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Evaluation of the Factor Structure and Construct Validity of Scores on the Male Role Norms Inventory—Revised (MRNI–R)

Ronald F. Levant, Thomas J. Rankin, and Christine M. Williams
The University of Akron

Nadia T. Hasan
University of Houston—Downtown

K. Bryant Smalley
Georgia Southern University

This article reports the results of an evaluation of the factor structure, reliability, and construct validity of the Male Role Norms Inventory—Revised (MRNI–R). Results of a principal-axis factor analysis with 593 undergraduate participants (341 men, 251 women, 1 other) support the hypothesized factor dimensionality and, to a lesser extent, item placement. Evidence was found for internal consistency of the MRNI–R total score and the seven factor scores. Analyses of the men's scores provided evidence for convergent validity through a significant correlation of the MRNI–R with the Male Role Attitudes Scale; for divergent validity, through the nonsignificant correlation with the Personal Attributes Questionnaire; and for concurrent validity, through the significant correlations with the Conformity to Masculine Norms Inventory, the Gender Role Conflict Scale, and the Normative Male Alexithymia Scale.

Keywords: traditional male role norms, Male Role Norms Inventory—Revised (MRNI–R), masculinity ideologies

A common set of standards and expectations is associated with the traditional male role throughout most of the world, which has been referred to as *traditional masculinity ideology* (Pleck, 1995). These similarities derive from the fact that men perform the same social roles across almost all cultures—procreation (father), provision (worker), and protection (soldier). Therefore, virtually all societies must socialize boys to develop the same personality characteristics (e.g., emotional stoicism, a focus on achievement, and self-sacrifice) necessary to perform the behaviors embedded in those roles.

On the basis of his wide-ranging ethnographic study of masculinity ideology, Gilmore (1990, pp. 2–3) suggested that

> there is something almost generic, something repetitive, about the criteria of man-playing, that underlying the surface variations in emphasis or form are certain convergences in concepts, symbolizations, and exhortations of masculinity in many societies but—and this is important—*by no means in all* [emphasis added].

The exceptions that Gilmore found were Tahiti and Semai, "virtually androgynous cultures [that] raise questions about the universal need for masculinity in male development, and . . . suggest that cultural variables may outweigh nature in the masculinity puzzle" (p. 201).

Despite this near universality of traditional masculinity ideology, variations in its endorsement have been found, according to differences in such dimensions of demographic diversity as age, ethnicity, race, nationality, region, sexual orientation, disability status, and sex (Levant, Cuthbert, et al., 2003; Levant & Majors, 1997; Levant, Majors, & Kelly, 1998; Levant & Richmond, 2007; Levant, Richmond, et al., 2003; Levant, Wu, & Fischer, 1996; Pleck, Sonenstein, & Ku, 1994; Thompson & Pleck, 1986; Wu, Levant, & Sellers, 2001). Some variations may reflect mere differences in emphasis or form, whereas others may reflect substantive matters.

Ronald F. Levant, Thomas J. Rankin, and Christine M. Williams, Department of Psychology, The University of Akron; Nadia T. Hasan, Department of Social Sciences, University of Houston—Downtown; K. Bryant Smalley, Department of Psychology, Georgia Southern University.

Correspondence concerning this article should be addressed to Ronald F. Levant, Department of Psychology, The University of Akron, Akron, OH 44325-4301. E-mail: levant@uakron.edu

This dominant masculinity ideology, which defines the social norms for the male gender role, is postulated to uphold existing gender-based power structures in the Western world that privilege males, most particularly White, heterosexual, able-bodied males. Connell (1995, p. 64) referred to this as "hegemonic masculinity" to emphasize its central role in undergirding patriarchy. In the United States, gender-based power structures have been mitigated to varying degrees in different subcultures by the influence of feminism. In addition, some cultural variations appear to be based on necessary historical adaptations. For example, the acceptability of women making more decisions in the home and having employment outside of the home in the African American community may be the by-product of the slavery legacy (e.g., forced separation of families) and economic necessity (Walsh, Bingham, Brown, & Ward, 2001). Still others, such as the "cool pose" of young inner-city African American men, may be a form of resistance to their marginalization by hegemonic masculinity (Majors & Billson, 1992).

Pleck (1995, p. 19), in an update on the gender role strain paradigm, noted that "in my current thinking, the concept of 'masculinity ideology' is central to male gender role strain." Levant and Richmond (2007, p. 142), in a review of research on traditional masculinity ideology using the MRNI, concluded that

> the endorsement of traditional masculinity ideology as measured by the MRNI was found to be associated with a range of problematic individual and relational variables, including reluctance to discuss condom use with partners, fear of intimacy, lower relationship satisfaction, more negative beliefs about the father's role and lower paternal participation in child care, negative attitudes toward racial diversity and women's equality, holding attitudes conducive to sexual harassment, self reports of sexual aggression, alexithymia, and reluctance to seek psychological help.

Hence, given its centrality to the strain paradigm and its relationship to various personal and social problems, it is important to have a good measure of masculinity ideology.

Psychologists have developed a number of scales to measure masculinity ideology (Thompson & Pleck, 1995). According to a recent study (Whorley & Addis, 2006), the two most commonly used measures of masculinity ideology are the Male Role Norms Scale (MRNS; Pleck et al., 1994) and the Male Role Norms Inventory (MRNI; Levant et al., 1992). Both of these scales have limitations. The MRNS is a 26-item scale developed through factor analysis of an earlier widely used scale of traditional masculinity ideology, the Short Form of the Brannon Masculinity Scale (Brannon & Juni, 1984). The chief limitation of the MRNS is that it assesses only three dimensions of masculinity ideology (status, toughness, and antifemininity), whereas many men's studies scholars and scale developers view traditional masculinity as having more than three norms (Thompson & Pleck, 1986).

