BREAKING DOWN BARRIERS: RE-CONCEPTUALIZING SOCIAL PAIN TO

INCREASE POSITIVE ATTITUDES TOWARD PROFESSIONAL HELP-SEEKING

by

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ABTRACT OF THE DISSERTATION

Breaking down barriers: Re-conceptualizing social pain to increase positive attitudes

toward professional help-seeking

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Men are more likely than women to commit suicide, but are resistant to seeking

psychological care. This dissertation explored whether men avoid psychological care to

avoid masculinity loss, and whether changing the way social pain is conceptualized could

minimize masculinity loss while increasing positive attitudes toward psychological care.

Study 1 examined masculinity loss by asking participants to rate the masculinity of

targets in a 2 (target gender) x 2 (physical versus social pain) x 2 (help-seeking, no help-

seeking) design. Regardless of target gender, masculinity loss was present in targets

seeking help for social and physical pain (relative to non-help-seekers), though the effect

was larger for social pain. The effect was limited to masculine prescriptions. Study 2

attempted to minimize masculinity loss by re-conceptualizing social pain as similar to

physical pain using a 2 (target gender) x 2 (pain prime, control prime) x 2 (help-seeking,

no help-seeking) design. The pain prime decreased masculine proscriptions in men

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relative to women, independent of help-seeking. Participants rated male targets (relative to female) and non-help-seekers (relative to help-seekers) as more masculine. Study 3 explored whether re-conceptualizing social pain could improve attitudes and behavior toward psychological care in men and women. The pain prime had no effect on attitudes or behavior related to psychological care in Study 3. These studies failed to fully support the theory that men seek psychological care less than women to avoid losing masculine capital though there was evidence that help-seeking resulted in masculinity loss for both men and women.

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Introduction

Mortality data suggested males can expect to die approximately five years sooner than females (Kochanek, Xu, Murphy, Minino, & Kung, 2011). While leading causes of death between men and women have varied over the past decade (Heron, 2007; Murphy, Xu, & Kochanek, 2013), men have consistently outranked women in death by suicide. Prior research has demonstrated that men are less likely to seek help for health symptoms than women and are particularly resistant to seeking help for psychological health problems (Addis & Mahalik, 2003; Mansfield, Addis, & Mahalik, 2003). Differences in help-seeking are tied to masculinity and likely lie, in part, with men wanting to avoid appearing weak (Addis & Mahalik, 2003; Himmelstein & Sanchez, 2014; Mansfield et al., 2003). These studies examined whether men received downgrades in masculinity for seeking psychological health care and whether re-conceptualizing the way men think about social pain could shift these potential downgrades in masculinity. It was hypothesized that masculinity would decrease as a function of help-seeking and pain, such that men would perceived as less masculine when they sought help for social pain (versus not), but would not receive a masculinity penalty for seeking help for physical pain (Study 1). It was expected that conceptualizing social pain as similar to physical pain would help shift masculinity downgrading after seeking help for social pain (Study 2) and increase positive attitudes toward seeking psychological health-care (Study 3).

Gender and Health Disparities

Men and women differ on a number of outcomes related to health behaviors which all likely partially contribute to disparities in disease burden by gender. In terms of nutrition, males were less likely than females to eat fruits and vegetables and limit intake

of salt, sugar, fat, fried food and red meat (Courtenay, Mccreary, & Merighi, 2002; Dinger & Waigandt, 1997; Steptoe & Wardle, 2001). Likewise, men were less likely than women to take daily vitamins and dietary supplements, wear protective clothing in the sun, engage in regular preventative health care (e.g., self-testicular exams) and get an adequate amount of sleep (Courtenay et al., 2002; Courtenay, 2003). Related to engaging in risky health behavior, men perceived less risk of developing health problems as a result of behavioral factors (e.g., less perceived risk of developing skin cancer from sun exposure, lung cancer from smoking, contracting an STI from unprotected sex), which may partially explain some of the differences in rates of risky health behavior between men and women (Courtenay, 2003). Men across age groups had higher rates of smoking, alcohol use, and marijuana use compared to women (Courtenay et al., 2002; Cranford, Eisenberg, & Serras, 2009; Steptoe & Wardle, 2001). Men were also more likely than women to use alcohol and other substances to cope with stress, putting them at greater risk for developing problems with substance abuse and dependence (Courtenay, 2003; Cranford et al., 2009). In terms of risk-taking behaviors, men were more likely than women to drive recklessly and get into physical fights, and rates of physical abuse and violence victimization were fifty percent higher for adolescent boys compared to adolescent girls (Courtenay, 2003). Though most health disparities in gender relating to health behaviors favor women (i.e., putting men at greater risk), men were more likely to engage in regular physical exercise compared to women (Dinger & Waigandt, 1997; Steptoe & Wardle, 2001).

Despite the laundry list of differences in health behavior which put men at higher risk for disease, men also face significant barriers toward seeking healthcare and social

support. Differences in social support start early and continue through adulthood. Chandra and Minkovitz (2006) found eighth grade girls were more likely than boys to turn to peers and parents for social support during times of need and a larger number of eighth grade boys (compared to eighth grade girls) reported not having someone to turn to for support with problems. Similarly in a nationally representative sample of adults, Sandman and colleagues (2000) found approximately twelve percent of men reported having no one to turn to in terms of times of stress. Courtenay (2003) related these findings to men having smaller social networks than women, but also noted that lack of social support is a direct risk factor for mortality during times of stress and illness in men. Barriers to seeking social support and psychological care may relate to fear of being viewed as weak; even in a sample of eighth grade students, boys associated stigma with seeking psychological care more than girls of the same age (Chandra & Minkovitz, 2006).

Differences in help-seeking by gender extend beyond simple differences in social support. In a nationally representative survey of adults, one third of men did not have a regular doctor and women were twice as likely as men to have seen a doctor in the past year (Sandman et al., 2000). Issues in help-seeking were not simply related to ease of access to care, sex-specific care, or having a regular physician. Among college students, females were more likely to search for health-related information online compared to males (Escoffery et al., 2005). Women were much more likely than men to receive regular screenings for cancer, have a regular physical exam, and have regular screenings of cholesterol and blood pressure (Courtenay, 2003; Sandman et al., 2000). Even in the face of acute need men were more likely to delay care than women for illness or injury

(Sandman et al., 2000) and psychological health problems (Addis & Mahalik, 2003; Berger, Levant, McMillan, Kelleher, & Sellers, 2005; Courtenay, 2003) even when admitting they should seek care for their problem (Sandman et al., 2000).

In regard to self-reported health, men rated themselves higher than women which might explain some of the differences in help-seeking (Courtenay, 2003). Similarly, in medical settings men reported fewer health symptoms than women and even at equivalent physiological markers of physical stress men reported less distress and discomfort than women (Addis & Mahalik, 2003; Courtenay, 2003). Men had higher rates of chronic problems with blood pressure and cholesterol, which is not surprising given both lack of preventative screenings and risky dietary behaviors (Courtenay, 2003; Sandman et al., 2000).

Perhaps some of the largest and most consistent gender differences in health, though, surround psychological health and psychological care. Over the past fifty years, women have held consistently higher rates of depression and anxiety compared to men; while men outrank women in substance abuse and dependence (Addis & Mahalik, 2003; Cranford et al., 2009; Seedat et al., 2009). Research on mental illness stigma by gender has been mixed. Men perceived greater mental illness stigma than women (Chandra & Minkovitz, 2006; Eisenberg, Downs, Golberstein, & Zivin, 2009) and some research suggests men experienced greater mental illness stigma than women (Phelan & Basow, 2007; Reavley & Jorm, 2011; Schnittker, 2000) while others suggested no variation in mental illness stigma by gender (Moss-Racusin & Miller, 2015). Men were viewed as more dangerous relative to women when they experienced schizophrenia (Schnittker, 2000), depression (Phelan & Basow, 2007), substance dependence (Phelan & Basow,

2007), social phobia (Reavley & Jorm, 2011), and post-traumatic stress disorder (Reavley & Jorm, 2011). However, depressed men were not rated as less hirable or less competent than depressed women (Moss-Racusin & Miller, 2015). Many differences in health status, not least of which are differences in psychological health status (i.e., greater depression in women and greater substance abuse in men), can be tied back to social constructions of gender (Courtenay, 2003; Rosenfield & Mouzon, 2013). These health differences likely result, at least in part, from masculinity beliefs which encompass rigid gender prescriptions and proscriptions dictating both traits and behaviors that are appropriate for men and women.

Masculinity and Health

Masculinity encompasses prescriptive and proscriptive gender stereotypes (Prentice & Carranza, 2002) describing how men should be and how they should act (prescriptions) as well as what men should not be how they must not act (proscriptions). Masculinity prescribes men to be independent, self-reliant, dominant, tough, non-emotional and successful, while simultaneously proscribing men from being feminine, emotional and weak (Courtenay, 2000; Prentice & Carranza, 2002; Rudman, Moss-Racusin, Phelan, & Nauts, 2012). Precarious manhood, involves the idea that masculinity is an impermanent state that must be earned and consistently proven over time (Vandello, Bosson, Cohen, Burnaford, & Weaver, 2008). Research indicated that when men violate gender norms by displaying a proscriptive stereotype (e.g., acting weak) they lose masculine capital and must demonstrate their dominance to regain their masculine status. The extent to which men buy into these culturally ingrained ideas about masculinity varies, but research demonstrated that endorsement of masculinity beliefs play out in the

health arena for men by (1) establishing normative health behavior, (2) allowing for displays of strength, while simultaneously denying weakness, vulnerability or loss of emotional control and (3) allowing displays of toughness through risk-taking behaviors (Addis & Mahalik, 2003; Courtenay, 2000; De Visser & Smith, 2006; Mahalik, Burns, & Syzdek, 2007; Robertson, 2006).

Most gender-related health disparities discussed in the beginning of this paper can be associated with masculinity. For example, men who adopted traditional beliefs about masculinity were more likely to engage in risky health behavior (e.g., smoking, alcohol use, substance use, energy drink use) and less likely to engage in health promoting behaviors (e.g. eating a balanced diet, using sunscreen, wearing a seatbelt) compared to men who adopted less traditional views of masculinity (Courtenay, 2003; Levant, Parent, McCurdy, & Bradstreet, 2015; Mahalik, Lagan, & Morrison, 2006; Miller, 2008). Endorsement of masculinity was, similarly related to denying the need for healthcare during times of acute need (Himmelstein & Sanchez, 2014), failure to seek preventative care (Mahalik et al., 2007, 2006; Springer & Mouzon, 2011), less consistent symptom reporting during care seeking (Himmelstein & Sanchez, 2016), and decreased likelihood to follow medical orders after a hospital discharge (Courtenay, 2003). Finally, among men who strongly endorsed masculinity, the likelihood of seeking preventative care actually decreased as socioeconomic status (SES) increased suggesting masculinity prevented men from benefiting from protective health factors of high SES (Springer & Mouzon, 2011).

Masculinity is particularly tied to avoidance of psychological care in part because psychological care involves emotional disclosure which violates prescriptive (self-

reliance, independence) and proscriptive (emotionality, weakness) masculine gender stereotypes (Moss-Racusin, Phelan, & Rudman, 2010; Moss-Racusin, 2014). Indeed, early research on masculinity (Good, Dell, & Mintz, 1989; Good & Wood, 1995) indicated men who believed masculinity encompassed restrictive emotionality were the least likely to seek help; in one study restrictive emotionality accounted for a quarter of the variance in the help-seeking behavior of men. More recent studies replicated prior work demonstrating masculinity is tied to both low scores on expressing emotions to others and help-seeking behavior (Mahalik et al., 2006). Further when men watched videos of emotion focused and cognition focused therapy then reported their willingness to seek psychological care, men who strongly endorsed masculinity and watched the emotion focused videos were the least interested in pursuing future psychological care (Wisch, Mahalik, Hayes, & Nutt, 1995). In this study, it was hypothesized that one reason for men's reluctance to seek healthcare, in general, and psychological care in particular was fear over losing masculinity by help-seeking which may be construed as implying weakness.

Moss-Racusin and Miller (2015) examined the role of gender in mental illness stigma, postulating that masculinity perceptions of targets could reduce mental illness stigma. In study 1, the authors asked participants to read vignettes depicting a male or female target with or without major depressive disorder from the DSM-5. Participants rated targets on "psychological illness stigma" which comprised three components: likability, hireability, and competence. They found a main effect of psychological health status on all three components of psychological illness stigma favoring non-depressed individuals over depressed individuals, but no gender effects (Moss-Racusin & Miller,

2015). In study 2, the authors examined psychological illness stigma (likeability, competence, hireability) by gender and help-seeking using vignettes about depressed individuals. They hypothesized and found that men were rated as more likeable, competent and hireable when seeking treatment for depression relative to men not seeking treatment, an effect that was mediated by respect (i.e., participants rated the depressed male seeking treatment as more likeable, competent and hireable because they respected him more than the male not seeking treatment). They found no difference in psychological illness stigma (hireability, likeability, competence) for women as a function of help-seeking (Moss-Racusin & Miller, 2015). Moss-Racusin and Miller (2015) concluded that the help-seeking in study 2 allowed men to enact the traditional masculine norms by acting in a proactive manner (i.e., acting agentic). The authors did not, however, measure whether help-seeking for depression was perceived as enacting masculine norms or agency, nor did they measure perceptions of target masculinity or agency of males seeking treatment versus not seeking treatment for depression. While treatment seeking can be thought of as an agentic process consistent with the masculine prescriptions of agency, help-seeking simultaneously violates both masculine prescriptions of self-reliance and independence as well as masculine proscriptions of emotionality and weakness. Prior work on gender stereotype violations and the status incongruity hypothesis suggested women face backlash for violating proscriptions not prescriptions (Rudman & Glick, 2001; Rudman et al., 2012), while men face backlash for violating both prescriptions and proscriptions (Moss-Racusin et al., 2010). Although help-seeking might cue the masculine prescription of agency (and thus confer respect), it simultaneously violates the prescription of self-reliance and violates proscriptions of

emotionality as well as weakness (Prentice & Carranza, 2002; Rudman & Glick, 2001). Thus it may not be viewed as in line with traditional masculinity.

Indeed, qualitative research supported the idea that men specifically avoid psychological care because they believed psychological care was inconsistent with masculinity. In focus groups among college students, males reported the greatest barriers to seeking help for alcohol and substance use problems (two of the psychological-health issues in which men outrank women) were admitting to needing help and the strong desire to appear independent while concealing vulnerability (Davies et al., 2000). Adult men echoed similar sentiments in a qualitative study, by discussing avoidance of psychological health care as a way to appear "macho," demonstrate masculinity through toughness, and deny emotionality (O'Brien, Hunt, & Hart, 2005). Masculinity is also related to less interest in psychological health help-seeking. When men viewed emotion-focused counseling videos versus cognition-focused counseling videos they expressed less interest in seeking help for psychological health in the emotion-focused video condition when they scored high in masculinity (Wisch et al., 1995). Thus, the present study examined, whether men would be downgraded in masculinity for seeking help for social pain relative to seeking help for physical pain. It was expected that men would be viewed as less masculine when seeking help for social pain because social pain may cue emotionality, a clear proscriptive masculinity violation, more than physical pain. In addition, physical pain usually indicates a clear pain locality; that is, an individual with a broken foot can clearly point to the bodily location of their pain. Social pain, however, does not necessarily have a clear locality in the body, and thus may be perceived as more emotional than physical pain.

Gender and Pain Reporting

Pain is a useful outcome for studying health and gender because pain is subjective (Fillingim & King, 2009), produces consistent differences between men and women (Barsky, Peekna, & Borus, 2001; Bernardes, Keogh, & Lima, 2008; Dao & LeResche, 1999) and is related to gender beliefs (Fillingim & King, 2009; Wise, Price, Myers, Heft, & Robinson, 2002). Compared to men, women reported a greater frequency of pain, reported more intense pain, and received more treatment for pain (Barsky et al., 2001; Bernardes et al., 2008; Dao & LeResche, 1999). In experimental studies men reported higher thresholds for pain compared to women (Dao & LeResche, 1999) and like most health outcomes, women sought help for pain more often than men (Bush, Harkins, Harrington, & Price, 1993). Vallerand (1995) suggested gender differences in pain reporting emerged, in part, because women faced less social disapproval for expressing pain than men. Researchers cited gender differences in pain as resulting from gender socialization processes surrounding pain and pain reporting (Barsky et al., 2001; Bernardes et al., 2008; Dao & LeResche, 1999; Fillingim & King, 2009) . Research also demonstrated masculinity is associated with higher thresholds of pain and less reporting of pain symptoms (Fillingim & King, 2009; Wise et al., 2002).

Present Research

The present studies examined the interplay between masculinity and help-seeking with the goal of improving attitudes toward psychological help-seeking. In three studies, this dissertation examined (1) whether targets experienced downgrades in masculinity for seeking psychological care for social pain, (2) whether downgrades in masculinity were shifted by priming social pain as similar to physical pain, and (3) whether priming social

pain as similar to physical pain increased positive attitudes toward psychological care among men and women.

