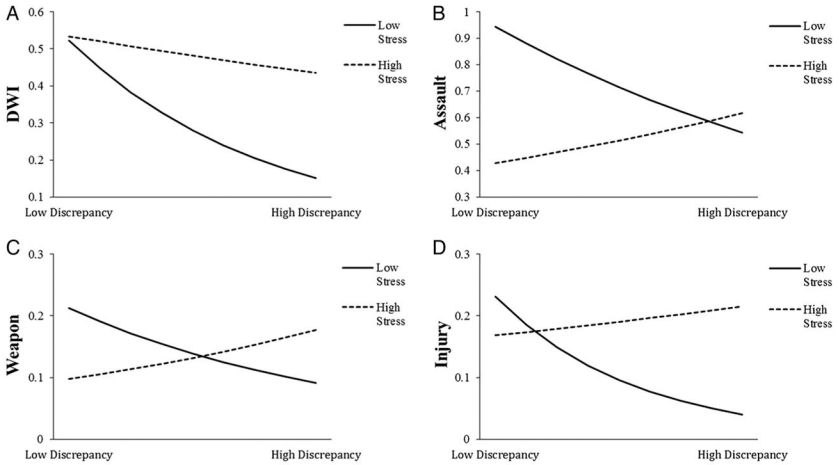

Figure 1.

(A) Effects of gender role discrepancy and discrepancy stress on arrest for driving while intoxicated (DWI). (B) Effects of gender role discrepancy and discrepancy stress on assault with intent to harm. (C) Effects of gender role discrepancy and discrepancy stress on assault with a weapon. (D) Effects of gender role discrepancy and discrepancy stress on assault resulting in injury. Values on the Y axis represent the log value of the dependent variable. Low discrepancy represents 1 SD below the mean value for the sample; high discrepancy represents 1 SD above the mean value for the sample.

Table 1

Means, SDs and proportion of men endorsing presence of substance use and violent behaviours

Outcome	Mean	SD	Range	Yes	No	DNR
Alcohol use	2.74	4.6	0–30	340	254	6
Drug use	2.39	6.7	0–31	143	453	4
DWI	0.23	1.4	0–20	46	547	7
Fighting	3.5	9.8	0–100	377	216	7
Assault	0.9	4.5	0–60	104	493	3
Assault w/weapon	0.14	0.9	0–15	25	571	4
Injury	0.38	2.5	0–50	64	529	7

DNR, did not respond to question; DWI, driving while intoxicated; no, the number of men denying any instance of outcome; yes, the number of men endorsing one or more instances of outcome.

Table 2

Negative binomial regressions testing interactions of gender role discrepancy and discrepancy stress on substance use and violent behaviours

Outcome	B	SE	≤p Value	IRR
Alcohol use				
Age	−0.06	0.07	ns	0.94
Discrepancy	−0.08	0.09	ns	0.92
Stress	0.04	0.10	ns	1.04
Interaction term	0.01	0.07	ns	1.01
Drug use				
Age	−0.50	0.13	.001	0.61
Discrepancy	−0.04	0.15	ns	0.96
Stress	0.04	0.16	ns	1.04
Interaction term	−0.01	0.10	ns	0.99
DWI				
Age	0.26	0.25	ns	1.30
Discrepancy	−0.41	0.26	ns	0.67
Stress	0.16	0.32	ns	1.17
Interaction term	**0.26**	**0.13**	**.05**	**1.30**
Fighting				
Age	0.61	0.09	.001	1.85
Discrepancy	−0.17	0.09	.07	0.84
Stress	0.03	0.09	ns	1.04
Interaction term	0.09	0.06	.06	1.09
Assault				
Age	0.52	0.18	.005	1.68
Discrepancy	−0.05	0.20	ns	0.96
Stress	−0.17	0.21	ns	0.85
Interaction term	**0.23**	**0.12**	**.05**	**1.25**
Assault w/weapon				
Age	0.67	0.24	.005	1.96
Discrepancy	−0.06	0.33	ns	0.94
Stress	−0.03	0.32	ns	0.97
Interaction term	**0.36**	**0.19**	**.05**	**1.43**
Injury				
Age	0.77	0.18	.001	2.16
Discrepancy	−0.37	0.26	ns	0.69
Stress	0.24	0.25	ns	1.28
Interaction term	**0.46**	**0.16**	**.005**	**1.58**

B, regression coefficient; discrepancy, gender role discrepancy; DWI, driving while intoxicated; ns, non-significant; stress, discrepancy stress.

Table 3

Negative binomial regressions testing simple slopes

Outcome	B	SE	≤p Value	IRR
DWI				
High stress	0.38	0.48	ns	1.47
Mean stress	−0.41	0.26	ns	0.67
Low stress	**−1.19**	**0.48**	**0.01**	**0.30**
Assault				
High stress	0.63	0.43	.07	1.88
Mean stress	−0.05	0.20	ns	0.96
Low stress	**−0.72**	**0.42**	**0.05**	**0.49**
Assault w/weapon				
High stress	**1.01**	**0.63**	**0.05**	**2.74**
Mean stress	−0.06	0.33	ns	0.94
Low stress	**−1.13**	**0.67**	**0.05**	**0.32**
Injury				
High stress	**1.01**	**0.51**	**0.05**	**2.74**
Mean stress	−0.37	0.26	ns	0.69
Low stress	**−1.75**	**0.59**	**0.005**	**0.17**

B, regression coefficient; DWI, driving while intoxicated; high stress, slope of gender role discrepancy at one SD above mean of discrepancy stress; low stress, slope of gender role discrepancy at one SD below mean of discrepancy stress; mean stress, slope of gender role discrepancy at the mean of discrepancy stress; ns, non-significant.