The MRNI is a 57-item scale with eight theoretically derived scales: Avoidance of Femininity, Fear and Hatred of Homosexuals, Self Reliance, Aggression, Achievement/Status, Nonrelational Attitudes Toward Sexuality, and Restrictive Emotionality, all of which measure traditional norms, and Non-Traditional Attitudes Toward Masculinity, which measures violations of traditional male norms. The chief limitations of the MRNI are that the subscale structure has not been supported by factor analysis (Levant et al., 1992) and the reliability of some of the MRNI subscales has been less than adequate in various studies, which resulted in these subscales not being used in those studies and the consequent loss of this data (Levant & Richmond, 2007).

The Conformity to Masculine Norms Inventory (CMNI; Mahalik et al., 2003) is a widely used instrument that is designed to measure conformity (or nonconformity) to the dominant masculinity norms. The CMNI is sometimes described as a measure of the endorsement of traditional masculinity ideology. Although the endorsement of traditional masculinity ideology (measured with the MRNI) and the conformity to masculine norms (measured with the CMNI) are related constructs, there are some important differences. The MRNI measures an individual's internalization of cultural belief systems and attitudes toward masculinity and men's roles, whereas the CMNI measures the individual's personal conformity to those norms. Thus, a man could endorse the societal norm of restrictive emotionality as the expectation for boys and men, believing that they should conform to certain socially sanctioned masculine behaviors and to avoid certain proscribed behaviors, but not be able to conform to these expectations himself.

Hence, there is a need for an instrument to assess masculinity ideology in which multiple norms are supported by factor analysis and for which there is evidence of reliability and validity. The MRNI was revised as the MRNI—Revised (MRNI–R) to address these concerns (Levant, Smalley, et al., 2007). This revision entailed several tasks. First, language revisions eliminated outdated terminology and questions. The original MRNI was created in the late 1980s, and some of the language is dated, referring to practices from an earlier time that are no longer used (e.g., "It is too feminine for a man to use clear nail polish on his fingernails").

Second, we have found over many years of usage that the original definitions of some of the male role norms were not very clear or adequately conceptualized, in particular the Self Reliance and Achievement/Status norms. Both of these tapped socially desirable behavior for both men and women. Hence, we reconceptualized the new Self Reliance norm as a more extreme form of Self Reliance. We also distilled what seemed to be the traditionally masculine aspects of achieving high status—namely dominance. Hence, we substituted a Dominance subscale for the Achievement/Status subscale. Third, because the Non-Traditional Attitudes subscale often had low internal reliability and because it was composed of negatively worded items that recent research has suggested tap method effects (DiStefano & Motl, 2006), we decided to drop this subscale entirely and focus the MRNI–R exclusively on traditional male role norms.

Our first report on the development and assessment of the MRNI–R (Levant et al., 2007) found improved internal consistency, with coefficient alphas ranging from .73 to .96. Additionally, all of the subscales showed larger correlations with the total scale (rs = .70–.87) than they did with each other (rs = .38–.72), suggesting that the subscales measured somewhat different aspects of the same broad construct. Significant differences were found between the sexes on all of the subscales except Self Reliance, with men endorsing a more traditional view of masculinity than women. Finally, significant racial–ethnic differences were found in the scoring patterns, with racial–ethnic minorities endorsing more traditional views of masculinity than European Americans, as has been found in several studies using the original MRNI (Levant & Richmond, 2007).

The aforementioned study, although reporting some evidence for the reliability and validity of the MRNI–R scores, addressed neither the revised measure's factor structure nor its relationship to other scales that measure masculinity ideology and related constructs. We conducted this study to assess the factor structure and the convergent, discriminant, and concurrent validity of the MRNI–R scores and to provide additional information on reliability.

We first hypothesized that exploratory factor analysis of the MRNI–R would support the hypothesized factor dimensionality and item placement, that each of the factors would show numerically larger correlations with the total scale than they would with each other, and that there would be evidence for internal consistency of the factors and the total scale.

Second, we hypothesized that evidence would be found for the convergent validity of the MRNI–R through significant positive correlations with another measure of traditional masculinity ideology (the Male Role Attitude Scale [MRAS]; Pleck et al., 1994).

Third, we hypothesized that evidence would support the discriminant validity of the MRNI–R by finding a nonsignificant correlation with a very different measure of masculinity than the MRNI–R, the Personal Attributes Questionnaire—Masculinity Scale (PAQ–M; Spence & Helmreich, 1978). Our rationale for this hypothesis is that although both the PAQ–M and the MRNI–R are measures of gender, they approach it from very different theoretical orientations and hence would be unlikely to be correlated with each other. The PAQ–M conceptualizes masculinity as a set of sex-typed instrumental personality traits, whereas the MRNI–R conceptualizes gender as a set of culturally defined normative expectations for behavior. Furthermore, our research program has successfully used the PAQ and a related measure of sex-typed personality traits (the Bem Sex Role Inventory; Bem, 1974) to assess the discriminant validity of measures of both masculinity and femininity ideology in prior research (Levant & Richmond, 2007; Levant, Richmond, Cook, House, & Aupont, 2007).