Overall in Study 1 (see Figure 1), masculinity downgrading was expected to occur exclusively for male targets when they sought help for social pain relative to all other pain scenarios (help-seeking for physical pain, non-help-seeking for social pain, non-help-seeking for physical pain). Masculinity downgrading for help-seeking in social scenarios was expected for two reasons. First, help-seeking, in general, violates masculine prescriptions of self-reliance and independence (Moss-Racusin et al., 2010; Moss-Racusin, 2014). This, theoretically, explains men's reluctance to seek help for both social pain and physical pain. Second, disclosing social pain related to a break-up cues emotionality, whereas disclosing physical pain (e.g., foot pain) does not. This emotional disclosure further violates masculine prescriptions related to stoicism and proscriptions related to non-emotionality and weakness (Good et al., 1989; Good & Wood, 1995; Mahalik et al., 2006). Masculinity was not expected to vary for female targets as function of help-seeking or pain type because masculinity is not prescriptive for women (Prentice & Carranza, 2002; Rudman & Glick, 2001). Indeed, enacting prescriptive masculine traits (e.g., dominance) results in backlash for women as a proscriptive violation of female gender stereotypes (Rudman & Fairchild, 2004; Rudman & Glick, 2001), whereas men face backlash for violating both prescriptions and proscriptions (Moss-Racusin et al., 2010).

Study 2, explored whether masculinity downgrading after seeking help for social pain could be minimized by priming social pain as similar to physical pain. Overall (see Figure 2), differences in masculinity ratings were not expected for targets seeking help

for social pain (versus not) after being primed with the idea that social pain and physical

pain are similar. Similar to Study 1, it was expected that targets would be rated as less

masculine (i.e., masculinity downgrading) when seeking help for social pain (versus not)

after reading the control prime. The results of Study 1, suggested no three-way

interactions among target gender, pain-type, and help-seeking. Thus, a three-way

interaction among pain prime, help-seeking, and target gender was not expected nor were

any two way interactions involving target gender. While masculinity is associated with

reluctance toward help-seeking in general (Courtenay, 2003; Himmelstein & Sanchez,

2014, 2016; Mahalik et al., 2007, 2006; Springer & Mouzon, 2011), it is particularly tied

to avoidance of psychological care because psychological care is associated with

emotionality (Davies et al., 2000; Good et al., 1989; Good & Wood, 1995; Mahalik et al.,

2006; O'Brien et al., 2005; Wisch et al., 1995). A reduction in masculinity downgrading

was hypothesized in associating social pain with physical pain because physical pain does

not cue emotional disclosure in the same way as a disclosure of social pain. In addition,

physical pain is often tied to a specific bodily location, whereas social pain may not be

tied to a specific bodily location. Having participants read about social pain as similar to

physical pain in the brain may reduce masculinity downgrading, by assigning a specific

location for pain and simultaneously reconstructing the concept of emotional pain in

physical terms.

Study 3 explored whether priming social pain as similar to physical pain could increase

positive attitudes toward psychological help-seeking and help-seeking behavior related to

psychological health. Overall (see Figure 3), it was expected that women and men would

report similar positive attitudes about psychological help-seeking (and greater help-

seeking behavior related to psychological health) after reading a prime equating social pain to physical pain. Women were expected to report more positive psychological help-seeking attitudes and behavior relative to men after reading the control prime. Masculinity attitudes (i.e., endorsement of Male Role Norms and Precarious Manhood) were expected to moderate the relationship between prime and participant gender on psychological help-seeking. It was expected that men who strongly endorsed masculine attitudes would report more positive attitudes about psychological help-seeking (and greater help-seeking behavior) after reading the prime equating physical pain to social pain relative to control. It was expected that men who did not strongly endorse masculine attitudes to endorse positive attitudes about help-seeking (and help-seeking behavior) regardless of prime. Women were expected to endorse positive attitudes about help-seeking regardless of prime and masculinity attitudes. A gender difference on attitudes toward psychological care was not expected in the control prime condition because research demonstrates differences in psychological care seeking in both adolescent and adult samples (Addis & Mahalik, 2003; Berger et al., 2005; Chandra & Minkovitz, 2006; Courtenay, 2003; Sandman et al., 2000).

Study 1

Study 1 employed a 2 (help-seeking versus not) x 2 (pain type: physical, social) x 2 (target gender) design to examine masculinity (prescriptive masculine traits, proscriptive masculine traits) and meta-masculinity (target's endorsement of masculine attitudes) perceptions of targets. Main effects of help-seeking (no help > help), pain type (physical > social) and gender (male > female) were expected on all masculinity measures. It was expected that these main effects would be qualified by a two way

interaction between pain type and help-seeking (Social: No help > Help & Physical: No help = Help) on masculinity; and further, it was expected that the two way interaction would be qualified by a three way interaction among pain type, help-seeking, and target gender on masculinity. Specifically, it was expected that male targets seeking help for social pain would be rated as less masculine relative to all other male targets (i.e., male targets who do not seek help for social pain, male targets who seek help for physical pain, and male targets who do not seek help for physical pain); masculinity was not expected to vary in female targets as a function of condition or help-seeking behavior (i.e., it was expected that masculinity scores would be equal across conditions for female targets). While delaying care and denying the need for care in the face of acute need is viewed as enacting masculinity (Himmelstein & Sanchez, 2014; Sandman et al., 2000; Springer & Mouzon, 2011), men showed particular reticence toward psychological help-seeking (Addis & Mahalik, 2003; Berger et al., 2005; Courtenay, 2003). Target masculinity, among men, was expected to take a hit in reference to social pain relative to physical pain because physical pain may not cue emotionality while social pain almost certainly indicates emotionality. Physical pain also has a clear physical explanation in the form of a physical injury whereas social pain can be viewed as an invisible injury.

Pretesting. Several additional pretests were conducted on the social and physical pain scenarios to determine that they were matched on painfulness, severity, and masculinity as in the original pre-tests. An item to match the scenarios on treatment effectiveness was included and female targets were added. The initial pre-test included 89 participants ($M_{age} = 29.16$, SD = 3.36), recruited via Mechanical Turk. Participants rated male and female targets who experienced social pain (break-up) or physical pain (back

pain) on pain severity felt by the target, the seriousness of the pain experienced, the effectiveness of the treatment, and the masculinity of the target[1]. Though the pre-testing in the dissertation proposal indicated the back pain and breakup scenarios were equivalently painful, the subsequent pre-tests (design: 2 pain type x 2 target gender; analysis: ANOVA) yielded a main effect of pain type indicating back pain (M = 4.23, SD = 0.72) was more painful than a break-up (M= 3.79, SD = 1.08): $F (1, 80) = 6.01$, p = 0.16. The back pain and break-up scenarios were also not well-matched on treatment effectiveness, as the ANOVA yielded a significant interaction between pain type and target gender: $F (1, 80) = 5.47$, p = .007. An exploration of the simple effects indicated participants believed treatment for back pain would be more effective for female targets (M = 4.00, SD = 0.77) relative to male targets (M = 3.35, SD = 0.81; $F (1, 80) = 6.01$, p = .016), and treatment for social pain would be equally effective for female (M = 3.49, SD = 0.76) and male targets (M = 3.64, SD = 1.01, $F (1, 80) = 2.07$, p = .154).

Because the back pain scenario did not match the social pain scenario on pain severity or treatment effectiveness, the back pain scenario was replaced with a foot pain scenario. Another pre-test was run to ensure the physical (foot pain) and social pain scenarios were matched on pain severity felt by the target, the seriousness of the pain, the effectiveness of the treatment, and the masculinity of the target. The second pre-test included 78 participants (M_{age} = 28.23, SD = 3.37), recruited via Mechanical Turk. The 2 (pain type) x 2 (target gender) ANOVAs indicated the scenarios were well matched on

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[1] The scenarios were matched on masculinity prior to the help-seeking manipulation, so that any downgrading in masculinity would be attributed to the help-seeking behavior rather than any masculinity perceptions that could be related to the scenario itself. That is, the scenarios were matched on masculinity to make sure downgrades occurred as a result of help-seeking and not, for example, being dumped by a girlfriend.

pain severity, seriousness of pain, treatment effectiveness, and target masculinity for both male and female targets (i.e., no main effects or interactions). The effects of the final pre-test may be found in Appendix A.

Method

In order to better understand the gender-related obstacles men may face when seeking treatment for social pain, Study 1 examined the effects of target gender, help-seeking behavior, and pain type on masculinity perceptions of a male or female target. Using a 2 x 2 x 2 design, participants rated a male or female target's masculinity after the target experienced pain (physical or social) and sought help (or did not seek help).

Participants. In order to be eligible for the survey (see Appendix B), participants (recruited via Mechanical Turk) had to report no prior experience with psychological care, as prior experience could color their perception of a target seeking psychological care[2]. Eligibility criteria also included age (25-35), English fluency, and residency (residing in the continental United States). An a priori power analysis conducted via G-Power (Faul, Erdfelder, Lang, & Buchner, 2007) indicated a necessary sample size of 210 to capture a desired power level of .95 and a medium effect size for a 2 x 2 x 2 ANOVA. To recruit the desired sample size, data was collected until approximately 105 male participants and 105 female participants completed the survey and passed four manipulation checks (described in detail under "manipulation checks" below). A total of

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[2] There is not a precise way to determine how many participants were excluded for prior experience with psychological care for two reasons. First, it was listed in the advertisement as an exclusion criterion, so there was no way to know how many it may have deterred. Second, duplicate entries could not be removed for eligibility questions, because only survey completers entered their worker IDs. Duplicate responses were determined and eliminated by duplicate worker IDs. The survey was set-up to prevent ballot boxing, but this method does not prevent individuals from taking the survey with a different browser or from a different device.

291 participants completed the survey. Of those, 69 (23.7%) were excluded from analyses because they failed at least one of the following manipulation checks[3]: reading check (n = 36, 12.4%), correct identification of target gender (n = 4, 1.4%), correct identification of target's pain source (n = 8, 2.7%), or correct identification of target's action (n = 39, 13.4%).

The final sample (N = 223, M_{age} = 29.26, SD_{age} = 3.27) consisted of 117 men (52.50%) and 106 women (47.50%). Participants identified as White (n = 159, 71.3%), Asian (n = 25, 11.21%), Black (n = 19, 8.52%), Hispanic or Latino (n = 9, 4.04%), Native American or Alaska Native, (n = 5, 2.24%), Multiracial (n = 4, 1.79%), or other (n = 1, 0.45%). One participant declined to indicate his/her race. Participants indicated a mean income category of 5.46 (SD = 3.22) which is equivalent to 40,000 to 60,000 dollars annually (median: $40,001 –$ 50,000). Additional demographic information may be found in Table 1.

Materials. Descriptive statistics and reliability estimates may be found in Table 2.

Target Scenario. Participants read one of eight scenarios (see Appendix C) about a male or female (John or Jane) target who was currently experiencing pain (Social: recent breakup, Physical: foot injury) and contemplating seeking help to cope with their pain. In all scenarios, the target considered help-seeking from a doctor or therapist, followed by making an active decision to either seek help or not seek help to cope with their pain. Because masculinity is frequently demonstrated through action (Courtenay,

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[3] Some participants failed more than one of the manipulation checks. The criterion for exclusion was failure of at least one of the manipulation checks.

2000; Vandello et al., 2008; Vandello & Bosson, 2013), a contemplation of help-seeking across scenarios was included to highlight the action of deciding not to seek help versus the action of deciding to seek help as a cause of any potential downgrades in masculinity the target received.

Target masculinity ratings. Participants indicated the extent to which the target embodied prescriptive and proscriptive gender stereotypes (see Appendix D). Participants rated the target on six prescriptive (e.g., masculine, self-reliant) and six proscriptive (e.g., feminine, weak) male traits (Prentice & Carranza, 2002; Rudman et al., 2012) on a scale of 1 (Not at all like John/ Jane) to 5 (Exactly like John/ Jane). Higher scores on prescriptive traits indicated greater embodiment of masculine traits (M = 3.04, SD = 0.83, α = .86), while higher scores on proscriptive traits indicated lower embodiment of masculine traits (M = 2.69, SD = 0.81, α = .83). Participants completed two meta-masculinity measures (see Appendix E and F) about the target, indicating how much they believed the target would endorse 7 items assessing precarious manhood beliefs (Himmelstein & Sanchez, 2016; Kroeper, Sanchez, & Himmelstein, 2014; Vandello et al., 2008) and 26 items assessing attitudes about Male Role Norms (Thompson & Pleck, 1986). These items were rated on a five point scale ranging from (John/ Jane would Strongly Disagree) to 5 (John/ Jane would strongly agree). Measures were collected for all targets, but they can only be clearly interpreted for male targets because the meta beliefs about masculinity (e.g., "A man needs to prove his masculinity" [precarious manhood] and "A man should never back down in the face of trouble" [Male Role Norms]) do not implicate Jane's gender group and thus, are less clearly relevant to Jane's

perceived masculinity. Regardless, the results below assessed these meta-masculinity measures for all targets, and separately, for male and female targets.

Treatment Effectiveness. Participants indicated how effective they believed treatment would be for the condition presented in the scenario (see Appendix G). Participants who read a scenario involving social pain indicated how effective seeing a therapist would be for treatment of the target's pain. Participants who read a scenario involving physical pain indicated how effective seeing a doctor would be for treatment of the target's pain. Effectiveness was measured on a scale ranging from 1 (Not at all effective) to 5 (Very effective). The average score for treatment effectiveness was 3.71 (SD = 0.89). Though this was in the pretest, it was included by committee request as a possible control variable.

Emotional Disclosure. Participants indicated how emotional disclosing pain would feel for the target if the target sought help (see Appendix G). Participants who read a scenario involving social pain indicated how emotional disclosing social pain to a therapist would be for the target if the target sought help. Participants who read a scenario involving physical pain indicated how emotional disclosing physical pain to a doctor would be for the target if the target sought help. Emotional disclosure was measured on a scale ranging from 1 (Not at all emotional) to 5 (Very emotional). The average score for emotional disclosure was 3.19 (SD = 1.28). Though this was in the pretest, it was included by committee request as a possible control variable.

Target Likeability. Participants rated the target's likeability using four items (see Appendix G) on a scale of 1 (Not at all) to (Very Much). Average scores on likability were 3.43 (SD = 0.68, α = .87). An example idem included "How much do you want to

interact with John." Though this was in the pretest, it was included by committee request as a possible control variable.

Pain Severity. Participates indicated how serious and severe the pain was for the target (see Appendix G) using four items(e.g., "How painful is this for John?") on a scale of 1 (Not at all) to (Very). Average scores on pain severity were 3.75 (SD = 0.83, α = .88).

Manipulation Checks. Participants completed four manipulation and attention checks (see Appendix H). The first attention check measured whether participants were reading questionnaire instructions. Participants were instructed to answer the question "What is your favorite food" with the response "reading." After answering questions about each scenario participants indicated, via multiple choice, the kind of pain the target in the scenario experienced, the action the target in the scenario took, and the gender of the target. Participants were excluded if they failed any of these manipulation or attention checks.

Procedure. Participants responded to an advertisement for a study called "Snapshot Impressions." The advertisement described a 10-15 minute study on impression formation of individuals based on minimal information which compensated a total of $0.25. After completing eligibility information participants completed an informed consent describing the study. After consenting, participants received the reading attention check described above. Participants were randomly assigned to read one of eight scenarios (described above) in which a male or female target experienced physical or social pain and decided to seek help or decided not to seek help. The scenario remained at the top of the survey page, so participants could refer to the scenario while

completing questions about the target. Participants then completed manipulation checks to ensure they accurately remembered what happened in the scenario they read, and the gender of the target in the scenario. Participants completed demographic information at the end of the study.

Analysis Plan

Preliminary Analyses. Four, 2 x 2 x 2 ANOVAs were conducted on target's likeability, target's pain severity, treatment effectiveness, and emotional disclosure to ensure the scenarios were matched on all of these potential confounds. As described in detail below, significant main effects of pain type and help-seeking emerged for pain severity, emotional disclosure, and treatment effectiveness. A significant interaction between pain type and help-seeking emerged for pain severity, and a significant interaction between pain type and target gender emerged on treatment effectiveness. Because the scenarios were not matched on these variables despite being matched in pre-testing, questions were included on pain severity, treatment effectiveness, and emotional disclosure as covariates in the main analyses. It should be noted that the results were the same regardless of whether these variables were included as covariates or not.

Main Analyses. Four, 2 x 2 x 2 ANOVAs were conducted on masculinity measures (prescriptive traits, proscriptive traits) by help-seeking, pain type, and target gender. Pain severity, treatment effectiveness, and emotional disclosure were included as covariates in both analyses. Main effects of help-seeking (no help > help), pain type (physical > social) and gender (male > female) were expected on all masculinity measures. It was expected that these main effects would be qualified by a two way interaction between pain type and help-seeking (Social: No help > Help & Physical: No

help = Help) on all masculinity measures; and further, it was expected that the two way interaction would be qualified by a three way interaction among pain type, help-seeking, and target gender on masculinity. Specifically, male targets seeking help for social pain were expected to be rated as less masculine relative to all other male targets (i.e., male targets who did not seek help for social pain, male targets who sought help for physical pain, and male targets who did not seek help for physical pain; it was expected that masculinity scores would be equal across conditions for all female targets.

Results

Ancillary analyses for Study 2 which include participant gender and correlations among study variables may be found in Appendix I.

Preliminary Analyses. Results for preliminary analyses are summarized in Table 3. A 2 x 2 x 2 ANOVA on target likeability by pain type, help-seeking, and target gender yielded no significant main effects or interactions, indicating targets in all scenarios were equally liked.

A 2 x 2 x 2 ANOVA on pain severity by pain type, help-seeking and gender yielded a main effect of pain type, a main effect of help-seeking, and an interaction between pain type and help-seeking (see Figure 4). Pain was perceived as more severe in social scenarios (M =4.02, SD = 0.64) relative to physical scenarios (M =3.50, SD = 0.90): $F (1, 215) = 29.04$, $p < .001$. Pain was perceived as more severe in help-seeking scenarios (M = 4.00, SD = 0.69), relative to non-help-seeking scenarios (M = 3.50, SD = 0.90): $F (1, 215) = 25.35$, $p < .001$. To follow up the interaction between pain type and help-seeking on pain severity ($F (1,215) = 9.99$, $p = .002$), the simple effects of help-seeking on pain severity were examined separately for pain type. Pain was perceived as

equally severe in social situations involving help-seeking (M = 4.11, SD = 0.66) and social situations involving no help-seeking (M = 3.93, SD = 0.64): F (1, 105) = 2.22, p = .139; pain was perceived as more severe in physical scenarios in which the target sought help (M = 3.89, SD = 0.72) versus physical scenarios in which the target did not seek help (M = 3.10, SD = 0.89): F (1, 110) = 28.18, p < .000.

