

The Masculine Depression Scale: Development and Psychometric Evaluation

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A preponderance of anecdotal evidence suggests that men manifest depression differently than women and that this atypical symptom presentation is even more evident in men who adhere to restrictive masculine norms (Cochran & Rabinowitz, 2000; Real, 1997). The aim of this study was to develop a self-report assessment instrument, the Masculine Depression Scale (MDS), which captures these atypical symptoms of depression. One hundred and two men who experienced a recent stressful life event were asked to complete measures of prototypic depression, masculine norm conformity, and our measure of masculine depression. Factor analyses yielded a two-factor solution: internalizing and externalizing symptoms. Externalizing symptoms were moderately correlated with measures of depression and masculine norm adherence, while internalizing symptoms were highly correlated with measures of depression but unrelated to masculine norm adherence. Men who adhered strongly to masculine norms were more likely to endorse externalizing symptoms on the MDS than prototypic symptoms of depression. The findings suggest that the MDS may be capturing aspects of depression associated with masculine gender socialization that are not captured by existing measures.

Keywords: men, masculine norms, depression, measure

One of the most consistent psychiatric epidemiological findings is that depression is twice as common in women as in men (Kessler et al., 1994). Numerous theories, ranging from biologically based (Blehar & Oren, 1995; Wolk & Weissman, 1995) to psychosocial theories (Nolen-Hoeksema, 1995; Nolen-Hoeksema, Larson, & Grayson, 1999), have been proposed to account for women's vulnerability to depression. However, in recent years, the accuracy of these theories has been disputed. Data suggest that the sex gap in depression may not be due to actual differences in prevalence rates but rather to a number of other factors, such as men's unwillingness to seek help for depression, men's tendency to underreport symptoms of depression (Angst et al., 2002; Courtenay, 2000), and clinician sex bias in depression diagnoses (Potts, Burnam, & Wells, 1991).

Another proposed explanation for the gap in prevalence rates of depression is that men may exhibit depressive symptomatology in ways that differ from women. Researchers and clinicians alike have speculated about the possibility of a masculine type of depression (e.g., Cochran & Rabinowitz, Pollack, 1998; Real, 1997). To date, little research has focused on measurement of a "masculine" depression per se. The purpose of this study is to make a first step toward measuring the construct of masculine depression in the context of individual men's adherence to hegemonic masculine norms. We developed a self-report assessment instrument that captured the behaviors and "symptoms" theoretically postulated to be associated with masculine depression. Research and clinical work looking at sex and gender differences in depressive symptomatology relevant to the development of the scale will be discussed and the development of the Masculine Depression Scale will be described.

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Sex Differences

Although, studies indicate that there are no overall sex differences in depressive symptom

presentation, severity, mean number of symptoms, duration, or prevalence of a single depressive episode (Hildebrandt, Stage, & Kragh-Soerensen, 2003), some research reveals that qualitative differences do emerge when specific depressive symptoms are examined. For example, men diagnosed with depression are more likely to have comorbid alcohol abuse problems (Angst et al., 2002; Roeloffs, Funk, Unutzer, Tang, & Wells, 2001). Men are also more likely than women to report engaging in activity to avoid thinking about their depression and to report somatic complaints, concerns regarding work success, inability to make decisions, and general social withdrawal (Hammen & Padesky, 1977; Kessing, 2006; Kleinke, Staneski, & Mason, 1982; Kornstein et al., 2000; Padesky & Hammen, 1981; Vredenburg, Krames, & Flett, 1986; Winkler et al., 2004). On the other hand, men are less likely than women to report crying (Hammen & Padesky, 1977; Kleinke et al., 1982; Salokangas, Pacriev, Sohlman, & Lehtinen, 2002).

The qualitative sex differences that emerge in research examining depressive symptoms seem to indicate that men in general report symptoms more acceptable to dominant masculine norms, such as preoccupation with work failure, social withdrawal, avoidance of affect, and self-medication (Hammen & Padesky, 1977; Kessing, 2006; Kleinke et al., 1982; Kornstein et al., 2000; Padesky & Hammen, 1981; Vredenburg et al., 1986; Winkler et al., 2004). However, findings related to sex differences are often inconsistent because of their focus on mean differences between the two sexes. For example, some studies have found that women are more likely than men to endorse somatic complaints (Silverstein, 2002; Wenzel, Steer, & Beck, 2005). Therefore, it is important that we ask, for the purposes of diagnostic accuracy and treatment effectiveness, what drives the variability in men's symptom presentation.

Gender Socialization and Depression

Scholars in masculinity theory and research have speculated about the role of gender socialization as a contributing factor to the qualitative differences in depressive symptom presentation. It has been postulated that masculine gender socialization and adherence to dominant masculine norms may have an impact on men's acknowledgment and presentation of depressive

affect (Cochran & Rabinowitz, 2000; Hart, 2001; Pollack, 1998; Real, 1997). Masculine gender socialization emphasizes characteristics such as stoicism, independence, physical toughness, restrictive emotional expression, competition, and the avoidance of anything "feminine" (Brannon, 1976; O'Neil, Good, & Holmes, 1995; Pleck, 1981). The masculine gender socialization framework is an individual differences framework that assumes that the degree to which individual men adhere to dominant masculine norms may differ. This framework may account for differences among individual men's symptom presentation. For example, depressive affect and behaviors that accompany depression (e.g., crying) have been stereotyped as feminine (Warren, 1983) and may be particularly aversive to a man who adheres to the norms of stoicism and toughness. Such affect may not be aversive to another man who does not adhere to these particular norms.

Masculine Depression

In recent years, clinicians have theorized, based on their experience with men in clinical practice, that men who adhere more strongly to masculine norms may exhibit their depression in ways that are more congruent with those norms (Cochran & Rabinowitz, 2000; Pollack, 1998; Real, 1997). Clinicians have postulated that these men may tend to mask their distress by engaging in behaviors such as drinking or using drugs, aggression, reckless behavior, withdrawing from family and friends, and overfocusing on work. These theoretical and clinical speculations imply that men experience depression in the prototypic way (as described by *DSM-IV-TR* criteria, American Psychiatric Association, 2000) but tend to avoid or deny the experience because it is incongruent with the male role. It has also been suggested that some men may substantially "mask" an underlying depression with the externalizing behaviors described above (Real, 1997).