Fourth, we hypothesized that evidence would be found for the MRNI–R's concurrent validity through significant positive correlations with

measures of conformity to male role norms (the CMNI; Mahalik et al., 2003), gender role conflict (the Gender Role Conflict Scale [GRCS]; O'Neil, Helms, Gable, David, & Wrightsman, 1986), and normative male alexithymia (the Normative Male Alexithymia Scale [NMAS]; Levant et al., 2006). Our rationale for this set of hypotheses regarding concurrent validity is that each of these three measures are in some way related to traditional masculinity ideology: the CMNI measures conformity to traditional masculine norms, the GRCS assesses the negative consequences that result from the internalization of traditional masculine norms, and the NMAS assesses the effects of adherence to the Restrictive Emotionality norm. As such, all three measures should show a significant positive and sizable correlation with the MRNI–R.

To test the first hypothesis regarding factor structure, we used the total sample consisting of men, women, and other because the MRNI, a measure of respondents' attitudes about what boys and men should and should not do, has consistently used mixed-gender samples (Levant & Richmond, 2007). To test the second through the fourth hypotheses regarding validity, we used only the men in our sample because most of the comparison measures were not developed for women, and some contain items that would not be appropriate for women.

Method

Participants

A total of 593 participants (58% men, 42% women, and less than 1% [1 participant] who indicated "other") were recruited from a large, public Midwestern university in three collections of data. The vast majority of participants identified as White–European American (83%). Ages ranged from 18 to 51 years, with a mean of 21.4. Both the median and mode were 19. Of the participants, 65% were between the ages of 18 and 20. Most participants (73%) identified as heterosexual; however, 23% of the participants (and 40% of the men) did not respond to this question. Most participants indicated they were either single (49%) or seriously dating (35%). In terms of education, 86% had a high school or GED education. In terms of self-identified socioeconomic status, 53% identified as middle class.

Procedures

Undergraduate students were solicited from psychology, computer science, and physics courses and offered extra credit for their participation in the study, which involved filling out a Web-based survey using a commercially available survey utility (Survey Monkey). Students who wanted to participate provided their e-mail address to the research assistant who had visited their classroom and were subsequently e-mailed the link to the online survey site. The first page of the site reviewed the informed consent information, and participants who consented clicked "yes" and were taken to the surveys. The instruments were presented in the following order: CMNI, GRCS, MRNI–R, MRAS, NMAS, PAQ, and a demographic questionnaire.

We designed two collections of data with a total of 456 participants for this study and used all of the measures listed earlier. Additional data on the MRNI–R and the demographics from 137 male participants were borrowed (with permission) from a senior honors thesis data set (Woodard, 2008).

Measures

MRNI–R (Levant, Smalley, et al., 2007). The MRNI–R is a 53-item measure with items rated on a 7-point Likert-type scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*), with higher scores indicating higher levels of endorsement of traditional masculinity ideology. Seven subscales assess individuals' endorsement of different dimensions of traditional masculinity ideology, including Avoidance of Femininity (eight items, e.g., "A man should prefer watching action movies to reading romantic novels"); Negativity Toward Sexual Minorities[1] (10 items, e.g., "Homosexuals should never marry"); Self Reliance (seven items, e.g., "Men should not borrow money from friends or family members"); Aggression (seven items, e.g., "I think a young man should try to be physically tough, even if he's not"); Dominance (seven items, e.g., "A man should always be the boss"); Non-Relational Sexuality (six items, e.g., "A man should always be ready for sex");

[1] The title of this subscale was changed from "Fear and Hatred of Homosexuals" on the basis of the feedback of an anonymous reviewer.

and Restrictive Emotionality (eight items, e.g., "Men should not be too quick to tell others that they care about them"). A total scale score may also be obtained through the averaging of scores on all 53 items. The initial study found evidence for the reliability of the subscales and significant sex and racial–ethnic differences in the pattern of scores, similar to those that have been found in studies using the original MRNI (Levant et al., 2007).

MRAS (Pleck et al., 1994). The MRAS is a seven-item inventory in which participants indicate the extent of their agreement or disagreement (on a 4-point Likert-type scale ranging from 1[*strongly disagree*] to 4 [*strongly agree*], with higher scores indicating higher levels of endorsement of traditional masculinity ideology) with statements concerning their attitudes toward male gender roles, for example, "A young man should be physically tough, even if he's not big." This scale was developed through factor analysis of an earlier widely used scale of traditional masculinity ideology (Brannon & Juni, 1984). The MRAS was found to have a coefficient alpha of .56 (Pleck et al., 1994); for this study, alpha was .67 for men. In a national survey of young men, high scores—representing traditional attitudes toward masculinity—were correlated with coercive sexual behavior, the perception of heterosexual relationships as adversarial, the belief that making women pregnant validates masculinity, and general delinquency and alcohol–drug use (Pleck et al., 1994).

CMNI (Mahalik et al., 2003). The CMNI assesses "the extent to which an individual male conforms or does not conform to the actions, thoughts, and feelings that reflect masculinity norms in the dominant culture in U.S. society" (Mahalik et al., 2003, p. 5), using a 94-item instrument with a 4-point Likert-type scale ranging from 1 (*strongly disagree*) to 4 (*strongly agree*), with higher scores indicating higher levels of conformity. There are 11 factor analytically derived subscales that include Winning (10 items, e.g., "Winning isn't everything, it's the only thing"); Emotional Control (11 items, e.g., "I never share my feelings"); Risk-Taking (10 items, e.g., "I enjoy taking risks"); Violence (eight items, e.g., "I like fighting"); Power Over Women (nine items, e.g., "In general, I control the women in my life"); Dominance (four items, e.g., "I should be in charge"); Playboy (12 items, e.g., "If I could, I would date a lot of different people"); Self Reliance (six items, e.g., "Asking for help is a sign of failure"); Primacy of Work (eight items, e.g., "My work is the most important part of my life"); Disdain for Homosexuals (10 items, e.g., "I would be furious if someone thought I was gay"); and Pursuit of Status (six items, e.g., "It feels good to be important").