A 2 x 2 x 2 ANOVA on emotional disclosure by pain type, help-seeking and gender yielded a main effect of pain type, a main effect of help-seeking, but no other significant main effects or interactions. Pain was perceived as more emotional in social scenarios (M =4.04, SD = 0.83) relative to physical scenarios (M =2.38, SD = 1.10): F (1, 213) = 164.66, p < .001. Pain was perceived as more emotional in help-seeking scenarios (M = 3.37, SD = 1.21), relative to non-help-seeking scenarios (M = 2.99, SD = 1.34): F (1, 213) = 7.06, p = .008.

A 2 x 2 x 2 ANOVA on treatment effectiveness by pain type, help-seeking, and target gender yielded a main effect of pain type, a main effect of help-seeking, and an interaction between pain type and target gender (see Figure 5). Treatment was perceived as less effective in social scenarios (M =3.44, SD = 0.87) relative to physical scenarios (M =3.70, SD = 0.87): F (1, 215) = 7.96, p = .005. Treatment was perceived as more effective in help-seeking scenarios (M = 3.83, SD = 0.88), relative to non-help-seeking scenarios (M =3.57, SD = 0.89): F (1, 215) = 5.86, p = .016. To follow up the interaction between pain type and target gender on treatment effectiveness (F (1,215) = 8.08, p = .005), the simple effects of pain type on treatment effectiveness were examined separately for target gender. Treatment was perceived as equally effective for women in situations involving social pain (M =3.81, SD = 0.91) and physical pain (M =3.83, SD

=1.04): F (1, 105) = 0.00, p = .990; treatment was perceived as more effective in scenarios involving physical pain for men (M =3.92, SD = 0.68) versus scenarios involving social pain for men (M =3.28, SD = 0.80): F (1, 110) = 22.77, p < .001.

Main Analyses. Results for all main analyses (with and without covariates) are summarized in Table 4. A 2 x 2 x 2 ANOVA on masculine prescriptions by pain type, help-seeking, and target gender controlling for treatment effectiveness, emotional disclosure, and pain severity yielded a main effect of pain type, a main effect of help-seeking, and a main effect of target gender. It yielded significant interactions between pain type and help-seeking (as hypothesized, see Figure 6) as well as pain type and target gender (see Figure 7). Contrary to expectations no three way interaction among target gender, pain type, and help-seeking emerged for masculine prescriptions. As hypothesized, targets experiencing physical pain (M = .34, SD = 0.66) were perceived as more masculine on prescriptive masculine traits (e.g., strong, tough) relative to targets experiencing social pain (M = 2.72, SD = 0.85): F (1, 210) = 21.84, p < .001. As hypothesized, targets who chose not to seek help (M = 3.33, SD = 0.72) were seen as more masculine on prescriptive traits relative to targets who chose to seek help (M = 2.76, SD = 0.81) : F (1, 210) = 37.76, p < .001. Men (M = 3.20, SD = 0.76) were seen as more masculine on prescriptive traits relative to women (M = 2.85, SD = 0.86) : F (1, 210) = 14.40, p < .001. To explore the hypothesized interaction between help-seeking and pain type, the simple effects of help-seeking (controlling for pain severity, treatment effectiveness, and emotional disclosure) were examined separately by pain type. In situations involving social pain, targets were perceived as more masculine when they did not seek help (M = 3.13, SD = 0.75) relative to those who sought help (M = 2.34, SD =

0.76): F (1, 105) = 33.24, p < .001. Likewise, in situations involving physical pain, targets were perceived as more masculine when they did not seek help (M = 3.51, SD = 0.65) relative to those who sought help (M = 3.20, SD = 0.68): F (1, 110) = 6.56, p = .012. Though the simple effects were in the same direction, the effect was larger for social pain (η_p^2 = 0.24) relative to physical pain (η_p^2 = 0.06). To explore the interaction between pain type and gender of target, the simple effects of gender of target (controlling for pain severity, treatment effectiveness, and emotional disclosure) were examined separately by pain type. In situations involving social pain, male targets were perceived as more masculine (M = 2.97, SD = 0.76) relative to female targets (M = 2.44, SD = 0.86): F (1, 105) = 15.09, p < .001. No differences in masculinity emerged for male (M = 3.44, SD = 0.71) and female (M = 3.26, SD = 0.63) targets experiencing physical pain: F (1, 110) = 1.67, p = .199.

A 2 x 2 x 2 ANOVA on masculine proscriptions by pain type, help-seeking, and target gender controlling for treatment effectiveness, emotional disclosure and pain severity yielded a main effect of pain type, a main effect of help-seeking, a main effect of target gender, and no significant interactions. As hypothesized, targets experiencing physical pain (M = 2.29, SD = 0.68) embodied masculine proscriptive traits (e.g., weak, emotional) less than targets experiencing social pain (M = 3.12, SD = 0.71): F (1, 210) = 42.03, p < .001. As hypothesized, targets who chose not to seek help (M = 2.49, SD = 0.73) embodied masculine proscriptive traits less than targets who sought help (M =2.89, SD = 0.84): F (1, 210) = 14.79, p < .001. Men (M = 2.52, SD = 0.78) embodied masculine proscriptions less than to women (M = 3.28, SD = 0.71): F (1, 210) = 56.33, p < .001.

A 2 x 2 x 2 ANOVA on meta-precarious manhood beliefs by pain type, help-seeking, and target gender controlling for treatment effectiveness, emotional disclosure and pain severity yielded a main effect of pain type, but no other significant main effects or interactions. Targets experiencing physical pain (M =3.14, SD = 0.77) were perceived as more likely to endorse precarious manhood beliefs than targets experiencing social pain (M = 2.77, SD = 0.81): F (1, 209) = 6.30, p < .013. When examining meta-precarious manhood separately for male targets by pain type and help-seeking with relevant covariates, the analyses yielded a main effect of pain type (physical > social) and help-seeking (no help > help), but no interaction for male targets. No effects emerged when examining meta-precarious manhood separately for female targets by pain type and help-seeking with relevant covariates (see Table 4).

A 2 x 2 x 2 ANOVA on meta-male role norms beliefs by pain type, help-seeking, and target gender controlling for treatment effectiveness, emotional disclosure and pain severity yielded a main effect of pain type, an interaction between help-seeking and target gender (see Figure 8), but no other significant main effects or interactions. Participants believed targets experiencing physical pain (M =3.18, SD = 0.58) endorsed male role norms beliefs more strongly than targets experiencing social pain (M = 2.94, SD = 0.60): F (1, 209) = 4.95, p < .028. To explore the interaction between help-seeking and target gender, simple effects of help-seeking on meta male role norms (controlling for pain severity, treatment effectiveness, and emotional disclosure) were explored separately by target gender. Participants believed male targets endorsed male role norms beliefs more strongly when they did not seek help (M = 3.25, SD = 0.56) relative to those who sought help (M = 2.88, SD = 0.57): F (1, 110) = 13.22, p < .001. Participants did not believe

female targets varied on male role norm beliefs regardless of whether they sought help

(M = 3.10, SD = 0.59) or did not seek help (M = 3.04, SD = 0.65): $F(1, 96) = 0.82$, p =

.368. When examining meta-male role norms separately for male targets by pain type and

help-seeking with relevant covariates, the analyses yielded a main effect of pain type

(physical > social) and help-seeking (no help > help), but no interaction for male targets.

No effects emerged when examining meta- male role norms separately for female targets

by pain type and help-seeking with relevant covariates (see Table 4).

Discussion

Study 1 examined masculinity downgrading on prescriptive and proscriptive traits

as a function of pain type (physical, social), help-seeking (help-seeking versus not help-

seeking) and target gender (male, female). Male targets were hypothesized to experience

downgrades in masculinity when they sought help for social pain relative to not seeking

help for social pain, and relative to physical pain regardless of help-seeking behavior. No

differences in masculinity were expected among female targets regardless of pain type or

help-seeking behavior. Contrary to hypotheses no three-way interactions among target

gender, pain type, and help-seeking were found for any of the masculinity measures.

Rather, participants were downgraded in masculine prescriptions when they sought help

(versus did not seek help) in both physical and social situations, but the effect of

masculinity downgrading was larger in social situations relative to physical. Only main

effects emerged for masculine proscriptions, suggesting targets were seen as weaker if

they were female (relative to male), sought help (relative to not seeking help), or

experienced social pain (relative to physical). Participants believed targets would endorse

meta-masculinity beliefs more when they experienced physical pain relative to social.

These findings suggested that while help-seeking and experiencing social pain were viewed as signs of weakness, this masculinity downgrade was not limited to men. However, masculinity downgrades may be more important to men than women as men receive backlash for violating masculine prescriptions and proscriptions (Moss-Racusin et al., 2010), whereas women receive backlash for violating dominant proscriptions (Rudman & Fairchild, 2004; Rudman & Glick, 2001); thus, it was still important to examine in Study 2 whether masculinity downgrades could be reduced for social pain and help-seeking.

A large literature demonstrated men's reticence to seek help (Courtenay, 2003; Himmelstein & Sanchez, 2014, 2016; Mahalik et al., 2006; Springer & Mouzon, 2011), particularly in situations involving psychological care (Davies et al., 2000; Good et al., 1989; Good & Wood, 1995; O'Brien et al., 2005; Wisch et al., 1995). Study 1 suggested that help-seeking and social pain were perceived as less masculine and thus this reticence could be warranted. It should be noted that masculinity downgrades for help-seeking in social scenarios only occurred on one of four masculinity measures (masculine prescriptions). Masculine proscriptions did yield a main effects indicating masculinity downgrading for pain type (more weak in social scenarios) and help-seeking (more weak when seeking help). Though, masculinity downgrading was, weakly, present for both male and female targets, masculinity loss may involve greater consequences (and thus barriers to care) for men. That is, women are not penalized for being un-masculine, indeed the literature on backlash suggests they may be penalized for violating proscriptions by enacting masculine traits like dominance (Rudman & Glick, 2001; Rudman et al., 2012). Men, however, do face social penalties for violating masculine

prescriptions and proscriptions (Moss-Racusin et al., 2010). So, though downgrading does not appear to occur exclusively for men, it may be more harmful, in terms of social penalties, for men than women.

Although these results provided only partial support for the theory that targets experience masculinity downgrading when seeking help for social pain, two important qualifications should be noted. First, the effect of masculinity downgrading when seeking help was present in both social and physical pain scenarios, though the effect was larger in social pain scenarios. Second, the effect only emerged for masculine prescriptions, not masculine proscriptions though proscriptions were sensitive to help-seeking and pain type, so results should be considered with care prior to replication.

The goal of Study 2 was to shift masculinity downgrading in situations involving social pain by framing social pain as similar to physical pain in the brain. Although masculinity downgrading occurred as a function of help-seeking in both physical and social pain scenarios, the effect was notably smaller for physical pain scenarios. Therefore, Study 2 was conducted as proposed using only scenarios involving social pain, with one small caveat. Female targets were included in Study 2 because Study 1 failed to demonstrate that masculinity downgrading is specific to men.

Study 2

Study 2, explored whether masculinity downgrading after seeking help for social pain could be minimized by priming social pain as similar to physical pain by highlighting physical changes associated with social pain. Using a 2 (article prime: social pain = physical pain versus control) x 2 (help-seeking versus not) x 2 (target gender) design, a main effect of help-seeking (no help > help), a main effect of prime

(experimental prime > control prime), and a main effect of target gender (male > female) on masculinity. These effects were expected to be qualified by a two way interaction between prime and help-seeking. Specifically, no differences in masculinity ratings of targets seeking help for social pain (versus not) were expected after being primed with the idea that social pain and physical pain are similar. Similar to Study 1, targets were expected to be rated as less masculine when seeking help for social pain (versus not) after reading the control prime. Given the results of Study 1, a three-way interaction among pain prime, help-seeking, and target gender was not expected, nor were any two way interactions involving target gender expected.

Pretesting. In order to improve both the readability and credibility of the control article, a news article about neuroscience research was selected from the same publication as the pain prime (Monitor on Psychology). Both primes may be viewed in Appendix J. As in the pain prime, the control prime was modified for length and matched to the pain prime on credibility, believability and the scientific nature of the article. A total of 52 individuals, recruited via Mechanical Turk, completed the pretest, but 5 failed a multiple choice reading check on the article topic. Each item was rated on a scale of 1 to 5 with higher scores indicating greater believability, credibility, and agreement that the article was scientific in nature. Participants who failed the reading check were excluded leaving 47 total participants ($M_{age} = 29.02$, SD = 3.23). Participants rated the articles as equally credible (Control prime M = 4.03, SD = 0.78; Pain prime M = 4.32, SD = 0.58; t (46) = -1.35, p = .185), believable (Control prime M = 4.38, SD = 0.82; Pain prime M = 4.47, SD = 0.51; t (46) = -0.45, p = .657), and scientific (Control prime M = 4.38, SD = 0.86; Pain prime M = 3.89, SD =1.05; t (46) = 1.75, p = .087).

Method

Using a 2 (help-seeking) x 2 (target gender) x 2 (article prime) design,

participants read either a news article which described physical pain as similar to social

pain or a control article (see Appendix H). Participants then rated a male or female

target's masculinity after the target decided to seek help or decided not to seek help to

cope with social pain.

Participants. Eligibility requirements for the study mirrored Study 1 (see

Appendix B: no prior experience with psychological care, ages 25-35, English fluency,

residency in the continental United States). An a priori power analysis conducted via G-

Power (Faul et al., 2007) indicated a necessary sample size of 210 to capture a desired

power level of .95 and a medium effect size for a 2 x 2 x 2 ANOVA. To recruit the

desired sample size, data were collected until approximately 105 male participants and

105 female participants passed five manipulation checks (described in detail under

"manipulation checks" below). A total of 330 participants completed the survey. Of

those, 102 (30.9%) were excluded from analyses because they failed at least one of the

following manipulation checks[4]: reading check (n = 38, 11.5%), correct identification or

the article topic (n =20, 6.1%), correct identification of target gender (n = 13, 3.9%),

correct identification of target's pain source (n = 22, 6.7%), or correct identification of

target's action (n = 72, 21.8%).

The final sample (N = 228, M_{age} = 29.96, SD_{age} = 3.95) consisted of 110 men

(48.2%) and 118 women (51.8%). Participants identified as White (n = 163, 71.5%),

Asian (n = 29, 12.7%), Black (n = 15, 6.6%), Hispanic or Latino (n = 11, 4.8%), Native

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[4] Some participants failed more than one of the manipulation checks. The criterion for exclusion was failure
of at least one of the manipulation checks.

American or Alaska Native, (n = 7, 3.1%), or Multiracial (n = 3, 1.3%). Participants

indicated a mean income category of 5.47 (SD = 3.21) which is equivalent to 40,000 to

60,000 dollars annually (median: $40,001 – $50,000). Additional demographic

information may be found in Table 5.

Materials. Descriptive information about each measure (i.e., M, SD, and α)

maybe found in Table 6.

Condition: News Articles. Participants read one of two modified articles (see

Appendix J) from the Monitor on Psychology. One group read an article describing

research demonstrating that social pain is similar to physical pain in the brain (Weir,

2012), hereafter referred to as the pain prime. The other group read a control article

explaining how humans detect musical beats in the brain (Winerman, 2009). Participants

rated the article they read on credibility, believability, and agreement that the article was

scientific in nature on scales ranging from 1 to 5; higher scores indicated greater

believability, credibility and agreement that the article was scientific (see Appendix G).

Preliminary analyses were conducted on each question to ensure that the articles were

equivalent, as they were in pre-testing.

Manipulation Check. Participants completed five manipulation and attention

checks (see Appendix H). The first attention check measured whether participants were

reading questionnaire instructions. Participants were instructed to answer the question

"What is your favorite food" with the response "reading." After reading the article, the

second manipulation check asked participants, via multiple choice, to identify the

conclusion of the article. After answering questions about each scenario participants

indicated, via multiple choice, the kind of pain the target in the scenario experienced, the

action the target in the scenario took, and the gender of the target. Participants were excluded if they failed any of these manipulation or attention checks.

Target Scenario. Study 2 used the same social pain scenarios as Study 1 (See Appendix C: "John/ Jane recently broke up with his/ her girlfriend/boyfriend and is really hurting. S/he thinks about seeing a therapist for help with his/ her breakup"). Scenarios involving physical pain were not tested in Study 2. In both scenarios, the target considered help-seeking from a therapist, followed by making an active decision to either seek help or cope with the pain on their own.

Target masculinity ratings. As in Study 1 (see Appendix D), male and female participants rated the target on six prescriptive traits ($\alpha = 0.88$, M = 2.93, SD = 0.87) and six proscriptive masculinity traits ($\alpha = 0.82$, M = 3.02, SD = 0.75). Participants completed two meta-measures of masculinity (see Appendix E and Appendix F) assessing the target's perceived attitudes about masculinity (meta-beliefs). As in Study 1, these included 7 items assessing the target's attitudes about precarious manhood, and 26 items assessing the target's attitudes on Male Role Norms. As in Study 1, these measures were collected for all targets, but can only be clearly interpreted for male targets because the meta beliefs about masculinity (e.g., "A man needs to prove his masculinity" [precarious manhood] and "A man should never back down in the face of trouble" [Male Role Norms]) did not implicate Jane's gender group and thus, are less clearly relevant to Jane's perceived masculinity. Regardless, all results are presented in Table 8 and discussed below.