Attempts to Validate the Construct of Masked and Masculine Depression

Although the concept of a "masked" depression in men is theoretically appealing, it is difficult to examine empirically and challenging to validate. Put simply, if depression

is present in an individual, but “masked” in some way, it is virtually impossible to establish the presence of the disorder independent of the presence of prototypic symptoms (as described by *DSM-IV-TR* criteria). Nonetheless, a number of studies have attempted to validate the construct of a male depressive syndrome and have developed measures aimed at capturing male depressive symptomatology (Diamond, 2005; Möller-Leimkühler, Bottlender, Strauß, & Rutz, 2004; Rutz, 1996). Unfortunately, there are a number of methodological concerns regarding the reliability and validity of these measures. For example, the more widely used Gotland Scale for Male Depression (Rutz, 1996), was developed to capture symptoms of depression as exhibited by suicidal men on the Island of Gotland in Sweden. The purpose of this measure was to help primary care clinicians diagnose depression in men in an attempt to decrease male suicide rates on the island (Rutz, 2001). In terms of reliability, the items on the scale are poorly worded, some items are exceptionally lengthy, and a number of statements are double-barreled (DeVellis, 1991).

Although the validity and reliability of the Gotland scale has been tested in two studies (Möller-Leimkühler et al., 2004; Zierau, Bille, Rutz, & Bech, 2002), the construct validity was tested in an inpatient population diagnosed with depression. This specific population is not conducive to testing the construct validity for a number of reasons. First, men who have been diagnosed with depression are already exhibiting prototypic symptoms. They are therefore not the population for whom the measure is most relevant. In addition, there is some evidence that men who are experiencing severe depressive symptomatology (e.g., inpatients) are more likely to exhibit prototypic symptoms of depression (Möller-Leimkühler et al., 2004) and are not an adequate population on which to validate the construct. Second, the validity of the construct was examined in the context of sex differences. Not surprisingly, men and women inpatients did not exhibit differences in their depressive symptomatology. Examining the construct of a male depressive syndrome in the context of sex differences only allows us to speculate about mean differences among men and women. It does not allow for the examination of individual differences in adherence to

masculine norms and their potential effect on the expression of depression.

The Current Study

We developed a self-report assessment instrument to capture the behaviors theoretically postulated to be associated with masculine depression. In this study, we assessed the validity of the construct of masculine depression in the context of individual men’s adherence to hegemonic masculine norms. We conceptualized “masculine depression” as a set of responses to underlying negative affect that are influenced by restrictive masculine norms (Addis, in press). Our assumption was that men who have recently experienced a stressful life event should be at risk for experiencing negative affect, and that individual differences in the way they respond to this affect should determine how distress is presented (e.g., in a more prototypic depression, or in a masculine variant). This way of conceptualizing depression, as a set of responses to stressful life events and accompanying negative affect, is consistent with several contemporary behavioral/contextual models of depression and its treatment (Addis & Martell, 2004; Martell, Addis, & Jacobson, 2001; Lėjuez et al., 2001). It is also consistent with the response styles theory of depression, which is supported by evidence demonstrating that gender affects how men and women respond to depressed mood, and it is this difference that accounts for sex differences in prevalence rates of depression (Nolen-Hoeksema, 2001; Nolen-Hoeksema & Corte, 2004; Nolen-Hoeksema & Harrell, 2002).

We assumed that all men should experience some negative affect after stressful life events, but that men who adhere strongly to hegemonic masculinity norms will respond to this affect by engaging in numbing and avoidance behaviors consistent with masculine depression (Lynch & Kilmartin, 1999). We expected the Masculine Depression Scale (MDS) to exhibit a moderate correlation with established measures of depression because responses to negative affect should occur along a continuum rather than clustering into mutually exclusive categories. We also expected the MDS to correlate strongly with the somatic symptoms assessed by the traditional depression scales and weakly with the emotion-focused symptoms. Men who adhere to hegemonic masculine norms tend to endorse

somatic symptoms of depression and tend to avoid endorsing emotion related symptoms (e.g., crying frequently) (Hammen & Padesky, 1977; Salokangas, Pacriev, Sohlman, & Lehtinen, 2002). To further assess the scale's convergent validity, it was hypothesized that the MDS would correlate strongly with the Gotland Scale of Male Depression, because both of these scales purport to measure the same underlying construct. Finally, it was also expected that the MDS would correlate with measures of masculine norm socialization. We hypothesized that men who adhere strongly to masculine norms should be more likely to exhibit symptoms of masculine depression than those men who do not adhere strongly to these norms.

Construct validity was further evaluated by assessing whether men who adhere more strongly to masculine norms are more likely to exhibit symptoms of masculine depression than prototypic depression. Conversely, men who do not adhere strongly to masculine norms should be more likely to exhibit prototypic symptoms of depression.

Method

Participants

Participants were 102 men who had experienced a stressful life event during the past 3 months. Fifty-two of the men were recruited from a YMCA in an inner city area of a large city in the Northeast. The other 50 men were recruited from an outpatient clinic and a partial hospital treatment setting in the same city. The ages of the participants ranged from 18 to 65 years ($M = 35.75$, $SD = 12.05$). Participants identified their race themselves, and the racial distribution was as follows: 84% White, 4% African American, 4% Asian, 1% Hispanic, 1% Native American, and 6% "other." The average number of years of education was 15.87 ($SD = 3.08$) with a range from 8 to 26. Information regarding participant's socioeconomic level and marital status was not gathered.