The CMNI total score has shown evidence of internal consistency ($\alpha = .94$); CMNI subscale coefficient alphas ranged from .72 for Pursuit of Status to .91 for Emotional Control (Mahalik et al., 2003). In this study, the total scale demonstrated evidence of internal consistency ($\alpha = .91$ for men). Mahalik et al. (2003) presented evidence supporting the CMNI's construct validity by demonstrating that it showed strong correlations with other measures of normative masculinity, but only moderate correlations with measures of gender role conflict.

GRCS (O'Neil et al., 1986). The GRCS is a 37-item instrument that assesses the degree to which "rigid, sexist, or restrictive gender roles result in personal restriction, devaluation, or violation of others or self" (O'Neil, Good, & Holmes, 1995, p. 167). The GRCS has four subscales: Success/Power/Competition (13 items, e.g., "Doing well all the time is important to me"); Restrictive Emotionality (10 items, e.g., "I often have trouble finding words that describe how I am feeling"); Restrictive Affectionate Behavior Between Men (eight items, e.g., "I am sometimes hesitant to show my affection to men because of how others might perceive me"); and Conflict Between Work and Family Relations (six items, e.g., "My needs to work or study keep me from my family or leisure more than I would like"). Respondents use a 6-point Likert-type scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*) to rate their level of agreement or disagreement with statements intended to measure instances of male gender role conflict, with higher scores indicating higher levels of conflict (O'Neil, 1981). O'Neil et al. (1986) reported 4-week test–retest reliabilities for the GRCS subscales ranging from .72 to .86, and O'Neil et al. (1995) reported coefficient alphas ranging from .75 to .90. In this study, the total scale demonstrated evidence of internal consistency ($\alpha = .93$ for men). Positive relationships between the GRCS subscale scores and measures of traditional masculinity ideology

(Berger, Levant, McMillan, Kelleher, & Sellers, 2005), depression (Good & Mintz, 1990), and psychological distress (Good et al., 1995) provide evidence supportive of construct validity.

NMAS (Levant et al., 2006). The NMAS is a 20-item inventory designed to assess normative male alexithymia (e.g., "I am often confused about what emotion I am feeling"). Participants answer questions about their own experience of emotions using a Likert-type format (1 = *strongly disagree*; 7 = *strongly agree*), with higher scores indicating higher levels of alexithymia. Exploratory and confirmatory factor analyses indicated that the NMAS consisted of a single 20-item factor. Scores on the NMAS displayed evidence of internal consistency (α = .92 for men and α = .93 for women) and test–retest reliability (r = .91 for men and r = .82 for women) over a 1- to 2-month period (Levant et al., 2006). In this study, we found an alpha of .94 for men. Results of analyses of gender differences, relations of the NMAS with other instruments, and its incremental validity in predicting masculinity ideology, provide evidence supporting the scale's validity.

PAQ (Spence & Helmreich, 1978). Discriminant validity was assessed using the PAQ. The PAQ is a 24-item measure that assesses how strongly individuals rate themselves as having stereotypical masculine (instrumentality–agency) and stereotypical feminine (expressivity–nurturance) personality traits. Participants rate themselves on a 5-point scale that is anchored by two dichotomous personality attributes (e.g., "Not at all independent–Very independent"). Items are scored so that higher scores indicate higher femininity or masculinity, depending on the subscale. We used one of the PAQ subscales: the PAQ–M subscale (which measures self-described stereotypic male personality traits and has eight items; as an example, one item is "Very Active"). A Cronbach's coefficient alpha of .65 for the PAQ–M was shown in a prior study (Robitschek, 2003). Factor analyses have identified two distinct factors, with each item loading on its expected factor (Helmreich, Spence, & Wilhelm, 1981). For this study, the PAQ–M scale reliability was .67 for men.

Factor Analytic Procedures

As noted earlier, the subscale structure of the original MRNI has not been supported by factor analysis (Levant et al., 1992); hence, we reasoned that exploratory factor analysis would be more appropriate than a confirmatory factor analysis, given that we have as yet no evidence to support any hypothesized measurement model. We selected principal-axis factoring (PAF) rather than principal-components analysis because PAF analyzes only common variance in its search for underlying latent structure; in contrast, principal-components analysis analyzes common, unique, and error variance and is thus better characterized as a data reduction technique than a factor analytic one (Kahn, 2006). Given our goal of understanding the latent structure of the items and subscales making up the MRNI–R, PAF seemed the more appropriate technique. Finally, we chose PAF rather than maximum likelihood because PAF does not assume multivariate normality (Fabrigar, Wegener, MacCallum, & Strahan, 1999), which was important given that some MRNI–R items evoke responses consistent with highly traditional masculinity ideology, thus producing item skew inconsistent with multivariate normality.