Treatment Effectiveness. As in Study 1 (see Appendix G), participants indicated how effective they believed treatment would be for social pain (M = 3.47, SD = 0.85).

Emotional Disclosure. Participants indicated how emotional disclosing pain would feel for the target, as in Study 1 (see Appendix G: $M = 4.19$, $SD = 0.78$).

Target Likeability. Participants rated the target's likeability (see Appendix G) using four items, as in Study 1, ($M = 3.44$, $SD = 0.76$, $\alpha = .89$).

Pain Severity. As in Study 1 (see Appendix G), participants indicated how serious and severe the pain was for the target using four item ($M = 4.12$, $SD = 0.66$, $\alpha = .85$).

Procedure. Participants responded to an advertisement for a study called "Science in the News & Impression Formation." The advertisement described a 10-20 minute study on impressions of news articles describing scientific articles and impression formation of individuals based on minimal information. The study compensated at $0.25. After completing eligibility information participants completed an informed consent describing the study. After consenting, participants completed an attention check, read one of the two articles (described above) and completed manipulation checks about the article. Participants read one of the four scenarios involving a male or female target experiencing social pain and deciding to seek help or deciding not to seek help. Participants answered questions about the target, while the scenario remained at the top of the survey page, so participants could refer to the scenario while completing questions about the target. Participants completed demographic information at the end of the study.

Results

Ancillary analyses for Study 2 which include participant gender and correlations between all study variables may be found in Appendix I.

Preliminary Analyses. Results for preliminary analyses are summarized in Table 7. The article primes were perceived as equally credible (t (226) = -0.97, p = .335), believable (t (226) = 0.68, p = .702), and scientific (t (226) = -0.06, p = .954).

A 2 x 2 x 2 ANOVA on target likeability by prime, help-seeking, and target gender yielded no significant main effects or interactions, indicating targets in all scenarios were equally liked.

A 2 x 2 x 2 ANOVA on pain severity by prime, help-seeking and target gender yielded a main effect of prime, a main effect of help-seeking, and an interaction between prime and target gender (see Figure 9). Pain was perceived as more severe in response to the pain prime (M = 4.22, SD = 0.59) relative to control prime (M = 3.99, SD = 0.73): F (1, 220) = 9.01, p < .003. Pain was perceived as more severe in help-seeking scenarios (M = 4.25, SD = 0.57), relative to non-help-seeking scenarios (M = 3.98, SD = 0.73): F (1, 220) = 10.96, p = .001. To follow up the interaction between prime and target gender on pain severity (F (1,220) = 3.89, p = .050), simple effects of prime on pain severity were examined, separately for target gender. Pain was perceived as equally severe for male targets after participants read the control prime (M = 4.06, SD = 0.65) and pain prime (M = 4.18, SD = 0.64): F (1, 120) = 1.07, p = .303) pain was perceived as more severe for female targets after participants read the pain prime (M = 4.38, SD = 0.49) relative to the control prime (M = 3.98, SD = 0.81): F (1, 115) = 12.70, p = .001.

A 2 x 2 x 2 ANOVA on emotional disclosure by prime, help-seeking, and target gender yielded a main effect of prime, but no other significant main effects or interactions. Pain was perceived as more emotional after the pain prime (M = 4.31, SD = 0.76) relative to the control prime (M = 4.04, SD = 0.79): F (1, 219) = 7.15, p = .008.

A 2 x 2 x 2 ANOVA on treatment effectiveness by prime, help-seeking and target gender yielded a main effect of prime, but no other significant main effects or interactions. Treatment was perceived as more effective after the pain prime (M = 3.59, SD = 0.84) relative to the control prime (M = 3.33, SD = 0.85): F (1, 219) = 5.72, p = .018

Main Analyses. Results for all main analyses (with and without covariates) are summarized in Table 8. All results were the same regardless of the inclusion of covariates. A 2 x 2 x 2 ANOVA on masculine prescriptions by prime, help-seeking, and target gender controlling for treatment effectiveness, emotional disclosure, and pain severity yielded a main effect of help-seeking, and a main effect of target gender, but no other significant effects or interactions. Targets were perceived as more masculine when they did not seek help (M = 3.23, SD = 0.81) relative to when they sought help (M = 2.63, SD = 0.84): F (1, 215) = 36.58, p < .001. Male targets were perceived as more masculine (M = 3.19, SD = 0.89) than female targets (M = 2.65, SD = 0.87): F (1, 215) = 28.52, p < .001.

A 2 x 2 x 2 ANOVA on masculine proscriptions by prime, help-seeking, and target gender controlling for treatment effectiveness, emotional disclosure, and pain severity yielded a main effect of help-seeking, a main effect of target gender, and an interaction between prime and target gender (see Figure 10). Targets were perceived as more masculine (i.e., less weak) when they did not seek help (M = 2.81, SD = 0.70) relative to when they sought help (M = 3.23, SD = 0.73): F (1, 215) = 22.10, p < .001. Male targets were perceived as more masculine (less weak, M = 2.76, SD = 0.72) than female targets (M = 3.30, SD = 0.67): F (1, 215) = 33.20, p < .001. To follow-up the

significant interaction between prime and target gender (F (1, 215) = 12.38, p = .001) on

masculine proscriptions, simple effects of prime on masculine proscriptions were

examined separately by target gender. After reading the control prime, participants rated

male targets (M = 2.94, SD = 0.64) and female targets (M = 3.20, SD = 0.72) equally on

masculine proscriptions: F (1, 215) = 3.26, p = .074. After reading the pain prime,

participants rated male targets (M = 2.70, SD = 0.77) as more masculine (i.e., less weak)

relative to female targets (M = 3.50, SD = 0.62): F (1, 215) = 42.59, p < .001.

A 2 x 2 x 2 ANOVA on meta-precarious manhood by prime, help-seeking, and

target gender controlling for treatment effectiveness, emotional disclosure, and pain

severity yielded a main effect of help-seeking, an interaction between help-seeking and

target gender (see Figure 11), and no other significant effects. Participants believed

targets would endorse precarious manhood beliefs more when targets did not seek help

(M = 3.09, SD = 0.85) relative to when targets sought help (M = 2.82, SD = 0.81): F (1,

215) = 5.93, p = 0.016. To follow-up the significant interaction between help-seeking and

target gender (F (1, 215) = 4.38, p = .037) on meta-precarious manhood, the simple

effects of help-seeking on meta-precarious manhood (controlling for the aforementioned

covariates) were examined separately by target gender. Participants did not believe

precarious manhood beliefs would vary for the female target when she sought help (M =

3.03, SD = 0.86) or did not seek help (M =3.02, SD = 0.91): F (1, 112) = 0.11, p = .739.

Participants believed male targets would endorse precarious manhood more when the

male target did not seek help (M = 3.21, SD = 0.82) versus when male targets sought help

(M = 2.78, SD = 0.82): F (1, 115) = 7.50, p = .007. As shown in Table 8, when

examining meta-precarious manhood separately for male and female targets, a main

effect of help-seeking (Help-seeking < No Help-seeking) emerged for meta-precarious manhood, but only for male targets.

A 2 x 2 x 2 ANOVA on meta-male role norms by prime, help-seeking, and target gender controlling for treatment effectiveness, emotional disclosure, and pain severity yielded a main effect of help-seeking, an interaction between help-seeking and target gender (see Figure 12), and no other significant effects. Participants believed targets would endorse male role norms more when targets did not seek help (M = 3.10, SD = 0.68) relative to when targets sought help (M = 2.90, SD = 0.61): $F (1, 215) = 5.14$, $p = 0.024$. To follow-up the significant interaction between help-seeking and target gender ($F (1, 215) = 5.31$, $p = .022$) on meta-male role norms, the simple effects of help-seeking (controlling for the aforementioned covariates) were examined separately by target gender. Participants did not believe male role norms would vary for the female target when she sought help (M = 3.02, SD = 0.67) or did not seek help (M = 3.00, SD = 0.69): $F (1, 112) = 0.01$, $p = .936$. Participants believed male targets would endorse male role norms more when the male target did not seek help (M = 3.24, SD = 0.68) versus when male targets sought help (M = 2.90, SD = 0.64): $F (1, 115) = 10.08$, $p = .002$. As shown in Table 8, when examining meta-precarious manhood separately for male and female targets, a main effect of help-seeking (Help-seeking < No Help-seeking) emerged for meta-male role norms, but only for male targets.

Discussion

Study 2 examined whether masculinity downgrading after help-seeking could be reduced in situations involving social pain by priming participants with the idea that social pain is similar to physical pain in the brain. Main effects of help-seeking, prime,

and target gender, were expected but these effects were expected to be qualified by an interaction between prime and help-seeking. Specifically, differences in target masculinity was expected as a function of help-seeking after participants were primed with the idea that social pain is similar to physical pain, but masculinity downgrading was expected to occur when targets sought help (relative to not) after the control prime. The primes only interacted with gender for masculine proscriptions. Male and female targets were seen as equally weak after participants read the control prime, but men were seen as less weak than women after participants read the pain prime. No interactions occurred between prime and help-seeking and no main effects of prime occurred. Main effects of help-seeking emerged on all measures of masculinity, which demonstrated greater perceived masculinity when targets did not seek help relative to seeking help. Likewise main effects of target gender on masculine prescriptions and proscriptions were found, which demonstrated that male targets were perceived as more masculine than female targets. Across both meta measures of masculinity, it was found that, regardless of prime, participants believed male targets who did not seek help would endorse masculinity attitudes more than those who sought help; no difference in meta masculinity emerged for female targets as a function of help-seeking.

The goal of study 2 was to shift attitudes about help-seeking by associating social pain with physical pain. The masculinity literature related to help-seeking indicated men are resistant to help-seeking, with a particular reticence toward seeking psychological care (Courtenay, 2003; Davies et al., 2000; Good et al., 1989; Good & Wood, 1995; Himmelstein & Sanchez, 2014, 2016; Mahalik et al., 2006; O'Brien et al., 2005; Springer & Mouzon, 2011; Wisch et al., 1995). Qualitative work indicated men felt seeking

psychological care was inconsistent with masculinity, even for help with substance use, a problem occurring more often in men (Davies et al., 2000; O'Brien et al., 2005). Study 2 suggested that simply associating social pain with physical pain was not enough to diminish masculinity downgrading though men were seen as less weak after the prime, perhaps because, as Study 1 suggested (weakly) seeking help for physical pain also results in masculinity downgrading as it relates to masculine prescriptions. A stronger way to shift attitudes may lie in associating help-seeking with masculinity by highlighting the courage it takes for an individual to admit weakness.

One, unexpected, consequence of the article primes was to increase perceptions of treatment effectiveness for social pain. When participants read that social pain was similar to physical pain in the brain they indicated treatment for social pain would be more effective relative to individuals who read a control article. Perhaps their personal attitudes toward help-seeking could improve with the pain prime (relative to control) if participants viewed psychological care as more effective after reading the pain prime. Further, Study 2, weakly, suggested the pain prime reduced masculinity downgrading for proscriptions (men were seen as less weak than women after participants read the pain prime), regardless of help-seeking behavior. These two findings may be important in shifting attitudes toward help-seeking behaviors among men and women, which Study 3 tested.

Study 3

Men are less likely to seek psychological care relative to women even when they present with equivalent emotional problems (Addis & Mahalik, 2003; Courtenay, 2000; Galdas, Cheater, & Marshall, 2005). Masculinity is related to less interest in

psychological help-seeking particularly psychological care involving emotion-focused coping (Wisch et al., 1995). The goal of Study 3 was to examine whether re-conceptualizing social pain as physical could encourage psychological help-seeking because it makes seeking help for social pain seem more physical than emotional. Study 3 examined whether male and female participants were more positive toward psychological care (attitudes, behavior) by re-conceptualizing social pain as similar to physical pain. Study 3 also examined personal masculinity beliefs as a moderator of the relationship between prime (article prime) and professional help-seeking. Attitudes toward professional help-seeking were expected to vary as a function of masculinity when participants read an article conceptualizing social pain as distinct from physical pain. Attitudes toward help-seeking were not expected to vary by masculinity when participants read an article that social pain is similar to physical pain.

Pretesting. Gender differences were pretested on all three measures of help-seeking to determine whether female participants should be included in Study 3. A total of 105 (Male: 51, Female: 54, M_{age} = 29.30, SD = 3.28) participants, recruited via Mechanical Turk, completed the survey. Participants rated each measure (described in detail below) on a scale of 1 to 5. Measures assessed attitudes toward professional help-seeking (Fischer & Farina, 1995: α = .81, M = 3.33, SD = 0.70), attitudes toward help-seeking in response to mild social pain (α = .86, M = 3.09, SD = 0.95), and attitudes toward help-seeking in response to clinical symptoms (α = .921, M = 3.54, SD = 0.86). Men (M = 3.16, SD = 0.52) reported less favorable attitudes toward professional help-seeking relative to women (M = 3.48, SD = 0.80): t (102) = -2.39, p = .019. No gender differences emerged for willingness to seek help under conditions of mild social pain

(Male M = 3.16, SD = 0.93; Female M = 3.02, SD = 0.98; t (102) = 0.74, p= .463) or with

clinical symptoms (Male M = 3.48, SD = 0.79; Female M = 3.60, SD = 0.92; t (102) = -

0.69, p= .495). Because the results regarding gender differences were inconsistent and

both previous studies included female participants, both male and female participants

were included in Study 3.

Method

As in Study 2, participants read a news article conceptualizing social pain as

similar to physical pain (pain prime) or a news article discussing detection of musical

beats in the brain (control). Participants reported their attitudes toward seeking

psychological care in general, in response to mild social pain, and in response to clinical

symptoms. Participants were given the option to read about depression and everyday tips

for improving psychological health, which served as a behavioral measure of help-

seeking related to psychological care.

Participants. As in Studies 1 and 2, in order to be eligible for the survey (see

Appendix B), participants (recruited via Mechanical Turk) had to report no prior

experience with psychological care. Eligibility criteria also included age (25-35), English

fluency, and residency (residing in the continental United States). An a priori power

analysis conducted via G-Power (Faul, Erdfelder, Lang, & Buchner, 2007) indicated a

necessary sample size of 153 to capture a desired power level of .95 and a medium effect

size for a linear regression with seven predictors. To recruit the desired sample size, data

were collected until approximately 77 male participants and 77 female participants who

passed two manipulation checks (described in detail under "manipulation checks" below)

completed the study. A total of 168 participants completed the survey. Of those, 15

(8.9%) were excluded from analyses because they failed at least one of the following

manipulation checks: reading check (n = 9, 5.4%) or correct identification or the article

topic (n = 7, 4.2%)[5].

The final sample (N = 153, M_{age} = 29.70, SD_{age} = 4.05) consisted of 77 men

(50.3%) and 76 women (49.70%). Participants identified as White (n = 107, 69.9%),

Asian (n = 17, 11.1%), Black (n = 12, 7.8%), Hispanic or Latino (n = 8, 5.2%), Native

American or Alaska Native, (n = 8, 5.2%), or Multiracial (n = 1, 0.7%). Participants

indicated a mean income category of 5.51 (SD = 3.21) which is equivalent to 40,000 to

60,000 dollars annually (median: $40,001 – 50,000). Additional demographic

information may be found in Table 9.

Materials. Descriptive statistics and reliability estimates are included in Table 10.

Condition. The primes mirrored those used in Study 2 (see Appendix J).

Participants read a modified article from the Monitor on Psychology which either

discussed social pain as similar to physical pain in the brain (pain prime) or discussed

how musical beats are detected in the brain (control prime). Participants rated the article

they read on credibility, believability, and agreement that the article was scientific in

nature on scales ranging from 1 to 5; higher scores indicated greater believability,

credibility and agreement that the article was scientific (see Appendix G).

Manipulation Check. As in Study 2, participants completed the same

manipulation checks (see Appendix H). The first check measured whether participants

were reading questionnaire instructions. Participants were instructed to answer the

question "What is your favorite food" with the response "reading." After reading one of

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[5] One participant failed both manipulation checks. The criterion for exclusion was failure of one of the
manipulation checks

the articles, the second manipulation check asked participants, via multiple choice, to identify the conclusion of the article.

Attitudes Toward Professional Help-seeking. Participants completed a 10-item measure (see Appendix K) assessing their positive attitudes toward seeking psychological care (Fischer & Farina, 1995). Participants rated their agreement with 10 statements on a scale of 1 (Strongly disagree) to 5 (Strongly Agree). Example items include, "The idea of talking about problems with a psychologist strikes me as a poor way to get rid of emotional conflicts." The average score on attitudes toward professional help-seeking was 3.11 (SD = 0.73, α = 0.84).

Mild Social Needs Help-Seeking. Participants indicated their willingness to seek help for situations involving social pain using 5 items (see Appendix L). Participants rated their likelihood of seeking care given the situation on a scale of 1 (extremely unlikely) to 5 (extremely likely). An example item included, "If I was having a hard time with a recent breakup I would seek help from a doctor or therapist." The average score was 2.80 (SD = 1.07, α = 0.91).

Clinical Help-Seeking. Participants indicated their willingness to seek help for clinical symptoms of anxiety and depression (see Appendix M). Items were constructed based on criteria for these disorders listed in the current edition of the Diagnostic and Statistical Manual of Psychological Disorders. The measure included 11 items and participants rated their likelihood of seeking care given the situation on a scale of 1 (extremely unlikely) to 5 (extremely likely). An example item included, "If I were no longer interested in activities I previously enjoyed for an extended period of time (e.g., a

few months) I would seek help from a doctor or therapist." The average score was 3.46 (SD = 0.86, α = 0.91).