Measure Development

The two authors independently reviewed the literature on men and depression and generated lists of hypothesized symptoms characteristic of

a masculine form of depression. The lists were compared and a final set of 16 symptom categories was agreed upon. Items were developed for each category including: (a) anger, aggression, irritability; (b) substance abuse; (c) withdrawal from family/social interactions; (d) overfocus on work/school; (e) blunting of affect; (f) inability or unwillingness to experience/express soft emotions; (g) loss of interest in succeeding; (h) aches and pains; (i) change in sexual desire; (j) stress intolerance; (k) difficulty with decision making; (l) need for autonomy/self-reliance; (m) worries about future; (n) self-criticism/sense of failure/ineffectualness; (o) externalizing/blaming; and (p) burden/disillusionment. Typical items for each category respectively are as follows: (a) "I've yelled at people or things;" (b) "I have been drinking a lot;" (c) "I've been keeping to myself;" (d) "It has been easier to focus on work or school than the rest of my life;" (e) "I've been numb;" (f) "I think about crying, but I can't cry;" (g) "I haven't been interested in getting ahead;" (h) "I've had unexplained aches and pains;" (i) "I haven't felt like a sexual man;" (j) "I am more tense than usual;" (k) "I don't feel as confident about my decisions;" (l) "I've needed to handle my problems on my own;" (m) "I feel like I won't be able to keep up with my responsibilities;" (n) "I am not the man I used to be;" (o) "I just can't win;" and (p) "I've felt like I have a heavy weight on my chest."

Upon examination of the literature on men's depression, it appeared that several symptoms associated with masculine depression are also present in traditional DSM depression (fatigue, somatic complaints, loss of libido). To determine if there is actually a "masculine depression" type, we created a measure of specifically those aspects of masculine depression that are either distinct from prototypic depression (e.g., substance abuse) or that overlap with symptoms of prototypic depression but may be expressed differently by men who strongly adhere to hegemonic masculinity norms (e.g., loss of libido expressed as "I've been inadequate sexually").

In deciding which items to retain from the initial pool of items we took into account input from several different sources: (a) expert ratings, (b) research team input, and (c) relevance to the literature. Our goal was to err on the side of being more inclusive than exclusive with

item retention, knowing that psychometric analysis would help us further eliminate items.

The items were reviewed with a group of graduate students who specialize in the study of masculinity and mental health. Items were added and revised based on their input. The initial pool of 64 items was sent to five experts who are widely recognized as either having published on men and depression, and/or having a reputation as skilled clinicians working with men. They were asked to review the items and rate each item on a scale of 1 through 4 (1 = not at all characteristic, 2 = somewhat characteristic, 3 = characteristic, 4 = very characteristic) based on their clinical experience and knowledge of the research literature. Experts were also asked to provide feedback on any missing items/symptoms that they thought should be included. The ratings of the experts were averaged and items with an average score of 3 or higher were retained. Based on these ratings, 57 out of the original 64 items were retained; 4 of the 57 items were reworded based on reviewer suggestions. Two items with an average rating lower than 3 were reworded and retained because of their relevance in the literature. Two additional items were added based on reviewer suggestion, and three items were excluded because of redundancy (similarity in content and wording).

The resulting scale was a 58-item measure tapping into symptoms of masculine depression. Participants were asked to rate how often each statement had been true for them in the past 2 weeks. The items were rated on a 4-point Likert scale (1 = none or little of the time, 2 = some of the time, 3 = most of the time, 4 = all of the time).

Additional Measures

The stressful life events checklist. The stressful life events checklist (Costello & Devins, 1988) was developed to screen for depressogenic stressful life events. The checklist assesses 22 potential stressful life events (e.g., death of spouse, serious chronic illness, loss of job, severe marital problems, unwanted pregnancy, etc.) and asks participants to check off any events that might have happened to them in the past 3 months. This measure was used to screen in individuals who had at least one depressogenic life event in the past three months.

The Psychiatric Disorders Screening Questionnaire (PDSQ). The PDSQ (Zimmerman & Mattia, 2001b) is a brief self-report measure used to screen for the presence of AXIS-I disorders. The reliability and validity of the PDSQ is well established (Zimmerman & Mattia, 2001a). In this study, the psychosis subscale was used to help screen out subjects who were acutely psychotic and not appropriate for participation in the study. Participants were asked to respond "yes" or "no" to six items assessing psychotic symptoms (i.e., "did you think that you were in danger because someone was plotting to hurt you?"). Participants who responded yes to any of the questions were not included in the study.

The Center for Epidemiological Studies Depression Scale (CES-D). The CES-D was developed by the Center for Epidemiological Studies (Radloff, 1977) to assess the severity of depression in the general population. It is a 20-item self-report measure of depressive symptomatology rated on a 4-point Likert scale (1 = "rarely or none of the time" to 4 = "most or all of the time"). The scale has excellent internal reliability (Cronbach's alpha ranging from .85 to .90) and test-retest reliability (.51 to .57) (Hann, Winter, & Jacobsen, 1999; Radloff, 1977). This scale exhibited excellent reliability (Cronbach's alpha = .91) in this study. This inventory was used for the purposes of assessing convergent validity of the MDS.

The Beck Depression Inventory (BDI). The BDI (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) is a 21-item self-report inventory that assesses depressive symptoms. Respondents are asked to rate each item on a 4-point continuum of severity. The BDI is one of the most widely used self-report measures of global depression; the reliability and construct validity of the measure have been well established (Ponterotto, Pace, & Kavan, 1989). In this study, the BDI exhibited excellent reliability (Cronbach's alpha = .93) and was used as the primary measure of depression and for the purpose of assessing convergent validity of the MDS.

The Gotland Male Depression Scale. The Gotland Male Depression Scale (Rutz, 1999) is a self-report measure aimed at assessing symptoms of a "male depressive syndrome," developed as part of an educational program on depression and suicide prevention on the Swedish island of Gotland. The scale is a 13-item measure rated on a

4-point Likert scale (0 = not present to 3 = present to a high degree). The scale has been validated in a number of studies and exhibits adequate reliability and validity (Möller-Leimkühler et al., 2004; Zierau et al., 2002), although there are some questions with the validity of the presented findings (see introduction). In this study, The Gotland male Depression Scale exhibited excellent reliability (Cronbach's alpha = .93). The Gotland Male Depression Scale was used for the purposes of assessing the construct validity of the MDS.