Results

Hypothesis 1

With regard to our first hypothesis (that exploratory factor analysis of the MRNI–R would support the hypothesized factor dimensionality and item placement, etc.), we first assessed the suitability of data for factor analysis. The sample size of 593 allows for 11.2 participants per item, which is considered adequate (Costello & Osborne, 2005; Tabachnick & Fidell, 2007). Inspection of the correlation matrix revealed the presence of many coefficients of .45 and higher, which met the criterion that a factorable matrix should include several sizable correlations (Tabachnick & Fidell, 2007). The Kaiser-Meyer-Olkin value was .97, which exceeds the suggested value of .6 (Kaiser, 1974) and in fact is greater than the value (.9) that Kaiser described as "marvelous." Bartlett's test of sphericity (Bartlett, 1954) was statistically significant, again further supporting the factorability of the correlation matrix.

Principal-axis factor analysis revealed the presence of seven factors with eigenvalues exceeding 1.0, accounting for 40.92%, 6.26%,

5.25%, 3.01%, 2.87%, 2.39%, and 2.01% of the variance, respectively. The total variance accounted for was 62.71%. To aid in the interpretation of these factors, we used Oblimin rotation because we expected them to be correlated. Loadings higher than .35 were considered the minimum loading allowable, resulting in the removal of six items.

As displayed in Table 1, the seven factors showed a number of strong loadings, providing support for the hypothesized factor dimensionality. Their degree of correspondence to the original seven subscales is reflected in the items from their respective subscales that loaded on them, which provides some support for the hypothesized factor structure. One factor, Dominance, retained all of the seven items from its subscale, and three other factors retained almost all of the items from their respective subscales (Avoidance of Femininity, seven of eight items retained, 88%; Restrictive Emotionality, seven of eight items retained, 88%; and Negativity Toward Sexual Minorities, eight of 10 items retained, 80%). The remaining three factors retained about half of their respective items and were accordingly renamed to more accurately reflect their updated content: Aggression retained four of seven items (57%) and was renamed Toughness; Non-Relational Sexuality retained three of six items (50%) and was renamed Importance of Sex; and Self Reliance retained three of seven items (43%) and was renamed Self Reliance Through Mechanical Skills. Three items (24, 32, and 46) were removed because of cross-loading problems, following Tabachnick and Fidell's (2007) suggestion that items that load .32 or greater on a second factor should be removed. In addition, five items loaded on a factor that did not correspond to the original subscale: three items (Item 12 from the Self Reliance subscale, Item 26 from the Avoidance of Femininity subscale, and Item 40 from the Non-Relational Sexuality subscale) loaded on Factor 1 (Restrictive Emotionality), one item (Item 10 from the Aggression subscale) loaded on Factor 4 (Avoidance of Femininity), and one item (Item 27 from the Self Reliance subscale) loaded on Factor 6 (Toughness). Because these five items had the lowest loadings on their respective factors and also did not conceptually fit with their factors, we removed them after determining that removal would not negatively affect the internal consistency of the factors.

Taken together, these seven factors produced a final MRNI–R total factored scale of 40 items. Furthermore, as hypothesized, each of the MRNI–R factors showed a numerically larger correlation with the MRNI–R total factored scale (for men, these correlations ranged from .59 to .90; for women they ranged from .64 to .90) than they did with any of the other factors (for men, these correlations ranged from .36 to .74; for women, they ranged from .39 to .75; see Table 2). This pattern of results suggests that the subscales measure somewhat different aspects of the same broad construct. Although we used the seven-factor, 40-item scale in the analyses that follow, we should note that the principal-axis factor analysis is, in fact, exploratory and does not test that seven factors are present.

Means, standard deviations, and internal consistency reliabilities for the MRNI–R total score and factor scores for men and women, and for the other scales for men only, are shown in Table 3. On the MRNI–R, men on average scored toward the traditional end on the following factors: Self Reliance Through Mechanical Skills, Avoidance of Femininity, and Toughness. Women on average scored toward the traditional end on only one factor: Self Reliance Through Mechanical Skills. Significant differences were found between men's and women's mean scores on the MRNI–R (total and all factor scores). Men endorsed masculinity ideology in a more traditional direction than did women on the MRNI–R. On the CMNI, GRCS, and MRAS, men's mean scores were close to the midpoint, whereas on the NMAS men's mean scores were below the midpoint, toward nonalexithymia. On the PAQ–M, men's mean scores were above the midpoint, toward higher masculinity. With regard to the alpha coefficients, those for the MRAS and PAQ–M were slightly low (both scales' αs = .67, which is less than the traditional cutoff of .70 for adequate reliability); hence, results using these scales should be viewed with some caution.

Hypothesis 2

With regard to our second hypothesis regarding convergent validity, men's scores on the MRNI–R showed a significant positive correlation with the other masculinity ideology mea-

Table 1
Male Role Norm Inventory—Revised Factors and Loadings From Principal Axis Factoring