Behavioral Help-seeking. Participants were given the option to read information (see Appendix N) on depression (modified from: Movember Foundation, 2015) and everyday tips for improving psychological health (modified from: University of Michigan, 2015). After answering questions related to help-seeking, participants viewed a page with the following instructions, "The following page is completely optional. You can choose to receive some information about depression and 10 tips for improving your psychological health." Participants were asked to choose one of two options: "Skip Optional Psychological Health Information" or "View Optional Psychological Health Information." If they chose to skip the page they were directed to demographics. Two variables were constructed to assess the behavioral measure. The first was a binary measure indicating whether or not participants chose to view the optional information. The second was a continuous measure of time spent on the optional page, in seconds. Individuals who chose not to view the page were coded as zero on the timing measure to indicate they spent no time on the page. A total of 26 (17.6%) participants chose to view the information; 11 of those individuals read the control prime (5 women and 6 men) and 15 read the pain prime (6 women and 9 men). Including those who did not click on the page (coded as zero on the time measure), average time spent on the page was 6.49 (SD = 30.56) seconds. Excluding individuals who did not click on the page (coded as zero on the time measure), the average time spent on the page was 36.76 (SD = 65.60) seconds. Outliers (i.e., those whose time spent on the page was more than three standard deviations above the mean) on the time measure included two individuals when all

participants were considered in the time measure (i.e., including those coded as zero who did not view the page) and one individual when only individuals who clicked on the page were considered in the time measure. Results only changed when the largest outlier was included in the analysis, which were completely driven by the outlier. Therefore the outlier was excluded from all analyses with the behavioral measure on time.

Masculinity. Participants completed the 26 item Male Role Norms Scale (see Appendix F: Thompson & Pleck, 1986) and seven items which measured belief in precarious manhood (see Appendix E: Himmelstein & Sanchez, 2016; Kroeper et al., 2014; Vandello et al., 2008). All items were rated on a scale of 1 (Strongly disagree) to 5 (Strongly agree). Items for each measure were averaged together with higher scores indicating greater endorsement of the construct. The average score for precarious manhood was 2.94 (SD = 0.88, α = 0.88); the average score for male role norms was 2.95 (SD = 2.95, α = 0.92).

Procedure

Participants signed up for a study called "Science in the News & You." The study was described as a 10-20 minute study on impressions of news articles describing scientific articles and social attitudes. The study compensated at $0.25 which was described in the advertisement. After completing eligibility information (age, English language fluency, residence in the United States, no prior experience with psychological care) participants completed an informed consent describing the study. After consenting, participants read one of the two articles (described above) and completed manipulation checks about the article. Participants answered questions assessing help-seeking attitudes first (order of the three measures described above was randomized), and participants

completed questions about masculinity second (order of the measures of masculinity were randomized). The behavioral measure of help-seeking came last, followed by demographic information.

Results

Preliminary Analyses. Results for preliminary analyses are summarized in Table 11. The article primes were perceived as equally credible (t (151) = 1.50, p = .135), believable (t (150) = 0.53, p = .879), and scientific (t (151) = 1.59, p = .114).

Because masculinity was measured after the prime two 2 x 2 ANOVAs were conducted on precarious manhood and male role norms to ensure the primes did not influence the masculinity scores. Male participants endorsed male role norms (M = 3.11, SD = 0.60) and precarious manhood (M = 3.14, SD = 0.92) more than females (male role norms: M = 2.79, SD = 0.70, F (1, 149) = 8.82, p = .003; precarious manhood: (M = 2.74, SD = 0.79, F (1, 149) = 8.02, p = .005), but no main effect of prime and no interaction between prime and target gender occurred in either analysis.

Main Analyses. A summary of all analyses can be found in Table 12. A linear regression on attitudes toward professional help-seeking by prime, participant gender, precarious manhood, and all relevant interactions accounted for a marginal significant amount of the variance in attitudes toward professional help-seeking (R^2 = 0.09, F (7, 152) = 2.04, p = .054), but revealed no significant predictors of attitudes toward professional help-seeking. Similarly, a linear regression on attitudes toward professional help-seeking by prime, participant gender, male role norms, and all relevant interactions accounted for a significant amount of the variance in attitudes toward professional help-

seeking ($R^2 = 0.14$, F (7, 152) = 3.28, p = .003), but revealed no significant predictors of attitudes toward professional help-seeking.

A linear regression on mild social needs help-seeking by prime, participant gender, masculinity, and all relevant interactions did not account for a significant amount of the variance in mild social needs help-seeking (precarious manhood: $R^2 = 0.02$, F (7, 152) = 0.35, p = .931; male role norms: $R^2 = 0.07$, F (7, 152) = 1.44, p = .195), and revealed no significant predictors for mild social needs help-seeking.

A linear regression on clinical help-seeking by prime, participant gender, precarious manhood, and all relevant interactions accounted for a significant amount of the variance in attitudes toward professional help-seeking ($R^2 = 0.11$, F (7, 152) = 2.66, p = .013), but no significant predictors of attitudes toward professional help-seeking. A linear regression on clinical help-seeking by prime, participant gender, male role norms, and all relevant interactions accounted for a significant amount of the variance in attitudes toward professional help-seeking ($R^2 = 0.11$, F (7, 152) = 2.56, p = .016). Participant gender predicted clinical help-seeking (B = -2.51, β = -1.32, p = .016) indicating men endorsed clinical help-seeking less than women (note: men were coded as 1 and women were coded as 0 in this dataset). No other significant predictors of clinical help-seeking emerged.

A linear regression on the behavioral help-seeking time measure by prime, participant gender, masculinity, and all relevant interactions did not account for a significant amount of the variance in time spent help-seeking (precarious manhood: $R^2 = 0.02$, F (7, 151) = 0.47, p = .855; male role norms: $R^2 = 0.04$, F (7, 151) = 0.78, p = .604), and no significant predictors for time spent help-seeking. Excluding individuals who did

not view the behavioral measure (coded as zero in the aforementioned time analysis) did not change the results. A linear regression on time spent help-seeking (excluding individuals who skipped the measure) by prime, participant gender, masculinity and all relevant interactions did not account for a significant amount of variance in time spent help-seeking (precarious manhood: $R^2 = 0.17$, $F (7, 25) = 0.53$, $p = .798$; male role norms: $R^2 = 0.26$, $F (7, 25) = 0.89$, $p = .536$), nor did it provide any significant predictors of time spent help-seeking.

A binary logistic regression on the binary help-seeking measure by prime, participant gender, masculinity and all relevant interactions did not account for a significant amount of variance in the binary help-seeking measure (precarious manhood: $R^2 = 0.02$, $\chi^2 (7) = 3.54$, $p = 0.831$; male role norms: $R^2 = 0.02$, $\chi^2 (7) = 3.35$, $p = 0.851$), and no significant predictors of the binary measure emerged.

Discussion

Study 3 examined whether priming social pain as similar to physical pain could increase attitudes toward psychological help-seeking and behavior. Prime was expected to positively affect attitudes toward help-seeking with more positive attitudes emerging after participants read the pain prime relative to control. Further, participant gender was expected to negatively affect help-seeking with men exhibiting less positive attitudes about help-seeking relative to women. Masculinity was expected to have a negative impact on attitudes toward help-seeking, with greater endorsement of masculinity being associated with less positive attitudes toward help-seeking. Importantly, a three way interaction between prime, participant gender, and masculinity, was expected such that men who strongly endorsed precarious manhood would report more positive attitudes

about help-seeking (and greater help-seeking behavior) after reading the prime equating physical pain to social pain relative to control. Men who did not strongly endorse precarious manhood were expected to endorse positive attitudes about help-seeking (and help-seeking behavior) regardless of prime. Precarious manhood was not expected to influence help-seeking attitudes in women.

These results indicated associating social pain with physical pain did nothing to change attitudes toward help-seeking. This study provided weak support for the notion than men have less favorable attitudes about professional help-seeking relative to women, indeed participant gender only emerged as a significant predictor on clinical help-seeking. Contrary to expectations masculinity had no influence on help-seeking attitudes or the behavioral measure of help-seeking. Given the large literature suggesting otherwise (Courtenay, 2003; Davies et al., 2000; Good et al., 1989; Good & Wood, 1995; Mahalik et al., 2006; O'Brien et al., 2005), these findings should be interpreted with caution. Research demonstrated that asking participants what they would do in a hypothetical scenario is not a good predictor of actual behavior (Baumeister & Leary, 1995; West & Brown, T., 1975; Wilson & Gilbert, 2003). The actual behavioral measure in this study may be an especially poor predictor for use for with Mechanical Turk participants who are working for very small incentives. Noting the behavioral measure was optional may have encouraged an especially high drop out. Thus, it may be beneficial to examine past help-seeking behavior in an epidemiological study which includes questions on depression, past help-seeking behavior and masculinity.

General Discussion

Studies 1 and 2 demonstrated that, regardless of gender, individuals were perceived as less masculine (as measured by masculine prescriptions) when they sought help (versus not) for social pain and physical pain, but the hit to masculinity was larger in situations involving social pain. Study 2, provided additional support that individuals, regardless of gender, were perceived as less masculine (as measured by all masculinity measures) when they sought help for social pain (relative to deciding not to seek help). Study 2 suggested priming participants with the idea that social pain is similar to physical pain reduced masculinity downgrading for men (i.e., men were perceived as less weak relative to women) regardless of help-seeking behavior in social pain scenarios. However, pain priming did nothing to minimize masculinity downgrading related to help-seeking. Priming, further, did nothing to increase positive attitudes toward help-seeking, nor did it influence a behavioral measure of help-seeking. The only potential benefit to the pain prime was that it increased the perceived effectiveness of treatment for social pain relative to the control article.

Though these studies indicated no gender differences in masculinity downgrading it is possible that men may face greater penalties (not related to masculinity) from others relative to women as a result of masculinity downgrading. The literature on backlash indicates women face backlash (i.e., penalties) for violating proscriptions (e.g., displaying dominance), but men face backlash for violating prescriptions and proscriptions (Moss-Racusin et al., 2010; Rudman & Glick, 2001; Rudman et al., 2012). Because help-seeking for social pain resulted in a masculinity downgrade in both studies 1 (prescriptions) and 2 (all masculinity measures), it may be that men avoid help-seeking as a way to avoid other

social penalties. That is, men's resistance to seeking help may not be rooted in fear of masculinity loss alone, but fear of other social consequences which could result from their gender norm violation or as a way to avoid discomfort that accompanies disclosure. Moss-Racusin and Miller (2015) found no gender differences in mental illness stigma for depression. Further, they found that mental illness stigma was reduced in male targets who sought help for depression relative to male targets who did not seek-help, which was mediated by respect for the target. While the authors (Moss-Racusin & Miller, 2015) concluded that this reduction in mental illness stigma resulted from masculinity they did not actually test masculinity perceptions of the target. Further, their article described mental illness and inability to excel in a work context as a result. In this scenario seeking help may be perceived as more masculine because it enables the target to work, which can be considered an important aspect of the male gender role. An important next step is to examine masculinity ratings using a similar paradigm to Moss-Racusin and Miller (2015), but examining depression independent of a workplace context.

One criticism of these studies was the use of a non-clinical help-seeking for Studies 1 and 2. This is an important criticism as gender differences only emerged on help-seeking for clinical issues in Study 3, which was not consistent with pre-testing. Pretesting indicated a gender difference on general attitudes toward professional help-seeking, but no differences in clinical help-seeking or mild social help-seeking. Other studies (e.g., Moss-Racusin & Miller, 2015), indicated no penalty for help-seeking in males experiencing depression, indeed, they indicated a penalty for non-help-seeking in males experiencing depression. It may be that help-seeking in situations where masculinity cannot be performed is interpreted as a masculine act or, at least, more

masculine than doing nothing. Testing potential masculinity loss for help-seeking in a non-clinical scenario remains important because it represented a conservative test of the article primes. If masculinity loss could have been minimized in a trivial or non-severe situation involving social pain it could have been harnessed to increase willingness to seek help in situations requiring counseling (e.g., couples therapy), non-clinical problems with adjustment (e.g., adapting to college) as well as clinical diagnoses (e.g., substance abuse). It might have also encouraged counseling for psychological stress before stress produces a clinical outcome like substance dependence. An important next step of this work will investigate a more powerful prime involving masculinity and help-seeking. Specifically, I plan to examine whether asking men to read a story about a hyper-masculine man (e.g., marine, UFC fighter, male actor like The Rock) who describes seeking help for depression, might result affect masculinity downgrading in response to help-seeking. That is, I plan to frame seeking help for depression as a masculine act (as in Moss-Racusin & Miller, 2015) through a hyper-masculine figure to determine if framing help-seeking as masculine does, indeed, affect masculinity perceptions of a target seeking help. The hope is that this may change downgrading in masculinity for help-seeking and increase positive attitudes toward help-seeking. I also plan to examine how framing the body as a valuable object may change the inclination toward professional help-seeking. Specifically, I plan to ask men to think about how they might take their car (or other valued object) to a professional to have it fixed if it were in need of repair. Asking men to think of their bodies as an object of value (i.e., you would take your car to a mechanic if it needed repair, you should take your body to the doctor if you experience problems, physical or social) may similarly increase willingness to seek care.

These studies failed to replicate prior work which demonstrated that men have less interest in psychological care and, indeed, seek psychological care less than women (Addis & Mahalik, 2003; Berger et al., 2005; Courtenay, 2003). It also failed to replicate consistent work which demonstrated a negative relationship between masculinity and care-seeking for psychological care (Courtenay, 2003; Davies et al., 2000; Good et al., 1989; Good & Wood, 1995; Mahalik et al., 2006; O'Brien et al., 2005). This may be due to the measures used in Study 3, which assessed attitudes rather than behavioral care-seeking. It may be that male and female participants were not willing to report less interest in psychological care, despite behavioral differences. Self-report may be a poor way to demonstrate differences that exist in these behaviors in the general population. Using a sample with no prior experience with psychological care likewise may have resulted in drawing from participants who have never needed psychological care and thus could not imagine seeking it. We may have failed to find consistent support for masculinity downgrading, because it may be an unfounded fear men have. That is, men may worry over being downgraded in masculinity for seeking help, but may not actually experience a downgrade. This idea is supported by work from Moss-Racusin and Miller (2015) and unpublished work on masculinity by researchers (J. Bosson).

These studies have many strengths, but also several weaknesses. Little of what was hypothesized was supported in this study. Though there was support for the idea that downgrading occurs for help-seeking in situations with social pain it was not unique to social pain, nor was it unique for men. The priming articles did nothing to influence masculinity perceptions of help-seeking targets and attitudes about psychological care; this provides further evidence that priming effects are not effective at shaping attitudes or

behavior. Though I examined whether participants downgraded target masculinity after a target seeks care it did not precisely test for fear or being downgraded in masculinity for seeking help. Likewise measuring positive attitudes toward seeking care and hypothetical care seeking scenarios is conceptually different from intentions to seek care and did not actually test whether men will actually seek care more often. Though no effects of prime emerged, there would be no data on the length of priming effects with this study design. Male and female participants were included in all three studies, but did not test for differences related to participant gender (see ancillary analyses in Appendix I) or age. Limiting the age group may have made it more difficult to detect effects, more research is needed in this area. An important additional step in this work will involve examining potential participant gender differences in these constructs using studies with less complicated experimental designs to clearly interpret potential interactions. It would be most useful to conduct these studies in a community sample of men rather than using a Mechanical Turk sample, but testing via Mechanical Turk allows for inexpensive and rapid tests of hypotheses (Buhrmester, Kwang, & Gosling, 2011) which is a useful first step in examining these effects in a representational, longitudinal sample. Despite weaknesses, I believe these studies make an important contribution to the literature on masculinity and health by testing one potential theory on why men avoid psychological healthcare.

References

Addis, M. E., & Mahalik, J. R. (2003). Men, masculinity, and the contexts of help seeking. American Psychologist, 58, 5–14. doi:10.1037/0003-066X.58.1.5

Barsky, A. J., Peekna, H. M., & Borus, J. F. (2001). Somatic symptom reporting in women and men. Journal of General Internal Medicine, 16, 266–275. doi:10.1046/j.1525-1497.2001.016004266.x

Baumeister, R. F., & Leary, M. R. (1995). The need to belong: desire for interpersonal attachments as a fundamental human motivation. Psychological Bulletin, 117, 497–529. doi:10.1037/0033-2909.117.3.497

Berger, J. M., Levant, R. F., McMillan, K. K., Kelleher, W., & Sellers, A. (2005). Impact of gender role conflict, traditional masculinity ideology, alexithymia, and age on men's attitudes toward psychological help seeking. Psychology of Men & Masculinity, 6, 73–78. doi:10.1037/1524-9220.6.1.73

Bernardes, S., Keogh, E., & Lima, M. (2008). Bridging the gap between pain and gender research: A selective literature review. European Journal of Pain, 12, 427–440. doi:10.1016/j.ejpain.2007.08.007

Buhrmester, M., Kwang, T., & Gosling, S. D. (2011). Amazon's mechanical turk: A new source of inexpensive, yet high-quality, data? Perspectives on Psychological Science, 6, 3–5. doi:10.1177/1745691610393980

Bush, F., Harkins, S., Harrington, W., & Price, D. (1993). Analysis of gender effects on pain perception and symptom presentation in temporomandibular pain. Pain, 53, 73–80. doi:10.1016/0304-3959(93)90058-W

Chandra, A., & Minkovitz, C. S. (2006). Stigma starts early: Gender differences in teen willingness to use mental health services. The Journal of adolescent health : official publication of the Society for Adolescent Medicine, 38, 754.e1–8. doi:10.1016/j.jadohealth.2005.08.011

Courtenay, W. H. (2000). Constructions of masculinity and their influence on men's well-being: A theory of gender and health. Social Science & Medicine, 50, 1385–1401. doi:10.1016/S0277-9536(99)00390-1

Courtenay, W. H. (2003). Key determinants of the health and well-being of men and boys. International Journal of Men's Health, 1, 1–30. doi:10.3149/jmh.0201.1

Courtenay, W. H., Mccreary, D. R., & Merighi, J. R. (2002). Gender and ethnic differences in health beliefs and behaviors. Journal of Health Psychology, 7, 219–231. doi:10.1177/1359105302007003216

Cranford, J. A., Eisenberg, D., & Serras, A. M. (2009). Substance use behaviors, mental health problems, and use of mental health services in a probability sample of college students. Addictive Behaviors, 34, 134–45. doi:10.1016/j.addbeh.2008.09.004

Dao, T., & LeResche, L. (1999). Gender differences in pain. Journal of Orofacial Pain, 14, 169–184.