The Conformity to Masculine Norms Inventory (CMNI). The CMNI (Mahalik et al., 2003) is a 96-item self-report inventory that assesses the extent to which men conform to masculine norms. It consists of 11 factors: winning, emotional control, risk-taking, violence, power over women, dominance, playboy, self-reliance, primacy of work, disdain for homosexuals, and pursuit of status. This measure exhibits good internal consistency (Cronbach's alpha ranging from .72 to .91) and construct validity (Mahalik et al., 2003). In this study, the CMNI exhibited excellent reliability (Cronbach's alpha = .95) and was used as the primary measure of masculine norm socialization and for the purposes of validating the MDS.

The Male Role Norms Scale (MRNS). The MRNS (Thompson & Pleck, 1986) is a 25-item, self-report questionnaire. The MRNS measures masculine ideology, or men's beliefs about what it means to be a man. This scale consists of three subscales: status norms, toughness norms, and antifemininity norms. The total score on the scale can also be used as a measure of masculinity ideology (Abreu, Goodyear, Campos, & Newcomb, 2000; Sinn, 1997). The reliability of the items is good (ranging from .74 to .81), and the construct validity of the measure has been established (Thompson, Pleck, & Ferrera, 1992). In this study the MRNS exhibited excellent reliability (Cronbach's alpha = .92) and was used for the purposes of validating the MDS.

Procedure

We recruited a sample of men who were at risk for depression as a result of recent stressful life events. This method was preferable to recruiting men who were currently diagnosed with depression because existing diagnostic measures of depression do not capture aspects of the masculine depression construct. Thus,

requiring that participants meet criteria for depression would create a selection-bias that effectively excluded the very participants for whom the measure is relevant.

Recruiting men from lower socioeconomic strata increases the chances that the men were experiencing depressive affect, as lower socioeconomic status has been related to depression (Honkalampi et al., 2004). In addition, men who had experienced a stressful life event were recruited because stressful life events have been associated with depression (Honkalampi et al., 2004; Hammen, Mayol, deMayo, & Marks, 1985). By targeting this specific population, the hope was to increase the probability that the recruited men were experiencing some distress and depressive symptoms.

We also recruited a subsample of men who were in treatment for psychological problems. The reasons for recruiting men in treatment were twofold: First, the hypothesis was that men who adhere more strongly to masculine norms are more likely to exhibit masculine depression. Conversely, men who adhere less to traditional masculine norms should be more likely to exhibit prototypic forms of depression. By including men who are less resistant to help-seeking, we hoped to include men who are less likely to adhere to traditional masculine norms and who were more likely to exhibit prototypic depression. Second, severity of depression has been related to likelihood of seeking help (Cramer, 1999; Kessler et al., 1999). By including men who had sought help for their problems, we increased the range of severity of depression in the sample. It has been postulated that masculine depression is most evident in men with low to moderate levels of depression (Möller-Leimkühler et al., 2004).

Recruitment Through the YMCA of Greater Boston

Participants were recruited at the YMCA and were offered \$5 for their participation. A table was set up in the lobby by the primary investigator and participants were asked to fill out the screening questionnaires. If the screening criteria were met (at least one stressful life event in the past 3 months and no psychotic symptoms) participants were asked to complete a packet consisting of the BDI, CES-D, CMNI, MRNS, Gotland Scale, and the MDS. Out of the 119

subjects who consented to participate in the study, 52 endorsed recent stressful life events and no psychotic symptoms and were included in the study.

Recruitment at the Community Health Center and the Partial Hospital Program

The men in mental health treatment were approached either by their primary therapist or by the principal investigator and were asked for their consent to participate in the study. Out of the 52 subjects who consented to participate in the study, 50 met the inclusion criteria (at least one stressful life event in the past 3 months and no current psychotic symptoms) and were included in the study. Participants were entered into a lottery to win a \$20 gift certificate to a local restaurant.

Participation in the study was entirely voluntary and confidential, and the study and procedures were approved by the Hospitals' and the University's Institutional Review Boards.

Results

Initial Factor Analysis of the MDS

As discussed above, when generating items for the MDS 16 types of possible symptom areas were extrapolated. It was possible that the items would cluster into a single factor or multiple factors. Thus, we began by conducting an exploratory factor analysis of the MDS items to condense item scores and determine to how many factors underlie the variance in response to individual items.

We followed an iterative process for exploring the factor structure of the MDS, focusing on the interpretability and statistical reliability of different potential solutions (DeVellis, 1991). The use of a factor analysis with a sample size of 102 is not ideal. Therefore, the correlation matrix of the items was examined, and Bartlett's test of sphericity and Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) were conducted. Upon examination of the results, the correlation matrix included a number of intercorrelations above .30, the KMO value was greater than .60 (KMO = .84). Bartlett's test of sphericity was significant, indicating that factor analysis was appropriate (Tabatchnik & Fidell, 2001). Items were reviewed for adequate variance

and range one item that did not have adequate variance and range was eliminated.

The initial analysis yielded a 13-factor solution with eigenvalues greater than 1 and accounted for 76.6% of the variance. Extracting factors purely based on eigenvalues greater than 1 typically yields more factors than can be interpretable theoretically (DeVellis, 1991); therefore, we decided to examine the scree plot for the 13-factor solution. Upon examination of the scree plot a 2- or 3 -factor solution was assumed to be the best approximation of the MDSs structure (Cattell & Vogelmann, 1977). A second analysis was performed with a specified 3-factor solution. This 3-factor solution accounted for 51% of the variance, but presented interpretive obscurity based primarily on items clustering on the third factor. A 2-factor solution was assumed the best approximation of the MDSs structure. The resulting matrix was initially obliquely rotated to allow for the possibility of correlated factors. This solution was also theoretically problematic to interpret. The resulting 2-factor solution was then orthogonally rotated to increase the interpretability of the factors. After rotation, the 2-factor solution accounted for 46% of the variance, was interpretable theoretically, and included 44 out of the original 58 items. Items were retained if they loaded at least .35 on one factor but did not load higher than .35 on both factors.