Factors and Items	Loading
Factor 1: Restrictive Emotionality	
38. A man should never admit when others hurt his feelings.	.66
53. Men should not be too quick to tell others that they care about them.	.62
41. Men should be detached in emotionally charged situations.	.61
31. A man should not react when other people cry.	.58
50. One should not be able to tell how a man is feeling by looking at his face.	.53
47. Fathers should teach their sons to mask fear.	.51
33. Being a little down in the dumps is not a good reason for a man to act depressed.	.50
26. A man should avoid holding his wife's purse at all times.[b]	.40
12. Men should not borrow money from friends or family members.[b]	.38
46. I might find it a little silly or embarrassing if a male friend of mine cried over a sad love story.[a] (Avoidance of Femininity)	.38
32. A man should not continue a friendship with another man if he finds out that the other man is homosexual.[a] (Negativity Toward Sexual Minorities)	.36
40. A man shouldn't bother with sex unless he can achieve orgasm.[b]	.35
Factor 2: Self-Reliance Through Mechanical Skills	
13. Men should have home improvement skills.	.90
14. Men should be able to fix most things around the house.	.90
36. A man should know how to repair his car if it should break down.	.60
Factor 3: Negativity Toward Sexual Minorities	
8. All homosexual bars should be closed down.	−.78
25. Homosexuals should never kiss in public.	−.78
1. Homosexuals should never marry.	−.77
37. Homosexuals should be barred from the teaching profession.	−.75
17. Homosexuals should not be allowed to serve in the military.	−.64
52. It is disappointing to learn that a famous athlete is gay.	−.62
18. Men should never compliment or flirt with another male.	−.61
23. Men should never hold hands or show affection toward another.	−.53
32. A man should not continue a friendship with another man if he finds out that the other man is homosexual.[a] (Restrictive Emotionality)	−.48
Factor 4: Avoidance of Femininity	
11. Boys should play with action figures not dolls.	−.70
7. Men should watch football games instead of soap operas.	−.68
19. Boys should prefer to play with trucks rather than dolls.	−.62
15. A man should prefer watching action movies to reading romantic novels.	−.54
6. Men should not wear make-up, cover-up, or bronzer.	−.50
30. Boys should not throw baseballs like girls.	−.44
9. Men should not be interested in talk shows such as "Oprah."	−.42
10. Men should excel at contact sports.[b]	−.42
46. I might find it a little silly or embarrassing if a male friend of mine cried over a sad love story.[a] (Restrictive Emotionality)	−.35
Factor 5: Importance of Sex	
43. A man should always be ready for sex.	−.73
20. A man should not turn down sex.	−.67
16. Men should always like to have sex.	−.67
24. It is ok for a man to use any and all means to "convince" a woman to have sex.[a] (Restrictive Emotionality)	−.45
Factor 6: Toughness	
45. When the going gets tough, men should get tough.	−.61
48. I think a young man should try to be physically tough, even if he's not big.	−.56
39. Men should get up to investigate if there is a strange noise in the house at night.	−.52
42. It is important for a man to take risks, even if he might get hurt.	−.51
27. A man must be able to make his own way in the world.[b]	−.45

(*table continues*)

Table 1 (*continued*)

Factors and Items	Loading
Factor 7: Dominance	
3. Men should be the leader in any group.	−.79
21. A man should always be the boss.	−.62
51. Men should make the final decision involving money.	−.57
2. The President of the U.S. should always be a man.	−.55
22. A man should provide the discipline in the family.	−.40
44. A man should always be the major provider in his family.	−.37
49. In a group, it is up to the men to get things organized and moving ahead.	−.37

Note. $N = 341$ men, 251 women, 1 other.
[a] Item removed from final scale because of cross-loading problems (cross-loading scale noted in parentheses). [b] Item removed from scale because it did not conceptually fit with its factor and had one of the lowest loadings on its factor.

sure, the MRAS ($r = .60$, $p < .01$), thus supporting the hypothesis (see Table 4).

Hypothesis 3

With regard to our third hypothesis regarding discriminant validity, we examined the correlation between the men's PAQ–M scores (their self-described stereotypically masculine, instrumental personality traits) with their MRNI–R total traditional scores (the degree to which they endorsed traditional masculine norms). Our hypothesis was borne out (see Table 4). No significant positive correlation was found between the men's scores on the MRNI–R total factored scale and those on the PAQ–M ($r = .08$, $p = .29$). Six of the seven MRNI–R factors exhibited a similar pattern of not showing significant positive correlations for men, ranging from −.01 to .09; the one exception was the Toughness subscale, which displayed a significant, although small, correlation with the PAQ–M ($r = .22$, $p < .01$).

Hypothesis 4

With respect to our fourth hypothesis regarding concurrent validity, we hypothesized that men's scores on the MRNI–R would show significant positive correlations with the CMNI, the GRCS, and the NMAS. This hypothesis was supported: Men's MRNI–R total factored score demonstrated significant positive correlations with the CMNI ($r = .60$, $p < .01$), GRCS ($r = .54$, $p < .01$), and NMAS ($r = .51$, $p < .01$).

Men's scores on the MRNI–R factors also showed positive correlations with the convergent (MRAS) and concurrent (CMNI, GRCS, and NMAS) validity measures. The ranges of the correlations for the men's scores on the MRNI–R factors were as follows: MRAS, *r*s = .37–.54; CMNI, *r*s = .32–.57; GRCS, *r*s = .35–.55; and NMAS, *r*s = .30–.63. All correlations were significant at the $p < .01$ level.

Although we proposed no specific hypotheses for the correlations between men's scores on the MRNI–R factors and their scores on the

Table 2
Correlation Coefficients Between the Men's and Women's Scores on Male Role Norms Inventory—Revised Total Factored Scale and Factors

Scale or factor	1	2	3	4	5	6	7	8
1. Total Scale	—	.76	.59	.83	.90	.67	.66	.86
2. Factor 1: Restrictive Emotionality	.81	—	.40	.49	.59	.51	.47	.61
3. Factor 2: Self Reliance Through Mechanical Skills	.64	.39	—	.36	.51	.36	.54	.40
4. Factor 3: Negativity Toward Sexual Minorities	.85	.60	.39	—	.74	.41	.37	.69
5. Factor 4: Avoidance of Femininity	.90	.65	.58	.75	—	.57	.57	.69
6. Factor 5: Importance of Sex	.72	.58	.48	.50	.59	—	.56	.56
7. Factor 6: Toughness	.72	.57	.63	.47	.59	.46	—	.51
8. Factor 7: Dominance	.85	.74	.42	.69	.68	.61	.51	—

Note. $N = 341$ men and 251 women. Correlations for men are above the diagonal; correlations for women are below the diagonal. All correlations were significant at the $p < .01$ level.