Davies, J., McCrae, B., Frank, J., Dochnahl, A., Pickering, T., Harrison, B., … Wilson, K. (2000). Identifying male college students' perceived health needs, barriers to seeking help, and recommendations to help men adopt healthier lifestyles. Journal of American College Health, 48, 259–267. doi:10.1080/07448480009596267

De Visser, R. O., & Smith, J. A. (2006). Mister in-between: A case study of masculine identity and health-related behaviour. Journal of Health Psychology, 11, 685–95.

doi:10.1177/1359105306066624

Dinger, M. K., & Waigandt, A. (1997). Dietary intake and physical activity behaviors of male and female college students. American Journal of Health Promotion, 11, 360–362. doi:10.4278/0890-1171-11.5.360

Eisenberg, D., Downs, M. F., Golberstein, E., & Zivin, K. (2009). Stigma and help seeking for mental health among college students. Medical Care Research and Review, 66, 522–541. doi:10.1177/1077558709335173

Escoffery, C., Miner, K. R., Adame, D. D., Butler, S., McCormick, L., & Mendell, E. (2005). Internet use for health information among college students. Journal of American College Health, 53, 183–8. doi:10.3200/JACH.53.4.183-188

Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. Behavior Research Methods, 39, 175–191. doi:10.3758/BF03193146

Fillingim, R., & King, C. (2009). Sex, gender, and pain: A review of recent clinical and experimental findings. The Journal of Pain, 10, 447–485. doi:10.1016/j.jpain.2008.12.001.Sex

Fischer, E., & Farina, A. (1995). Attitudes toward seeking psychological professional help: A shortened form and considerations for research. Journal of College Student Development, 36, 368–373.

Foundation, M. (2015). Poor Mental Health: Awareness and Support. Retrieved from https://us.movember.com/mens-health/mental-health

Good, G. E., Dell, D. M., & Mintz, L. B. (1989). Male role and gender role conflict: Relations to help seeking in men. Journal of Counseling Psychology, 36, 295–300. doi:10.1037//0022-0167.36.3.295

Good, G. E., & Wood, P. K. (1995). Male gender role conflict, depression, and help seeking: Do college men face double jeopardy. Journal of Counseling & Development, 74, 70–75. doi:10.1002/j.1556-6676.1995.tb01825.x

Heron, M. (2007). Deaths: Leading causes for 2004. National Vital Statistics Reports, 56, 1–95.

Himmelstein, M. S., & Sanchez, D. T. (2014). Masculinity impediments: Internalized masculinity contributes to healthcare avoidance in men and women. Journal of Health Psychology, Advance On. doi:10.1177/1359105314551623

Himmelstein, M. S., & Sanchez, D. T. (2016). Masculinity in the doctor's office: Masculinity, gendered doctor preference and doctor–patient communication. Preventive Medicine, 84, 34–40. doi:10.1016/j.ypmd.2015.12.008

Kochanek, K. D., Xu, J., Murphy, S. L., Minino, A. M., & Kung, H. (2011). Deaths: Preliminary data for 2009. National Vital Statistics Reports, 59, 1–68.

Kroeper, K. M., Sanchez, D. T., & Himmelstein, M. S. (2014). Heterosexual men's confrontation of sexual prejudice: The role of precarious manhood. Sex Roles, 70, 1–13. doi:10.1007/s11199-013-0306-z

Levant, R. F., Parent, M. C., McCurdy, E. R., & Bradstreet, T. C. (2015). Moderated mediation of the relationships between masculinity ideology, outcome expectations, and energy drink use. Health Psychology, Online Fir. doi:10.1037/hea0000214

Mahalik, J. R., Burns, S. M., & Syzdek, M. (2007). Masculinity and perceived normative health behaviors as predictors of men's health behaviors. Social Science & Medicine, 64, 2201–2209. doi:10.1016/j.socscimed.2007.02.035

Mahalik, J. R., Lagan, H. D., & Morrison, J. a. (2006). Health behaviors and masculinity in kenyan and u.s. male college students. Psychology of Men & Masculinity, 7, 191–202. doi:10.1037/1524-9220.7.4.191

Mansfield, A. K., Addis, M. E., & Mahalik, J. R. (2003). "Why won't he go to the doctor?": The psychology of men's help seeking. International Journal of Men's Health, 2, 93–109. doi:10.3149/jmh.0202.93

Miller, K. E. (2008). Wired: energy drinks, jock identity, masculine norms, and risk taking. Journal of American College Health, 56, 481–9. doi:10.3200/JACH.56.5.481-490

Moss-Racusin, C. A. (2014). Male backlash: Organizational penalties for men who violate gender stereotypes. In R. Burke & D. Major (Eds.), Men in Organizations: Allies or Adversaries to Women's Career Advancement (pp. 247–269). London: Edward Elgar Publishing.

Moss-Racusin, C. A., & Miller, H. G. (2015). "Taking charge" of stigma: Treatment seeking alleviates men's mental illness Stigma. Journal of Applied Social Psychology.

Moss-Racusin, C. A., Phelan, J. E., & Rudman, L. A. (2010). When men break the gender rules: Status incongruity and backlash against modest men. Psychology of Men & Masculinity, 11, 140–151. doi:10.1037/a0018093

Murphy, S., Xu, J., & Kochanek, K. (2013). Deaths: Final data for 2010. National Vital Statistics Reports, 61, 1–118.

O'Brien, R., Hunt, K., & Hart, G. (2005). "It"s caveman stuff, but that is to a certain extent how guys still operate': Men's accounts of masculinity and help seeking. Social Science & Medicine, 61, 503–16. doi:10.1016/j.socscimed.2004.12.008

Phelan, J., & Basow, S. (2007). College students' attitudes toward mental illness: An examination of the stigma process. Journal of Applied Social Psychology, 37, 2877–2902.

Prentice, D. A., & Carranza, E. (2002). What women and men should be, shouldn't be, are allowed to be, and don't have to be: The contents of prescriptive gender stereotypes. Psychology of Women Quarterly, 26, 269–281. doi:10.1111/1471-6402.t01-1-00066

Reavley, N. J., & Jorm, A. F. (2011). Stigmatizing attitudes towards people with mental disorders: Findings from an australian national survey of mental health literacy and stigma. The Australian and New Zealand Journal of Psychiatry, 45, 1086–93. doi:10.3109/00048674.2011.621061

Robertson, S. (2006). "I've been like a coiled spring this last week": Embodied masculinity and health. Sociology of Health & Illness, 28, 433–56. doi:10.1111/j.1467-9566.2006.00500.x

Rosenfield, S., & Mouzon, D. M. (2013). Gender and mental health. In Handbook of the sociology of mental health (pp. 277–296). Netherlands: Springer.

Rudman, L. A., & Fairchild, K. (2004). Reactions to counterstereotypic behavior: the role of backlash in cultural stereotype maintenance. Journal of personality and social psychology, 87, 157–76. doi:10.1037/0022-3514.87.2.157

Rudman, L. A., & Glick, P. (2001). Prescriptive gender stereotypes and backlash toward agentic women. Journal of Social Issues, 57, 743–762. doi:10.1111/0022-4537.00239

Rudman, L. A., Moss-Racusin, C. A., Phelan, J. E., & Nauts, S. (2012). Status incongruity and backlash effects: Defending the gender hierarchy motivates prejudice against female leaders. Journal of Experimental Social Psychology, 48, 165–179. doi:10.1016/j.jesp.2011.10.008

Sandman, D., Simantov, E., An, C., Fund, C., & Harris, L. (2000). Out of touch: American men and the health care system.

Schnittker, J. (2000). Gender and reactions to psychological problems: An examination of social tolerance and perceived dangerousness. Journal of Health and Social Behavior, 41, 224. doi:10.2307/2676307

Seedat, S., Scott, K. M., Angermeyer, M. C., Berglund, P., Bromet, E. J., Brugha, T. S., … Kessler, R. C. (2009). Cross-national associations between gender and mental disorders in the world health organization world mental health surveys. Archives of General Psychiatry, 66, 785–795. doi:10.1001/archgenpsychiatry.2009.36

Springer, K. W., & Mouzon, D. M. (2011). "Macho men" and preventive health care: Implications for older men in different social classes. Journal of Health and Social Behavior, 52, 212–27. doi:10.1177/0022146510393972

Steptoe, A., & Wardle, J. (2001). Health behaviour, risk awareness and emotional well-being in students from eastern europe and western europe. Social Science & Medicine, 53, 1621–30. doi:10.1016/S0277-9536(00)00446-9

Thompson, E. H., & Pleck, J. (1986). The structure of male role norms. American Behavioral Scientist, 29, 531–543. doi:10.1177/000276486029005003

University of Michigan. (2015). Ten things you can do for your mental health. Retrieved from https://www.uhs.umich.edu/tenthings

Vallerand, A. H. (1995). Gender differences in pain. Image: The Journal of Nursing Scholarship, 27, 235–237. doi:10.1111/j.1547-5069.1995.tb00865.x

Vandello, J. A., & Bosson, J. K. (2013). Hard won and easily lost: A review and synthesis of theory and research on precarious manhood. Psychology of Men & Masculinity, 14, 101–113. doi:10.1037/a0029826

Vandello, J. A., Bosson, J. K., Cohen, D., Burnaford, R. M., & Weaver, J. R. (2008). Precarious manhood. Journal of Personality and Social Psychology, 95, 1325–39. doi:10.1037/a0012453

Weir, K. (2012). The pain of social rejection. Monitor on Psychology, 43, 50–53.

West, S. G., & Brown, T., J. (1975). Physical attractiveness, the seversity of the emegency and helping: A field experience and interpersonal simulation. Journal of Experimental Social Psychology, 11, 531–538.

Wilson, T. D., & Gilbert, D. T. (2003). Affective forecasting. In Advances in Experimental Social Psychology (pp. 345–411). New York: Elsevier.

Winerman, L. (2009). Move to the Music. Monitor on Psychology, 40, 28.

Wisch, A., Mahalik, J., Hayes, J., & Nutt, E. (1995). The impact of gender role conflict and counseling technique on psychological help seeking in men. Sex Roles, 2, 77–89. doi:10.1007/BF01547936

Wise, E. A., Price, D. D., Myers, C. D., Heft, M. W., & Robinson, M. E. (2002). Gender role expectations of pain: relationship to experimental pain perception. Pain, 96, 335–42. doi:10.1016/S0304-3959(01)00473-0

Table 1

Study 1 Demographic Information

	n	%
Condition		
Male Social Help	30	13.45
Male Social No Help	27	12.11
Female Social Help	27	12.11
Female Social No Help	25	11.21
Male Physical Help	30	13.45
Male Physical No Help	32	14.35
Female Physical Help	28	12.56
Female Physical No Help	24	10.76
Participant Gender		
Male	117	52.5
Female	106	57.5
Participant's Racial Identity		
White	159	71.3
Asian	25	11.21
Black	19	8.52
Hispanic or Latino	9	4.04

Table 1 (continued)

	n	%
Native American or Alaksa		
Native	5	2.24
Multiracial	4	1.79
Other	1	0.45
Decline	1	0.45
Household Income	**n**	**%**
>$15,000	26	11.66
$15,001-20,000	17	7.62
$20,001 -30,000	31	13.9
$30,001-40,000	23	10.31
$40,001-50,000	22	9.87
50,001 -60,000	26	11.66
$60,001-70,000	23	10.31
$70,001-80,000	13	5.83
$80,001-90,000	8	3.59
$90,001-100,000	12	5.38
$100,001-125,000	13	5.83
$125,001-150,000	5	2.24
$150,001 - 200,000	0	0.0
Decline	1	0.45

Table 2

Study 1 Descriptive Statistics and Reliability Estimates

	α	M	SD
Likeability	0.87	3.43	0.68
Pain Severity	0.88	3.75	0.83
Emotional Disclosure of Pain	-	3.19	1.28
Effective Treatment	-	3.71	0.89
Masculine Prescriptions	0.86	3.04	0.83
Masculine Proscriptions	0.83	2.69	0.81
Meta Precarious Manhood (all Targets)	0.87	2.96	0.81
Meta Precarious Manhood (Male Targets)	0.86	2.95	0.78
Meta Precarious Manhood (Female Targets)	0.87	2.96	0.86
Meta Male Role Norms (all Targets)	0.92	3.07	0.60
Meta Male Role Norms (Male Targets)	0.92	3.07	0.59
Meta Male Role Norms (Female Targets)	0.92	3.07	0.61

Note. Emotional disclosure of pain and effective treatment do not have reliability estimates as they were measured with a single item. All scales and questions ranged from 1 to 5.

Table 3

Study 1 Summary of Preliminary Results

	df	F	p	η_p^2
Likeability				
Pain Type	(1, 215)	1.39	0.239	0.01
Help-seeking	(1, 215)	0.29	0.592	0.00
Target Gender	(1, 215)	1.05	0.307	0.00
Pain Type x Help-seeking	(1, 215)	1.32	0.252	0.01
Pain Type x Target Gender	(1, 215)	0.47	0.495	0.00
Help-seeking x Target Gender	(1, 215)	0.34	0.561	0.00
Pain Type x Help-seeking x Target Gender	(1, 215)	3.02	0.084	0.01
Pain Severity				
Pain Type	(1, 215)	29.04	0.000*	0.12
Help-seeking	(1, 215)	25.35	0.000*	0.11
Target Gender	(1, 215)	0.14	0.710	0.00
Pain Type x Help-seeking	(1, 215)	9.99	0.002*	0.04
Pain Type x Target Gender	(1, 215)	0.01	0.931	0.00
Help-seeking x Target Gender	(1, 215)	1.85	0.175	0.01
Pain Type x Help-seeking x Target Gender	(1, 215)	0.53	0.468	0.00

Table 3 (continued)

	df	F	p	η_p^2
Emotional Disclosure				
	(1, 213)	164.66	0.000*	0.44
Pain Type				
Help-seeking	(1, 213)	7.06	0.008*	0.03
Target Gender	(1, 213)	0.25	0.616	0.00
Pain Type x Help-seeking	(1, 213)	3.00	0.085	0.01
Pain Type x Target Gender	(1, 213)	0.02	0.884	0.00
Help-seeking x Target Gender	(1, 213)	1.36	0.245	0.01
Pain Type x Help-seeking x Target Gender	(1, 213)	0.38	0.540	0.00
Treatment Effectiveness				
Pain Type	(1, 215)	7.96	0.005*	0.04
Help-seeking	(1, 215)	5.86	0.016*	0.03
Target Gender	(1, 215)	3.27	0.072	0.01
Pain Type x Help-seeking	(1, 215)	0.84	0.360	0.00
Pain Type x Target Gender	(1, 215)	8.08	0.005*	0.04
Help-seeking x Target Gender	(1, 215)	0.40	0.526	0.00
Pain Type x Help-seeking x Target Gender	(1, 215)	1.78	0.183	0.01

* Indicates significant effect. Precise p values and effect sizes are as indicated.