The first factor included 33 items, accounted for 35% of the variance, and included the following symptoms: withdrawal from family/social interactions; blunting of affect; inability or unwillingness to experience/express soft emotions; loss of interest in succeeding; aches and pains; change in sexual desire (decreased); stress intolerance; difficulty with concentration/decision making; worries about future; self-criticism/sense of failure/ineffectualness; burden/disillusionment (internalized). The second factor included 11 items, accounted for 11% of the variance, and included the following symptoms: anger, aggression, irritability; substance abuse; overfocus on work/school; change in sexual desire (increased); need for autonomy/self-reliance; burden/disillusionment (externalized). The burden/disillusionment symptom category was present in both factors. However, Factor I included symptoms that were focused on internal experiences (e.g., "I've felt like I am in a pit;" "I've felt trapped); whereas Factor II included an

item that was focused on the external world (e.g., "I've been under constant pressure").

The first factor seemed to measure internalizing symptoms, whereas the second factor seemed to measure externalizing symptoms as well as a focus on external factors (e.g., work or school, outside pressure), and a disengagement from relationships (e.g., focus on work or school, handling problems on own). The items, factor loadings, cross-loadings, internal consistency coefficients and measures of central tendency are presented in Table 1.

Primary Results

Reliability of the MDS. Correlational analyses were performed to examine the relationship of the two factors to the scale as a whole (see Table 2). The strength of all correlations in the study was determined as follows: weak $.10 < r < .29$; moderate $.30 < r < .49$; high $.50 < r < 1.0$ (Cohen, 1988). The scale as a whole and Factor I of the scale were highly correlated ($r = .98, p < .01$). Factor II was moderately, but significantly, correlated with Factor I ($r = .40, p < .01$) and highly correlated with the scale as a whole ($r = .57, p < .01$). The internal consistency coefficient for the scale as a whole was .95 and the internal consistency coefficients for Factor I and Factor II were .96 and .77, respectively. Based on the factor analysis and the correlational analysis, it appeared that the MDS tapped into internalizing and externalizing symptoms and that these symptoms are related but distinct from each other. For this reason, further analyses were not conducted on the scale as a whole. Factor I and Factor II of the scale were examined separately.

Preliminary analysis. We ran correlational analyses to examine the relationship between the MDS subscales and the demographic variables (see Table 3). These analyses were run to determine whether any of the demographic variables needed to be controlled for in further analyses. Level of education was weakly inversely correlated ($r = -.23, p < .05$) with Factor I of the MDS, whereas population was highly correlated ($r = .52, p < .01$) with Factor I of the MDS, indicating that the clinical population was associated with higher scores on factor I of the MDS. Factor II of the MDS was not significantly correlated with any of the demographic variables.

Convergent validity of the MDS. To evaluate the convergent validity of the scale, several additional correlational analyses were conducted. We tested the hypothesis that both factors of the MDS would be moderately correlated with the BDI and the CES-D and with measures of hegemonic masculinity (CMNI and MRNS), whereas they would be highly correlated with the Gotland Scale for Masculine Depression (see Table 4). We also examined the hypothesis that the MDS would be highly correlated with the physical symptoms of depression as measured by the BDI but not significantly correlated with emotional symptoms of depression as measured by the BDI (see Table 4).

The internalizing factor of the MDS did not follow the pattern of correlations that had been hypothesized. Factor I of the MDS was highly correlated with measures of depression, but it was not significantly correlated with measures of hegemonic masculinity. Factor I did show convergent validity with the Gotland Scale for Masculine Depression ($r = .76, p < .01$). Factor II of the MDS (externalizing subscale) correlated with the other measures in a manner more consistent with the hypotheses (moderate correlations with measures of depression, hegemonic masculinity, and the Gotland Scale).

To examine the hypothesis that men who endorse symptoms on the MDS would be more likely to endorse physical rather than emotional symptoms on the BDI, we calculated the statistical significance of the difference between the correlation coefficients (r to z transformations) for Factor II correlations with the physical and emotional symptoms on the BDI. There was no difference in the strength of the relationship between externalizing symptoms on the MDS and physical or emotional symptoms on the BDI ($z = 0.39$). Descriptive statistics for all scales across both populations and for the normal and clinical population separately are presented in Table 5.

Construct Validity of the MDS

Independent sample t tests were conducted to compare the BDI, CMNI, and MDS scores for the clinical and nonclinical samples to examine any differences that might influence the results of further analyses. As expected, the clinical sample reported higher scores on the BDI ($M = 22.6, SD = 10$) than the nonclinical sample ($M = 8.4,$

Table 1
MDS Factors, Items, Percentages of Variance, Means, SDs, and Internal Consistency Coefficients

Factor 1-Internalizing (33 items)	% Variance	Alpha	Mean	SD	Factor loadings	
	.35	.96	59.23	20.7	Factor 1	Factor 2
I don't feel as powerful			1.90	.95	.85	.10
I've felt trapped			2.02	1.05	.84	.18
When I am with people I don't feel part of things			1.84	.90	.81	.00
I haven't measured up			1.91	.96	.81	.18
I don't feel as confident about my decisions			1.92	.99	.80	.00
I've felt like I am in a pit			1.90	1.03	.80	.12
The odds are against me			1.82	1.08	.80	.14
I've felt like things are out of my control			2.01	.93	.80	.22
I just can't win			1.79	.92	.78	.16
I've been less interested in succeeding			1.73	.88	.76	.16
I am more tense than usual			1.99	.87	.76	.28
I feel like I won't be able to keep up with my responsibilities			2.03	.98	.74	.19
I've felt like I have a heavy weight on my chest			1.84	.99	.74	.27
I've failed a lot			1.70	.90	.71	.17
I haven't been interested in getting ahead			1.81	.95	.69	.00
I am not the man I used to be			1.88	1.06	.67	.14
I haven't felt anything			1.64	.87	.66	.18
I've pulled back from family and friends			1.91	.93	.66	.26
People don't understand what is going on with me			2.11	.93	.64	.26
I've been numb			1.66	.79	.62	.00
I've had unexplained aches and pains			1.54	.87	.62	.10
I've been keeping to myself			2.22	.94	.62	.17
I keep hitting a wall			1.41	.74	.60	.00
I've had lots of reasons to cry, but I haven't cried			1.69	.95	.58	.11
I haven't felt like a sexual man			1.72	.99	.58	-.16
My muscles have been tense			1.85	.86	.56	.32
I've been inadequate sexually			1.67	1.00	.55	.00
No one gives me a break			1.53	.75	.54	.27
I am down but it seems best to keep it to myself			1.79	.86	.53	.19
I think about crying, but I can't cry			1.53	.76	.50	.18
I've been concerned about my performance sexually			1.59	.82	.44	.00
I've gotten frequent headaches			1.46	.76	.44	.20
My body has been aching			1.82	.90	.38	.19
			% Variance Alpha Mean SD Factor Loadings			
Factor 2-Externalizing (11 items)	11	.77	17.46	4.62	Factor 1	Factor 2
I've yelled at people or things			1.66	.77	.18	.64
I've had a short fuse			1.70	.84	.34	.63
I got so angry I smashed or punched something			1.18	.52	.00	.57
I don't get sad, I get mad			1.47	.76	.23	.57
I have been drinking a lot			1.35	.63	-.17	.55
I have used recreational drugs a lot			1.14	.51	-.25	.53
It has been easier to focus on work or school than the rest of my life			1.84	.93	.00	.50
Alcohol or drugs have helped me feel better			1.36	.70	.00	.49
I've been under constant pressure			2.18	.90	.32	.49
I've needed to handle my problems on my own			2.20	1.03	.23	.45
I've needed more sex than usual to feel good			1.38	.71	.18	.40