Table 3
Means, Standard Deviations, and Coefficient Alphas for the MRNI–R (Total and Factor Scores) for Men and Women and for the CMNI, GRCS, MRAS, NMAS, and PAQ–M for Men Only

Scales	Men			Women				
	M	*SD*	α	*M*	*SD*	α	*F*	*p*
MRNI–R								
Total Factored Scale	3.88	1.07	.96	3.05	1.04	.96	89.78	<.001
Factor 1:Restrictive Emotionality	3.19	1.18	.88	2.40	1.01	.89	71.27	<.001
Factor 2: Self Reliance Through Mechanical Skills	4.76	1.34	.85	4.31	1.42	.86	14.91	<.001
Factor 3: Negativity Toward Sexual Minorities	3.64	1.57	.92	2.86	1.45	.92	37.78	<.001
Factor 4: Avoidance of Femininity	4.17	1.32	.89	3.36	1.24	.87	56.82	<.001
Factor 5: Importance of Sex	3.80	1.56	.84	3.08	1.39	.82	33.76	<.001
Factor 6: Toughness	4.92	1.14	.75	3.79	1.33	.78	119.85	<.001
Factor 7: Dominance	3.44	1.28	.88	2.46	1.19	.90	90.27	<.001
CMNI	2.39	0.25	.91					
GRCS	3.61	0.70	.93					
MRAS	2.43	0.50	.67					
NMAS	3.64	1.04	.94					
PAQ–Masculinity	3.56	0.65	.67					

Note. For the MRNI–R data, $N = 341$ men and 251 women. For the other data, $N = 204$ men. Scores for the MRNI–R and its factors range from 1 to 7, with higher scores indicating more traditional masculinity ideology. Scores for the CMNI range from 1 to 4, with higher scores indicating greater conformity to traditional masculine norms. Scores for the GRCS range from 1 to 6, with higher scores indicating greater gender role conflict. Scores for the MRAS range from 1 to 4, with higher scores indicating more traditional masculinity ideology. Scores for the NMAS range from 1 to 7, with higher scores indicating greater normative male alexithymia. Scores for the PAQ–M range from 1 to 5, with higher scores indicating higher self-described masculine traits. MRNI–R = Male Role Norms Inventory—Revised; CMNI = Conformity to Masculine Norms Inventory; GRCS = Gender Role Conflict Scale; MRAS = Male Role Attitudes Scale; NMAS = Normative Male Alexithymia Scale; PAQ–M = Personal Attributes Questionnaire—Masculinity Scale.

factors of the concurrent validity measures, we found seven significant positive relationships between theoretically related MRNI–R factors and validity measure factors, whereas we did not find one that would have been expected (the Self Reliance Through Mechanical Skills factor was not related to the CMNI Self Reliance factor), presenting a mixed but mostly positive picture of the evidence for the concurrent validity of the MRNI–R. The MRNI–R's Restrictive Emotionality factor was more strongly correlated with the CMNI's Emotional Control factor than with any of the other CMNI factors ($r = .46$, $p < .01$) and was more strongly correlated with the GRCS's Restrictive Emotionality factor than with any of the other GRCS factors ($r = .55$, $p < .01$). As would be expected, it was also strongly correlated with the NMAS ($r = .64$, $p < .01$). The Negativity Toward Sexual Minorities factor was more strongly correlated with the CMNI's Disdain of Homosexuals factor than with any of the other CMNI factors ($r = .65$, $p < .01$). It was also more strongly correlated with the GRCS's Restrictive Affectionate Behavior Between Men factor than with any of the other GRCS factors ($r = .47$, $p < .01$). The MRNI–R's Importance of Sex factor was more strongly correlated with the CMNI's Playboy factor than with any of the other CMNI factors ($r = .37$, $p < .01$). The MRNI–R's Dominance factor showed a corre-

Table 4
Correlation Coefficients Between the Men's Scores on the MRNI–R Total Factored Scale, CMNI, GRCS, MRAS, NMAS, and PAQ–M

Scales	1	2	3	4	5	6
1. MRNI–R	—	.60[a]	.54[a]	.60[a]	.51[a]	.08
2. CMNI		—	.57[a]	.50[a]	.54[a]	.27[a]
3. GRCS			—	.45[a]	.66[a]	.06
4. MRAS				—	.33[a]	.19[a]
5. NMAS					—	−.02
6. PAQ–M						—

Note. $N = 204$ men. MRNI–R = Male Role Norms Inventory—Revised; CMNI = Conformity to Masculine Norms Inventory; GRCS = Gender Role Conflict Scale; MRAS = Male Role Attitudes Scale; NMAS = Normative Male Alexithymia Scale; PAQ–M = Personal Attributes Questionnaire—Masculinity Scale.
[a] Significant at the $p < .01$ level.

lation (but not the strongest correlation) with the CMNI's Dominance factor ($r = .36$, $p < .01$). Two other CMNI factors correlated more strongly with the Dominance factor: Power Over Women ($r = .59$, $p < .01$) and Disdain for Homosexuals ($r = .45$, $p < .01$). The Self Reliance Through Mechanical Skills factor (previously called Self Reliance) was not related to the CMNI's Self Reliance factor ($r = .10$, $p = .14$). Finally, the Avoidance of Femininity and Toughness factors do not have any obvious counterparts on the CMNI and GRCS.