Table 4

Study 1 Summary of Main Results

	Including Covariates				Excluding Covariates			
	df	F	p	η_p^2	df	F	p	η_p^2
Masculine Prescriptions								
Treatment Effectiveness	(1, 210)	2.99	0.085	0.01				
Pain Severity	(1, 210)	0.01	0.934	0.00				
Emotional Disclosure	(1, 210)	0.04	0.851	0.00				
Pain Type	(1, 210)	21.84	0.000*	0.09	(1, 215)	47.41	0.000*	0.18
Help-seeking	(1, 210)	37.76	0.000*	0.15	(1, 215)	36.06	0.000*	0.14
Target Gender	(1, 210)	14.4	0.000*	0.06	(1, 215)	14.10	0.000*	0.06
Pain Type x Help-seeking	(1, 210)	5.05	0.026*	0.02	(1, 215)	6.58	0.011*	0.03
Pain Type x Target Gender	(1, 210)	6.01	0.015*	0.03	(1, 215)	4.07	0.045*	0.02
Help-seeking x Target Gender	(1, 210)	1.07	0.302	0.01	(1, 215)	1.18	0.279	0.01
Pain Type x Help-seeking x Target Gender	(1, 210)	1.16	0.282	0.01	(1, 215)	1.15	0.284	0.01

Table 4 (continued)

	Including Covariates				Excluding Covariates			
	df	F	p	η_p^2	df	F	p	η_p^2
Masculine Proscriptions								
Treatment Effectiveness	(1, 210)	1.631	0.203	0.01				
Pain Severity	(1, 210)	2.197	0.140	0.01				
Emotional Disclosure	(1, 210)	0.956	0.329	0.00				
Pain Type	(1, 210)	42.031	0.000*	0.17	(1, 215)	108.60	0.000*	0.34
Help-seeking	(1, 210)	14.791	0.000*	0.07	(1, 215)	24.41	0.000*	0.10
Target Gender	(1, 210)	56.325	0.000*	0.21	(1, 215)	59.26	0.000*	0.22
Pain Type x Help-seeking	(1, 210)	1.843	0.176	0.01	(1, 215)	0.66	0.418	0.00
Pain Type x Target Gender	(1, 210)	0.603	0.438	0.00	(1, 215)	1.26	0.262	0.01
Help-seeking x Target Gender	(1, 210)	2.939	0.088	0.01	(1, 215)	3.72	0.055	0.02
Pain Type x Help-seeking x Target Gender	(1, 210)	2.158	0.143	0.01	(1, 215)	2.53	0.113	0.01

Table 4 (continued)

	Including Covariates				Excluding Covariates			
	df	F	p	η_p^2	df	F	p	η_p^2
Meta Precarious Manhood (All Targets)								
Treatment Effectiveness	(1, 209)	0.98	0.324	0.00				
Pain Severity	(1, 209)	0.48	0.487	0.00				
Emotional Disclosure	(1, 209)	0.43	0.514	0.00				
Pain Type	(1, 209)	6.30	0.013*	0.03	(1, 214)	11.86	0.001*	0.05
Help-seeking	(1, 209)	2.96	0.087	0.01	(1, 214)	2.45	0.119	0.01
Target Gender	(1, 209)	0.04	0.842	0.00	(1, 214)	0.01	0.925	0.00
Pain Type x Help-seeking	(1, 209)	0.01	0.941	0.00	(1, 214)	0.02	0.900	0.00
Pain Type x Target Gender	(1, 209)	2.19	0.140	0.01	(1, 214)	3.06	0.082	0.01
Help-seeking x Target Gender	(1, 209)	2.74	0.099	0.01	(1, 214)	2.74	0.099	0.01
Pain Type x Help-seeking x Target Gender	(1, 209)	0.60	0.441	0.00	(1, 214)	0.35	0.552	0.00

Table 4 (continued)

	Including Covariates				Excluding Covariates			
	df	F	p	η_p^2	df	F	p	η_p^2
Meta Male Role Norms (All Targets)								
Treatment Effectiveness	(1, 209)	3.66	0.057	0.02				
Pain Severity	(1, 209)	1.40	0.238	0.01				
Emotional Disclosure	(1, 209)	3.30	0.071	0.02				
Pain Type	(1, 209)	4.92	0.028*	0.02	(1, 214)	9.48	0.002*	0.04
Help-seeking	(1, 209)	2.81	0.095	0.01	(1, 214)	3.23	0.074	0.01
Target Gender	(1, 209)	0.01	0.921	0.00	(1, 214)	0.00	0.986	0.00
Pain Type x Help-seeking	(1, 209)	0.39	0.534	0.00	(1, 214)	0.42	0.515	0.00
Pain Type x Target Gender	(1, 209)	1.44	0.232	0.01	(1, 214)	2.91	0.090	0.01
Help-seeking x Target Gender	(1, 209)	7.34	0.007*	0.03	(1, 214)	6.67	0.010*	0.03
Pain Type x Help-seeking x Target Gender	(1, 209)	0.55	0.460	0.00	(1, 214)	0.69	0.408	0.00

Table 4 (continued)

	Including Covariates				Excluding Covariates			
	df	F	p	η_p^2	df	F	p	η_p^2
Meta Precarious Manhood (Male Targets)								
Treatment Effectiveness	(1, 110)	0.36	0.552	0.00				
Pain Severity	(1, 110)	0.38	0.537	0.00				
Emotional Disclosure	(1, 110)	0.00	0.975	0.00				
Pain Type	(1, 110)	8.66	0.004*	0.07	(1, 114)	17.58	0.000*	0.13
Help-seeking	(1, 110)	8.27	0.005*	0.07	(1, 114)	6.77	0.010*	0.06
Pain Type x Help-seeking	(1, 110)	0.44	0.508	0.00	(1, 114)	0.14	0.706	0.00
Meta Male Role Norms (Male Targets)								
Treatment Effectiveness	(1, 110)	2.07	0.153	0.02				
Pain Severity	(1, 110)	1.63	0.205	0.02				
Emotional Disclosure	(1, 110)	0.53	0.468	0.01				
Pain Type	(1, 110)	7.12	0.009*	0.06	(1, 114)	13.85	0.000*	0.11

Table 4 (continued)

	Including Covariates				Excluding Covariates			
	df	F	p	η_p^2	df	F	p	η_p^2
Help-seeking	(1, 110)	13.22	0.000*	0.11	(1, 114)	11.62	0.001*	0.09
Pain Type x Help-seeking	(1, 110)	0.01	0.921	0.00	(1, 114)	0.02	0.890	0.00
Meta Precarious Manhood (Female Targets)								
Treatment Effectiveness	(1, 96)	0.56	0.456	0.01				
Pain Severity	(1, 96)	0.17	0.682	0.00				
Emotional Disclosure	(1, 96)	0.76	0.385	0.01				
Pain Type	(1, 96)	0.57	0.451	0.01	(1, 100)	1.12	0.292	0.01
Help-seeking	(1, 96)	0.01	0.909	0.00	(1, 100)	0.00	0.955	0.00
Pain Type x Help-seeking	(1, 96)	0.39	0.535	0.00	(1, 100)	0.20	0.653	0.00

Table 4 (continued)

	Including Covariates				Excluding Covariates			
	df	F	p	η_p^2	df	F	p	η_p^2
Meta Male Role Norms (Female Targets)								
Treatment Effectiveness	(1, 96)	1.68	0.198	0.02				
Pain Severity	(1, 96)	0.29	0.590	0.00				
Emotional Disclosure	(1, 96)	3.31	0.072	0.03				
Pain Type	(1, 96)	0.28	0.597	0.00	(1, 100)	0.78	0.379	0.01
Help-seeking	(1, 96)	0.82	0.368	0.01	(1, 100)	0.26	0.615	0.00
Pain Type x Help-seeking	(1, 96)	0.43	0.512	0.00	(1, 100)	0.91	0.342	0.01

* Indicates significant effect. Precise p values and effect sizes are as indicated.

Table 5

Study 2 Demographic Information

	n	%
Condition		
Pain Prime: Male Social Help	25	11.0
Pain Prime: Male Social No Help	22	9.6
Pain Prime: Female Social Help	30	13.2
Pain Prime: Female Social No Help	25	11.0
Control Prime: Male Social Help	36	15.8
Control Prime: Male Social No Help	34	14.9
Control Prime: Female Social Help	25	11.0
Control Prime: Female Social No Help	31	13.6
Participant Gender		
Male	110	48.2
Female	118	51.8
Participant's Racial Identity		
White	163	71.5
Asian	29	12.7
Black	15	6.6
Hispanic or Latino	11	4.8

Table 5 (continued)

	n	%
Native American or Alaksa Native	7	3.1
Multiracial	3	1.3
Other	0	0
Decline	0	0
Household Income		
>$15,000	22	9.6
$15,001-20,000	21	9.2
$20,001 -30,000	27	11.8
$30,001-40,000	26	11.4
$40,001-50,000	39	17.1
50,001 -60,000	24	10.5
$60,001-70,000	9	3.9
$70,001-80,000	16	7
$80,001-90,000	14	6.1
$90,001-100,000	11	4.8
$100,001-125,000	7	3.1
$125,001-150,000	4	1.8
$150,001 - 200,000	5	2.2
Decline	0	0

Table 6

Study 2 Descriptive Statistics and Reliability Estimates

	α	M	SD
Prime Credibility	-	4.00	0.77
Prime Believability	-	4.31	0.78
Prime Scientific	-	3.93	0.91
Likeability	0.89	3.44	0.76
Pain Severity	0.85	4.12	0.66
Emotional Disclosure of Pain	-	4.19	0.78
Effective Treatment	-	3.47	0.85
Masculine Prescriptions	0.88	2.93	0.87
Masculine Proscriptions	0.82	3.02	0.75
Meta Precarious Manhood (all Targets)	0.89	2.96	0.84
Meta Precarious Manhood (Male Targets)	0.88	2.92	0.80
Meta Precarious Manhood (Female Targets)	0.91	2.99	0.87
Meta Male Role Norms (all Targets)	0.93	3.00	0.65
Meta Male Role Norms (Male Targets)	0.94	3.04	0.66
Meta Male Role Norms (Female Targets)	0.93	2.97	0.65

Note. Prime credibility, prime believability, prime scientific, emotional disclosure of pain and effective treatment do not have reliability estimates as they were measured with a single item. All scales and questions ranged from 1 to 5.

Table 7

Study 2 Summary of Preliminary Results

	Control Prime	Pain Prime		
	M (SD)	M (SD)	df	t
Prime Credibility	3.94 (0.73)	4.04 (0.79)	226	-0.97
Prime Believability	4.33 (0.74)	4.29 (0.81)	226	0.38
Prime Scientific	3.92 (0.85)	3.93 (0.96)	226	-0.06
		df	F	p	η_p^2
Likeability					
Prime		(1, 220)	1.91	0.168	0.01
Help-seeking		(1, 220)	1.96	0.163	0.01
Target Gender		(1, 220)	0.05	0.817	0.00
Prime x Help-seeking		(1, 220)	0.09	0.759	0.00
Prime x Target Gender		(1, 220)	0.07	0.787	0.00
Help-seeking x Target Gender		(1, 220)	0.06	0.815	0.00
Prime x Help-seeking x Target Gender		(1, 220)	0.84	0.360	0.00
Pain Severity					
Prime		(1, 220)	9.01	0.003*	0.04
Help-seeking		(1, 220)	10.96	0.001*	0.05
Target Gender		(1, 220)	0.21	0.650	0.00
Prime x Help-seeking		(1, 220)	0.40	0.531	0.00
Prime x Target Gender		(1, 220)	3.89	0.050*	0.02
Help-seeking x Target Gender		(1, 220)	0.09	0.759	0.00

Table 7 (continued)

	df	F	p	ηp2
Prime x Help-seeking x Target Gender	(1, 220)	0.48	0.491	0.00
Emotional Disclosure				
Prime	(1, 219)	7.15	0.008*	0.03
Help-seeking	(1, 219)	3.62	0.059	0.02
Target Gender	(1, 219)	0.04	0.838	0.00
Prime x Help-seeking	(1, 219)	0.02	0.902	0.00
Prime x Target Gender	(1, 219)	0.15	0.703	0.00
Help-seeking x Target Gender	(1, 219)	0.12	0.731	0.00
Prime x Help-seeking x Target Gender	(1, 219)	1.745	0.188	0.01
Treatment Effectiveness				
Prime	(1, 219)	5.72	0.018*	0.03
Help-seeking	(1, 219)	2.04	0.155	0.01
Target Gender	(1, 219)	0.01	0.946	0.00
Prime x Help-seeking	(1, 219)	3.19	0.076	0.01
Prime x Target Gender	(1, 219)	0.53	0.469	0.00
Help-seeking x Target Gender	(1, 219)	1.05	0.306	0.01
Prime x Help-seeking x Target Gender	(1, 219)	0.32	0.570	0.00

* Indicates significant effect. Precise p values and effect sizes are as indicated.

Table 8

Study 2 Summary of Main Results

	Including Covariates				Excluding Covariates			
	df	F	p	η_p^2	df	F	p	η_p^2
Masculine Prescriptions								
Treatment Effectiveness	(1, 215)	8.15	0.005*	0.04				
Pain Severity	(1, 215)	0.68	0.411	0.00				
Emotional Disclosure	(1, 215)	0.01	0.943	0.00				
Prime	(1, 215)	0.99	0.322	0.01	(1, 220)	0.50	0.482	0.00
Help-seeking	(1, 215)	36.58	0.000*	0.15	(1, 220)	35.25	0.000*	0.14
Target Gender	(1, 215)	28.523	0.000*	0.12	(1, 220)	28.24	0.000*	0.11
Prime x Help-seeking	(1, 215)	0.023	0.880	0.00	(1, 220)	0.11	0.741	0.00
Prime x Target Gender	(1, 215)	0.455	0.501	0.00	(1, 220)	0.35	0.557	0.00
Help-seeking x Target Gender	(1, 215)	0.694	0.406	0.00	(1, 220)	0.28	0.595	0.00
Prime x Help-seeking x Target Gender	(1, 215)	1.721	0.191	0.01	(1, 220)	1.50	0.222	0.01

Table 8 (continued)

	Including Covariates				Excluding Covariates			
	df	F	p	η_p^2	df	F	p	η_p^2
Masculine Proscriptions								
Treatment Effectiveness	(1, 215)	1.41	0.236	0.01				
Pain Severity	(1, 215)	0.13	0.718	0.00				
Emotional Disclosure	(1, 215)	0.29	0.590	0.00				
Prime	(1, 215)	0.22	0.642	0.00	(1, 220)	0.00	0.958	0.00
Help-seeking	(1, 215)	22.10	0.000*	0.09	(1, 220)	28.13	0.000*	0.11
Target Gender	(1, 215)	33.20	0.000*	0.13	(1, 220)	35.48	0.000*	0.14
Prime x Help-seeking	(1, 215)	0.87	0.351	0.00	(1, 220)	1.58	0.210	0.01
Prime x Target Gender	(1, 215)	12.38	0.001*	0.05	(1, 220)	13.04	0.000*	0.06
Help-seeking x Target Gender	(1, 215)	3.18	0.076	0.02	(1, 220)	2.52	0.114	0.01
Prime x Help-seeking x Target Gender	(1, 215)	1.81	0.180	0.01	(1, 220)	1.81	0.180	0.01

Table 8 (continued)

	Including Covariates				Excluding Covariates			
	df	F	p	η_p^2	df	F	p	η_p^2
Meta Precarious Manhood (All Targets)								
Treatment Effectiveness	(1, 215)	4.76	0.030*	0.02				
Pain Severity	(1, 215)	0.10	0.754	0.00				
Emotional Disclosure	(1, 215)	0.01	0.931	0.00				
Prime	(1, 215)	0.14	0.710	0.00	(1, 220)	0.00	0.956	0.00
Help-seeking	(1, 215)	5.93	0.016*	0.03	(1, 220)	5.22	0.023*	0.02
Target Gender	(1, 215)	0.52	0.472	0.00	(1, 220)	0.37	0.545	0.00
Prime x Help-seeking	(1, 215)	1.33	0.250	0.01	(1, 220)	1.88	0.171	0.01
Prime x Target Gender	(1, 215)	0.43	0.511	0.00	(1, 220)	0.16	0.693	0.00
Help-seeking x Target Gender	(1, 215)	4.38	0.037*	0.02	(1, 220)	4.04	0.046*	0.02
Prime x Help-seeking x Target Gender	(1, 215)	0.81	0.369	0.00	(1, 220)	0.49	0.483	0.00

Table 8 (continued)

	Including Covariates				Excluding Covariates			
	df	F	p	η_p^2	df	F	p	η_p^2
Meta Male Role Norms (All Targets)								
Treatment Effectiveness	(1, 215)	6.73	0.010*	0.03				
Pain Severity	(1, 215)	0.18	0.668	0.00				
Emotional Disclosure	(1, 215)	0.19	0.660	0.00				
Prime	(1, 215)	0.60	0.439	0.00	(1, 220)	0.28	0.600	0.00
Help-seeking	(1, 215)	5.14	0.024*	0.02	(1, 220)	4.53	0.034*	0.02
Target Gender	(1, 215)	0.55	0.460	0.00	(1, 220)	0.81	0.370	0.00
Prime x Help-seeking	(1, 215)	1.30	0.256	0.01	(1, 220)	2.04	0.155	0.01
Prime x Target Gender	(1, 215)	0.83	0.362	0.00	(1, 220)	0.46	0.500	0.00
Help-seeking x Target Gender	(1, 215)	5.31	0.022*	0.02	(1, 220)	4.49	0.035*	0.02
Prime x Help-seeking x Target Gender	(1, 215)	0.03	0.857	0.00	(1, 220)	0.00	0.979	0.00

Table 8 (continued)

	Including Covariates				Excluding Covariates			
	df	F	p	η_p^2	df	F	P	η_p^2
Meta Precarious Manhood (Male Targets)								
Treatment Effectiveness	(1, 108)	0.39	0.534	0.00				
Pain Severity	(1, 108)	0.49	0.486	0.01				
Emotional Disclosure	(1, 108)	0.12	0.730	0.00				
Prime	(1, 108)	0.21	0.648	0.00	(1, 113)	0.07	0.794	0.00
Help-seeking	(1, 108)	9.34	0.003*	0.08	(1, 113)	10.95	0.001*	0.09
Prime x Help-seeking	(1, 108)	2.36	0.127	0.02	(1, 113)	2.56	0.113	0.02
Meta Male Role Norms (Male Targets)								
Treatment Effectiveness	(1, 108)	6.12	0.015*	0.05				
Pain Severity	(1, 108)	0.16	0.691	0.00				
Emotional Disclosure	(1, 108)	0.21	0.650	0.00				
Prime	(1, 108)	0.03	0.863	0.00	(1, 113)	0.01	0.914	0.00

Table 8 (continued)

	Including Covariates				Excluding Covariates			
	df	F	p	η_p^2	df	F	p	η_p^2
Help-seeking	(1, 108)	10.19	0.002*	0.09	(1, 113)	9.46	0.003*	0.08
Prime x Help-seeking	(1, 108)	0.65	0.422	0.01	(1, 113)	1.11	0.295	0.01
Meta Precarious Manhood (Female Targets)								
Treatment Effectiveness	(1, 104)	4.96	0.028	0.05				
Pain Severity	(1, 104)	0.77	0.383	0.01				
Emotional Disclosure	(1, 104)	0.02	0.899	0.00				
Prime	(1, 104)	0.84	0.361	0.01	(1, 107)	0.09	0.769	0.00
Help-seeking	(1, 104)	0.10	0.754	0.00	(1, 107)	0.03	0.859	0.00
Prime x Help-seeking	(1, 104)	0.00	0.996	0.00	(1, 107)	0.19	0.662	0.00

Table 8 (continued)

	Including Covariates				Excluding Covariates			
	df	F	p	η_p^2	df	F	p	η_p^2
Meta Male Role Norms (Female Targets)								
Treatment Effectiveness	(1, 104)	1.17	0.283	0.01				
Pain Severity	(1, 104)	1.09	0.298	0.01				
Emotional Disclosure	(1, 104)	0.02	0.879	0.00				
Pain Type	(1, 104)	1.44	0.233	0.01	(1, 107)	0.69	0.409	0.01
Help-seeking	(1, 104)	0.02	0.902	0.00	(1, 107)	0.00	0.995	0.00
Pain Type x Help-seeking	(1, 104)	0.48	0.492	0.00	(1, 107)	0.94	0.336	0.01

* Indicates significant effect. Precise p values and effect sizes are as indicated.