SD = 5.8; $t(100) = 8.8, p < .01$). The nonclinical sample scored higher on the CMNI ($M = 221.4, SD = 29.4$), than the clinical sample ($M = 206.1, SD = 31.2; t(100) = 2.55, p < .05$). The clinical

sample scored higher on Factor I (normalized score) ($M = .53, SD = 1.1$) than Factor II (normalized score) ($M = -.01, SD = .91; t(49) = .39, p < .001$) of the MDS, whereas the nonclinical

Table 2
Correlations Between the MDS and Its Subscales

Variable	1	2	3
1. MDS	—		
2. MDS Factor I	.98**	—	
3. MDS Factor II	.57**	.40**	—

Note. MDS = Masculine Depression Scale total score, MDS Fact I = Masculine Depression Scale factor I score (internalizing), MDS Fact II = Masculine Depression Scale factor II score (externalizing).

$n = 102$ in all cases.

* $p < .05$. ** $p < .01$.

sample scored higher on Factor II (normalized score) ($M = .01$, $SD = 1.09$) than Factor I (normalized score) ($M = -.51$, $SD = .60$; $t(51) = -.40$, $p < .001$) of the MDS.

Hierarchical regressions were performed to test the hypothesis that men who scored higher on the CMNI would have higher scores on the MDS than on the BDI. To test this hypothesis, the difference score between normalized MDS Factor I scores (internalizing symptoms) and normalized BDI scores was calculated. This score was used as the criterion variable in the equation, and the CMNI score was the predictor variable. To control for confounding variables, the population variable and the level of education were entered first into the regression equation. The regression analysis is presented in Table 6. Step 1 had an $R^2 = .05$, (adjusted $R^2 = .03$), $F(1, 100) = 2.70$, $p = .07$, indicating that neither the level of education nor the population variable made a significant unique contribution. Scores on the CMNI were entered second into the equation and did not contribute significantly. The results indicated that adherence to hegemonic masculine norms does not account for the discrepancy between internalizing symptoms and prototypic depression scores.

The second hierarchical regression was performed to test the hypothesis that men who score higher on the CMNI would score higher on Factor II than on the BDI (see Table 7). Because Factor II of the MDS did not correlate significantly with any of the demographic variables we did not control for any of the variables in this regression equation. The CMNI scores explained 17.7% of the variance, which was statistically significant, $F(1, 100) = 21.47$, $p < .001$. This analysis indicated that men who scored higher on the CMNI (higher level of

conformity to hegemonic masculine norms) tended to have higher scores on the externalizing subscale of the MDS than on the BDI.

To further evaluate construct validity, we tested the hypothesis that symptoms of masculine depression would be more evident in men with low to moderate levels of prototypic depression than in men with high levels of prototypic depression. To test this hypothesis, independent sample t tests were conducted to compare the difference in the internalizing and externalizing scores on the MDS for men with high and low scores on the BDI (BDI score of 19 or less indicated low/moderate levels of depression, and BDI score of 20 or more indicated high levels of depression). Contrary to our hypothesis, we found a significant difference on Factor I scores between men who scored lower on the BDI (Factor I: $M = 48.38$, $SD = 11.53$) and men who scored higher on the BDI (Factor I: $M = 80$, $SD = 18.37$; $t(100) = -9.28$, $p < .001$). Additionally, we found a significant difference on Factor II between men who scored lower on the BDI (Factor II: $M = 16.65$, $SD = 4.44$) and men who scored higher on the BDI (Factor II: $M = 19.15$, $SD = 4.58$; $t(100) = -2.65$, $p < .01$) indicating that men with higher levels of prototypical depression also exhibited more internalizing and externalizing symptoms. However, the magnitude of the difference in the means for Factor I was large ($\eta^2 = .46$) whereas the magnitude in the difference of the means for Factor II was moderate ($\eta^2 = .07$).

Table 3
Correlations Between the MDS Subscales and Demographic Variables

Variable	1	2	3	4	5	6
1. MDS Factor I	—					
2. MDS Factor II	.40	—				
3. Population	.52**	-.01	—			
4. Age	.17	-.18	.37**	—		
5. Education	-.23*	-.04	-.24*	.04	—	
6. Race	.14	.05	.26**	-.03	.10	—

Note. MDS Fact I = Masculine Depression Scale factor I score (internalizing), MDS Fact II = Masculine Depression Scale factor II score (externalizing), Population = normal versus clinical, Age = participants age, Education = years of education (12 = High School), Race = participants race (1 = Asian, 2 = black, 3 = Native American, 4 = Pacific Islander, 5 = Hispanic, 6 = White, 7 = other).