Summary of Results

As hypothesized, exploratory principal-axis factor analysis of the men's and women's scores on the MRNI–R supported the hypothesized factor dimensionality and, to a lesser extent, item placement. Factors retained from 43% to 100% of the items from their respective subscales after six items were removed because they did not achieve a loading of .35, three items were removed because they cross-loaded with loadings of .32 or greater, and five items were removed because they loaded on a factor that did not correspond to the original subscale. In addition, scores on each of the factors showed numerically larger correlations with the total scale than they did with each other, and evidence for internal consistency reliability was found for their scores on the factors and the total scale. We found evidence for the convergent validity of the men's MRNI–R scores through significant positive correlation with another measure of traditional masculinity ideology. Evidence was found for the discriminant validity of the men's MRNI–R scores through finding a nonsignificant correlation with a measure that conceptualizes masculinity as a set of sex-typed personality traits rather than a set of culturally defined norms for behavior. We found evidence for the concurrent validity of the men's MRNI–R scores through significant positive correlations with measures of conformity to male role norms, gender role conflict, and normative male alexithymia.

In addition, relationships were found between men's scores on four MRNI–R factors (Restrictive Emotionality, Negativity Toward Sexual Minorities, Importance of Sex, and Dominance) and their scores on seven theoretically related factors of the concurrent validity measures. However, correlation of the MRNI–R's Dominance factor with the CMNI's Dominance factor was smaller than its correlation with two other CMNI factors: Power Over Women and Disdain for Homosexuals. Furthermore, a relationship that would have been expected was not found between men's scores on one MRNI–R factor (Self Reliance Through Mechanical Skills) and their scores on a theoretically related factor. This pattern of results presents a mixed but mostly positive picture of evidence supporting the concurrent validity of the men's scores on the MRNI–R.

Discussion

Overall, these results provide some evidence for the reliability and validity of the MRNI–R as a measure of traditional masculinity ideology, a construct that is central to masculine gender role strain and associated with a range of problematic individual and relational variables. This builds on previous research on the MRNI–R (Levant, Smalley, et al., 2007) and provides some support for the use of the MRNI–R in research that requires the assessment of traditional masculinity ideology. The MRNI–R overcomes some of the limitations of the two most commonly used measures of masculinity ideology (MRNS and MRNI [the original version]) by assessing more than three dimensions of masculinity ideology that are supported by factor analysis and that have evidence for reliability and validity. Given its association with a range of problematic individual and relational variables, the MRNI–R may also be of use to clinicians who wish to assess their clients' endorsement of traditional masculinity ideology.

However, the low reliability of some of the measures used to assess convergent and discriminant validity, specifically the MRAS and the PAQ–M, respectively, limit the confidence that we can place in these findings. Moreover, we were not able to provide an assessment of the construct validity of the women's scores on the MRNI–R because most of the comparison measures were not developed for women. Only the NMAS and PAQ would have been appropriate, and (as mentioned earlier) the PAQ had low reliability. Finally, it is of some concern that the correlation coefficient between men's scores on the MRNI–R and those on the convergent validity measure (MRAS; $r = .60$) was

not higher than those between the MRNI–R and the concurrent validity measures (CMNI, r = .60; GRCS, r = .54; and NMAS, r = .51) because the former correlation coefficient reflects the relationship between scores on two measures of the same construct, whereas the latter correlation coefficients reflect relationships between scores on measures of similar constructs. Finally, the high intercorrelations among the MRNI–R subscales could be problematic in terms of multicollinearity if researchers were to use several subscales as individual predictors.

Other limitations of this study stem from the sample. Participants were all students from the same university, which draws primarily from the surrounding geographic region. Most participants were young, White, European American, and heterosexual. Additionally, the self-report nature of the surveys introduces the possibility of socially desirable responding and does not allow for a multimethod evaluation of the data, which is important in assessing construct validity.

Future research should conduct a confirmatory factor analysis of the MRNI–R's factor structure. In addition, research should assess the construct validity for women. It would also be advisable to further investigate variations in the endorsement of traditional masculinity ideology in different social groups, defined by such variables as race, ethnicity, nationality, religion, age, socioeconomic status, and sexual orientation. Finally, future research should explore the MRNI–R's associations with measures of healthy and unhealthy behaviors.

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Correction to Levant et al. (2010)

In the article "Evaluation of the Factor Structure and Construct Validity of the Male Role Norms Inventory-Revised (MRNI-R)" by Ronald F. Levant, Thomas J. Rankin, Christine M. Williams, Nadia T. Hasan, and K Bryant Smalley, (*Psychology of Men and Masculinity*, Vol. 11, No 1, pp. 25-37), the number of items in the factored scale is incorrectly stated to be 40, whereas it is actually 39. This occurs twice in the first full paragraph in the second column on p. 31, which should read:

"Taken together, these seven factors produced a final MRNI-R total factored scale of 39 items. . . . Though we utilized the seven factor, 39-item scale in the analyses that follow, it should be noted that the principal axis factor analysis is, in fact, exploratory and does not test that seven factors are present."