Table 4
Correlations Examining Convergent Validity of the MDS

Variable	1	2	3	4	5	6	7	8	9
1. BDI	—								
2. BDI Phys	.84**	—							
3. BDI emot	.98**	.70**	—						
4. CES-D	.88**	.67**	.88**	—					
5. MRNS	.06	.06	.05	-.01	—				
6. CMNI	.00	-.00	.00	-.01	.65**	—			
7. Gotland	.85**	.69**	.84**	.83**	.12	.17	—		
8. MDS Fact I	.80**	.64**	.80**	.81**	.15	.06	.76**	—	
9. MDS Fact II	.36**	.37**	.32**	.33**	.42**	.48**	.46**	.40**	—

Note. BDI = Beck Depression Inventory Total Score, BDI Phys = Beck Depression Inventory physical symptoms (items 11,15,16,17,18, and 20), BDI emot = Beck Depression inventory emotional symptoms (all other items), CES-D = Center for epidemiological studies depression scale total score, MRNS = Male role norms scale total score, CMNI = Conformity to masculine norms scale total score, Gotland = Gotland Scale of masculine depression, MDS Fact I = Masculine Depression Scale factor I score (internalizing), MDS Fact II = Masculine Depression Scale factor II score (externalizing).

n = 102 in all cases.
* p < .05. ** p < .01.

Discussion

The primary goal of this study was to develop a psychometrically sound measure that would capture symptoms of masculine depression as identified in the clinical literature (Cochran & Rabinowitz, 2000; NIMH, 2003; Pollack, 1998; Real, 1997; Warren, 1983). We assumed that men who adhered to hegemonic masculine norms and were at risk for experiencing depressive affect as a result of stressful life events would be more likely to exhibit symptoms of masculine depression as measured by the MDS. Additionally, those men who did not adhere to hegemonic masculine norms would be more likely to exhibit symptoms of prototypic depression.

The 2-factor solution of the measure exhibited good internal consistency and captured externalizing and internalizing symptoms. Both of the

factors were highly correlated with the scale as a whole and were moderately correlated with each other, suggesting that the scale is tapping into two related but separate constructs. Items on the internalizing subscale did not follow the gender-based pattern we had hypothesized. However, items on the externalizing scale followed the pattern we had hypothesized as related to hegemonic masculine norms and depression.

Masculine Depression and the Internalizing Symptoms Subscale

We found some indication that the internalizing symptoms on the MDS may be measuring symptoms of prototypic depression. Men who endorsed internalizing symptoms on the MDS were also likely to endorse symptoms on the BDI, but they were not more likely to adhere to hegemonic

Table 5
Descriptive Statistics for the BDI, CES-D, CMNI, MRNS, Gotland Scale, MDS Factor I and II for the Normal and Clinical Sample and for the Samples Combined

Variable	Normal (N = 52)			Clinical (N = 50)			Combined (N = 102)		
	Range	Mean	SD	Range	Mean	SD	Range	Mean	SD
BDI	0–26	8.40	5.80	3–45	22.62	9.98	0–45	15.37	10.78
CES-D	11–53	31.88	8.29	25–68	26.60	11.04	11–68	39.10	12.18
MRNS	34–153	95.48	27.78	37–137	87.44	25.68	34–153	91.54	26.94
CMNI	146–324	221.42	29.39	116–275	206.14	31.18	116–324	213.93	31.09
Gotland	13–33	19.63	5.04	14–49	29.66	9.37	13–49	24.55	9.00
MDS I	33–84	48.56	12.50	37–120	69.94	21.94	33–120	59.04	20.68
MDS II	11–32	17.54	5.08	11–28	17.42	4.15	11–32	17.48	4.62

Table 6
Hierarchical Regression Examining Predictive Value of Population and CMNI for Difference Score Between the BDI and Factor I

Step/variable	R	R ²	ΔR ²	F	FΔ	β	t
Step 1/PopEd	.23	.05	.03	2.70	2.70	-.22	-2.17
Step 2/CMNI	.23	.05	.02	1.83	.16	.04	.40

Note. PopEd = population (1 = normal, 2 = clinical) and level of education (number of years in school); CMNI = Conformity to masculine norms inventory.

n = 102 in all cases.

*p < .05, **p < .01.

masculine norms. Men who endorsed a higher adherence to hegemonic masculine norms endorsed both internalizing symptoms and symptoms of prototypic depression. Additionally, men who endorsed high levels of prototypic depression endorsed more internalizing symptoms on the MDS than men who endorsed low levels of prototypic depression. Finally, the internalizing subscale of the MDS was highly correlated with the Gotland Scale for Male Depression (Rutz, 1999), more so than the externalizing subscale.

There are a number of interpretations of these findings. First, internalizing symptoms as measured by the MDS may be tapping into aspects of prototypic depression. This is supported by the high correlation between this subscale and the Gotland Scale that was developed and evaluated in a population of men in inpatient treatment who presented symptoms more consistent with prototypic depression. In addition, the internalizing and externalizing subscales on the MDS were moderately correlated in the present study. Considering the validity of masculine depression as a construct, both of these findings are consistent with an underlying continuum of depressive response styles ranging from internalizing to externalizing, rather than discrete categories (Addis, in press).

Second, symptoms that have been identified in the literature as aspects of masculine depression (withdrawal from family/social interactions; blunting of affect; inability or unwillingness to experience/express soft emotions; loss of interest in succeeding; etc.; see Cochran & Rabinowitz, 2000; Pollack, 1998) may be symptoms that accompany prototypic symptoms of depression in some men. In other words, based on the wording of the items, the MDS may be capturing additional internalizing

symptoms that accompany prototypic depressive symptoms in men. Third, the internalizing symptoms on the MDS may reflect men's experience of depressive affect rather than their response to it. In this study, masculine depression was conceptualized as a response to the intensification of depressive affect rather than men's experience of this affect. Therefore, the internalizing symptom subscale may not be good at distinguishing between prototypic and masculine depression as conceptualized in this study (as a response to depressive affect).

Masculine Depression and the Externalizing Symptoms Subscale

Based on our findings, it appears that the externalizing symptoms subscale may be measuring symptoms of depression associated with masculinity. Externalizing symptoms on the MDS were only moderately related to prototypic depressive symptomatology and were related to men's adherence to hegemonic masculine norms. Furthermore, men who adhered more strongly to hegemonic masculine norms were more likely to endorse externalizing symptoms than symptoms of prototypic depression. More specifically, men who had experienced a stressful life event in the past three months and who endorsed higher adherence to hegemonic masculine norms were more likely to report externalizing symptoms than symptoms of prototypic depression.

These findings may support our hypothesis that men who experience an increase in depressive affect (but do not meet criteria for a depressive episode) may become more likely to avoid or numb this affect by engaging in externalizing behaviors; these behaviors may be a central component of "masculine depression." Alternatively, these findings may also indicate that men are more

Table 7
Hierarchical Regression Examining Predictive Value of CMNI for Difference Score Between the BDI and Factor II

Variable	R	R ²	F	β	t
CMNI	.42	.18	21.47**	.42	4.63

Note. CMNI = Conformity to masculine norms inventory. n = 102 in all cases.

*p < .05, **p < .01.

likely to engage in externalizing behaviors as a way of coping with symptoms of a prototypic depressive episode (as defined by *DSM-IV-TR* criteria). Unfortunately, this study was not set up to examine the function of externalizing symptoms. It is therefore not possible to state definitively whether externalizing items on the MDS are tapping into an aspect of masculine depression, or into coping strategies for prototypic depression for those men who strongly adhere to hegemonic masculine norms. However, the findings do suggest that the men in this study respond to stressful life events in two distinctive ways. It appears that those men who are more likely to adhere to hegemonic masculine norms are more likely to respond to difficult emotional experiences by acting out (e.g., alcohol consumption, aggression). Those men who are less likely to adhere to hegemonic masculine norms respond to difficult emotional experiences by acknowledging feelings of powerlessness, emptiness, and isolation.

In summary, it appears that the level of adherence to hegemonic masculine norms does explain some variability in men's depressive symptom presentation. Men who are more likely to adhere to hegemonic masculine norms are more likely to exhibit externalizing symptoms than symptoms of prototypic depression following stressful life events. Those men who respond to stressful life events by exhibiting symptoms of prototypic depression are also likely to exhibit internalizing symptoms as measured by the MDS. Based on the findings, it appears that the internalizing symptoms subscale of the MDS may be measuring prototypic depression, whereas the externalizing subscale may be measuring an alternative response pathway to stressful life events. It is important to note that the findings suggest that these are overlapping rather than discrete symptom presentations. Thus, to the degree that the findings support the validity of "masculine depression" as a form of depression, they suggest that it lies on a continuum with more prototypic forms.

Despite the difficulty in discerning whether the externalizing scale is measuring an aspect of masculine depression or a form of coping with prototypic depression, the results indicate that men who adhere to hegemonic masculine norms are more likely to endorse externalizing symptoms than symptoms of prototypic depression. Although we are not able to make any definitive statements about the relationship between ex-

ternalizing symptoms and masculine depression, the MDS still offers a practical advantage: It measures both internalizing and externalizing symptoms. Consequently, it may be useful clinically in addressing a wider range of indicators of distress in traditional men.

This study takes a first step toward examining how men who adhere to hegemonic masculine norms respond to difficult life events. With additional psychometric validation, the MDS may prove to be a useful tool for assessing men's experience and manifestation of depression by measuring both prototypic (internalizing symptoms) and masculine depression (externalizing symptoms). It appears that the externalizing subscale of the MDS may be measuring aspects of masculine depression; yet before any definitive statements can be made about the validity of the construct of masculine depression, future studies must answer the questions that are left unanswered by this study. First, the factorial validity of the measure needs to be assessed in a larger sample of men with a wide range of adherence to masculine norms. The two-factor solution in the current study makes conceptual sense but was based on a relatively small sample size. Second, the clinical utility of the measure needs to be assessed. For example, is it helpful in diagnosing depression in men who would otherwise be missed with traditional measures? Furthermore, to gain a better understanding of the way men experience depression future studies should attempt to examine at what point masculinity proscriptions occur. Do men experience depression in the prototypical way but don't admit to it when interviewed because of adherence to proscriptive masculinity norms, or does adherence to proscriptive masculinity norms cause men to experience depression differently?

Limitations

In addition to the limitations stated above, this study measured adherence only to hegemonic masculine norms, defined as those that are most dominant in Western culture at this point in history. There are other forms of masculinity that are variable along cultural, racial, and ethnic dimensions that may have different associations with the way men experience, express, and respond to depression (Abreu et al., 2000; Kimmel, 2000; Lane & Addis, 2005). Future studies should examine the way that gender, as a sociocultural process,

impacts individual's responses to and enactments of depressive affect. Qualitative studies might examine the way that enactments of masculinities and enactments of depressive symptomatology interact and affect one another.

It would also be helpful to examine the validity of the MDS in a female sample. In this study we found that scores on the MDS were linked to individual differences in adherence to hegemonic masculinity norms and may not be the product of sex differences; it would be important to examine how women who adhere to hegemonic masculinity norms respond to depressive affect. To increase the generalizability of the findings it would also be important to test the validity and reliability of the measure in a larger sample.

The samples in this study were predominantly Caucasian, though it included men from various age groups and educational backgrounds. It is important that future studies examine the way that masculinities may influence responses to depressive affect in different cultures and among different races. Testing the validity and reliability of the measure in a more diverse sample would allow for assessment of the generalizability of the findings.

Finally, although the patterns of relationships between the externalizing subscale of the MDS and other measures followed our underlying model of masculine depression, based on the findings from this study it is not possible to know for sure whether this subscale is measuring externalizing symptoms of masculine depression, or simply externalizing behaviors in general. A key question is whether men who are scoring higher on this subscale are indeed experiencing either (a) an underlying/undiagnosed depression, or (b) depressed or other negative affect. Longitudinal studies that trace the chronological relationship between negative affect and externalizing symptoms would be helpful in teasing this apart.

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