Table 9

Study 3 Demographic Information

	n	%
Condition		
Pain Prime: Female	42	27.5
Pain Prime: Male	36	23.5
Control Prime: Female	34	22.2
Control Prime: Male	41	26.8
Participant Gender		
Male	76	49.7
Female	77	50.3
Participant's Racial Identity		
White	107	69.9
Asian	17	11.1
Black	12	7.8
Hispanic or Latino	8	5.2
Native American or Alaska Native	8	5.2
Multiracial	1	0.7
Other	0	0
Decline	0	0

Table 9 (continued)

	n	%
Household Income		
>$15,000	15	9.8
$15,001-20,000	13	8.5
20,001 -30,000	20	13.1
30,001-40,000	20	13.1
40,001-50,000	13	8.5
50,001 -60,000	24	15.7
60,001-70,000	9	5.9
70,001-80,000	11	7.2
80,001-90,000	7	4.6
90,001-100,000	6	3.9
100,001-125,000	5	3.3
125,001-150,000	7	4.6
150,001-200,000	2	1.3
Decline		
Insurance		
Yes	74	48.4
No	39	25.5
Unsure	40	26.1

Table 10

Study 3 Descriptive Statistics and Reliability Estimates

	α	M	SD
Prime Credibility	-	4.00	0.77
Prime Believability	-	4.31	0.78
Prime Scientific	-	3.93	0.91
Attitudes Toward Help-seeking	0.84	3.11	0.73
Mild Help-seeking Questions	0.91	2.80	1.07
Clinical Help-seeking Questions	0.91	3.46	0.86
Behavioral Measure: Time	-	6.49	30.56
Participant Precarious Manhood	0.88	2.94	0.88
Participant Male Role Norms	0.92	2.95	0.67

Note. Prime credibility, prime believability, and prime scientific do not have reliability estimates as they were measured with a single item. The behavioral measure of time does not have a reliability estimate. All other scales and questions ranged from 1 to 5.

Table 11

Study 3 Summary of Preliminary Results

	Control Prime	Pain Prime		
	M (SD)	M (SD)	df	t
Prime Credibility	4.07 (0.70)	3.88 (0.79)	151	1.50
Prime Believability	4.15 (0.84)	4.13 (0.81)	150	0.53
Prime Scientific	4.12 (0.73)	3.91 (0.89)	151	1.59

Table 12

Study 3 Summary of Main Results

	Precarious Manhood				Male Role Norms			
	B	β	t	p	B	β	t	p
Attitudes Toward Professional Help-seeking	F (7, 152) = 3.28, p = .003				F (7, 152) = 2.04, p = .054			
Prime	0.26	0.18	0.50	0.619	0.40	0.27	0.59	0.560
Participant Gender	-0.14	-0.10	-0.23	0.817	-0.53	-0.37	-0.67	0.503
Masculinity Beliefs	-0.23	-0.27	-1.66	0.100	-0.19	-0.18	-1.12	0.263
Prime * Participant Gender	-0.56	-0.33	-0.67	0.503	0.35	0.20	0.32	0.752
Prime x Masculinity Beliefs	-0.16	-0.35	-0.89	0.374	-0.18	-0.38	-0.77	0.444
Participant Gender x Masculinity Beliefs	-0.02	-0.05	-0.10	0.917	0.11	0.25	0.43	0.669
Prime x Participant Gender x Masculinity Beliefs	0.24	0.47	0.90	0.371	-0.08	-0.15	-0.22	0.824
Mild Social Needs Help-seeking	F (7, 152) = 0.35, p = .931				F (7, 152) = 1.44, p = .195			
Prime	0.47	0.22	0.57	0.567	0.35	0.16	0.34	0.731
Participant Gender	-0.59	-0.28	-0.63	0.530	-1.97	-0.92	-1.67	0.096

Table 12 (continued)

	Precarious Manhood				Male Role Norms			
	B	β	t	p	B	β	t	p
Masculinity Beliefs	0.05	0.04	0.21	0.835	0.18	0.11	0.70	0.485
Prime * Participant Gender	-0.15	-0.06	-0.11	0.911	1.32	0.52	0.80	0.424
Prime x Masculinity Beliefs	-0.11	-0.16	-0.39	0.695	-0.06	-0.08	-0.17	0.870
Participant Gender x Masculinity Beliefs	0.18	0.29	0.61	0.545	0.61	0.93	1.60	0.113
Prime x Participant Gender x Masculinity Beliefs	0.02	0.03	0.05	0.963	-0.46	-0.58	-0.85	0.394
Clinical Help-seeking	$F (7, 152) = 2.66, p = .013$				$F (7, 152) = 2.56, p = .016$			
Prime	0.57	0.33	0.91	0.366	0.28	0.16	0.35	0.726
Participant Gender	-1.18	-0.69	-1.65	0.100	-2.25	-1.32	-2.45	0.016*
Masculinity Beliefs	-0.08	-0.08	-0.48	0.630	-0.08	-0.06	-0.39	0.700
Prime * Participant Gender	0.68	0.34	0.68	0.497	2.05	1.02	1.60	0.112
Prime x Masculinity Beliefs	-0.23	-0.43	-1.09	0.280	-0.11	-0.19	-0.39	0.696

Table 12 (continued)

	Precarious Manhood				Male Role Norms			
	B	β	t	p	B	β	t	p
Participant Gender x Masculinity Beliefs	0.21	0.41	0.91	0.364	0.55	1.05	1.84	0.067
Prime x Participant Gender x Masculinity Beliefs	-0.07	-0.11	-0.21	0.835	-0.54	-0.86	-1.29	0.199
Time on Behavioral Help-Seeking	$F_{(7, 151)} = 2.09, p = .048$				$F_{(7, 151)} = 3.02, p = .005$			
Prime	-1.12	-0.04	-0.12	0.907	0.74	0.03	0.06	0.951
Participant Gender	-2.48	-0.10	-0.22	0.826	-12.57	-0.50	-0.86	0.392
Masculinity Beliefs	-1.03	-0.07	-0.41	0.682	-3.01	-0.16	-0.99	0.323
Prime * Participant Gender	-1.07	-0.04	-0.07	0.946	1.36	0.05	0.07	0.946
Prime x Masculinity Beliefs	-0.76	-0.10	-0.23	0.817	-1.39	-0.17	-0.33	0.740
Participant Gender x Masculinity Beliefs	-0.44	-0.06	-0.12	0.905	3.03	0.39	0.63	0.529
Prime x Participant Gender x Masculinity Beliefs	1.65	0.19	0.33	0.744	0.85	0.09	0.13	0.897

Table 12 (continued)

	B	β	Wald	p	B	β	Wald	p
Binary Behavioral Help-Seeking (Click, No Click)								
Prime	-1.19	0.31	0.32	0.570	-1.81	0.16	0.46	0.498
Participant Gender	0.46	1.58	0.04	0.840	-0.39	0.68	0.01	0.904
Masculinity Beliefs	-0.22	0.80	0.16	0.688	-0.60	0.55	0.71	0.400
Prime * Participant Gender	2.41	11.09	0.60	0.437	2.18	8.85	0.26	0.609
Prime x Masculinity Beliefs	0.42	1.52	0.34	0.561	0.65	1.91	0.46	0.500
Participant Gender x Masculinity Beliefs	-0.08	0.92	0.01	0.914	0.19	1.21	0.03	0.863
Prime x Participant Gender x Masculinity Beliefs	-0.64	0.53	0.39	0.533	-0.59	0.55	0.17	0.684

* indicates significant result, p values are as indicated.
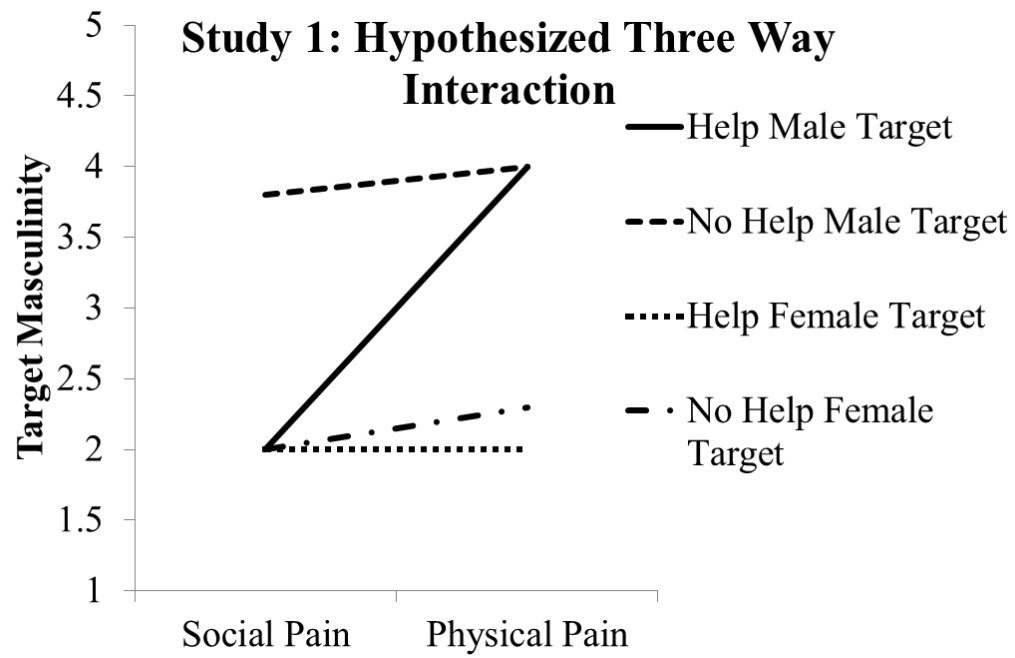
Figure1. Study 1 Hypothesized Interaction
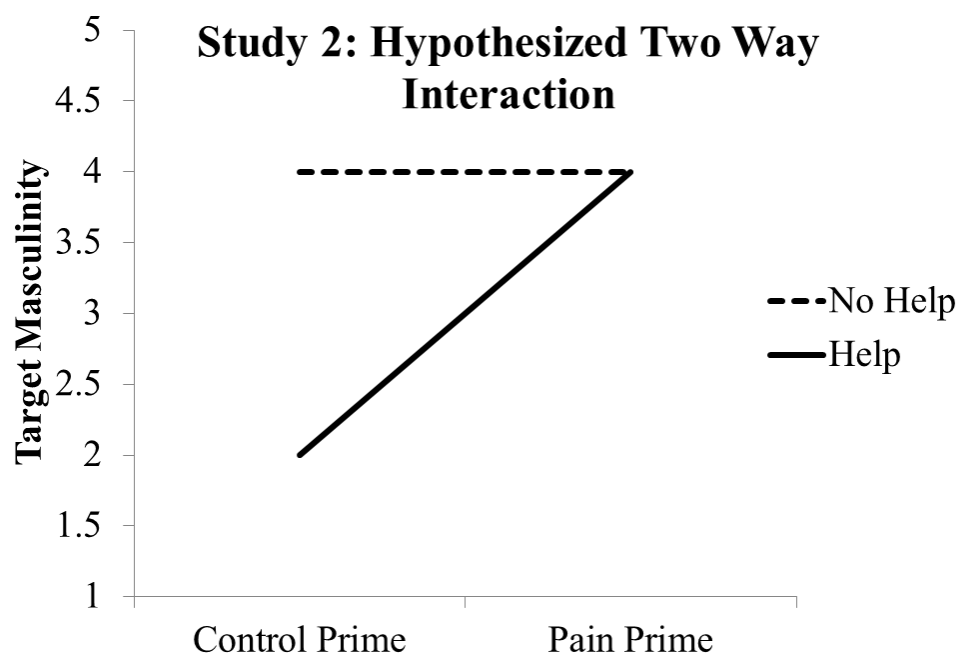
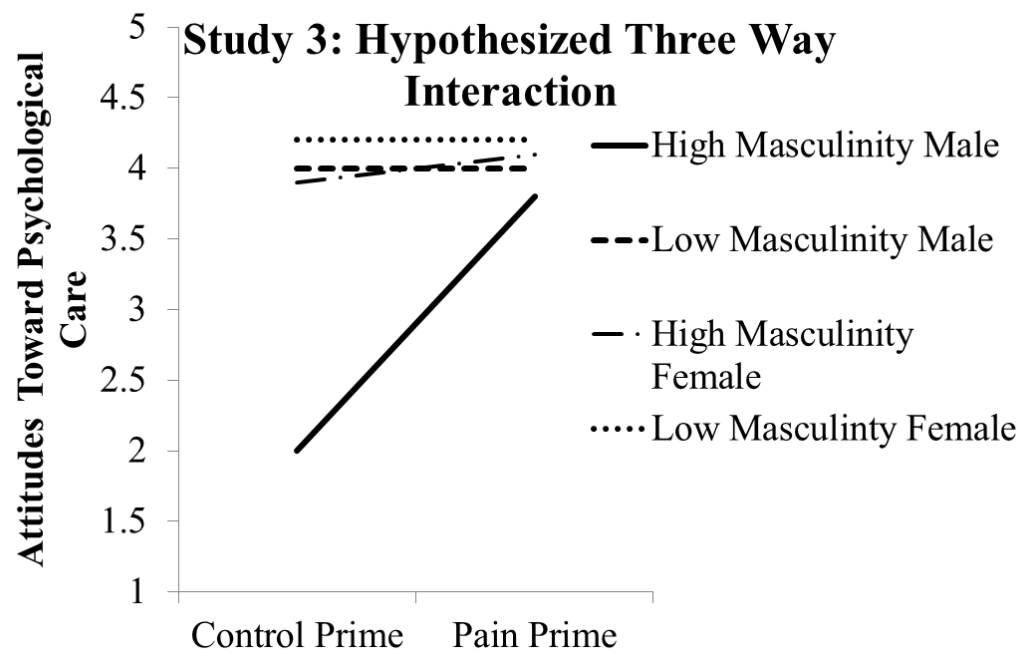Figure 2. Study 2 Hypothesized Interaction
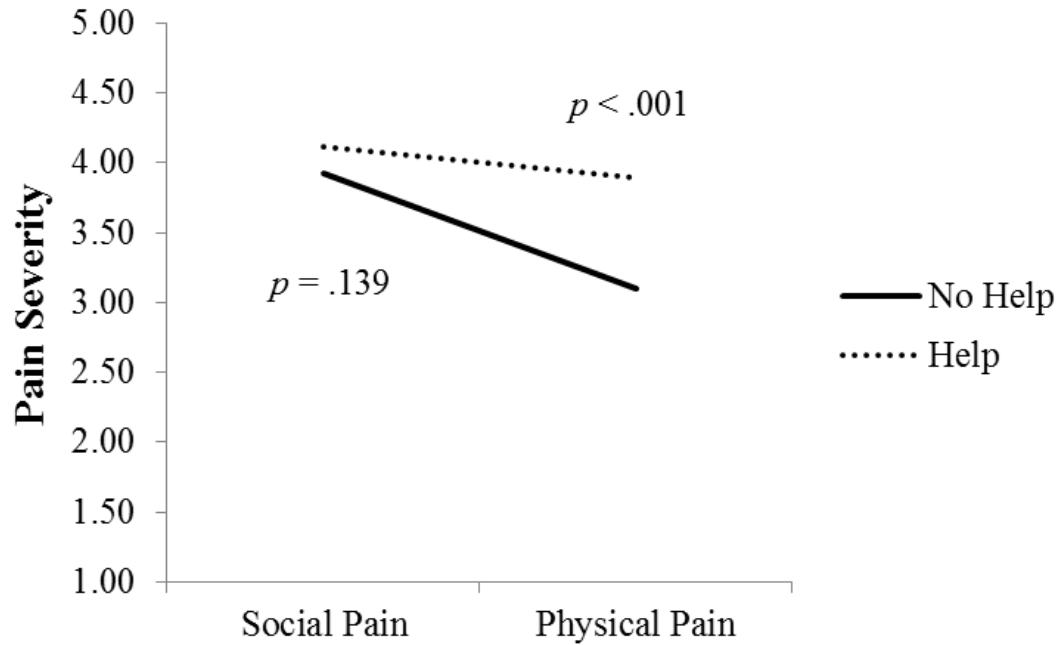
Figure 3. Study 3 Hypothesized Interaction

Figure 4. Study 1 Help-seeking and pain type on pain severity.

Study 1 two way interaction between help-seeking and pain type on pain severity from preliminary analyses: F (1, 215) = 9.99, p = .002. Follow-up tests indicated pain was perceived as equally severe in social situations involving help-seeking (M = 4.11, SD = 0.66) and social situations involving no help-seeking (M = 3.93, SD = 0.64): F (1, 105) = 2.22, p = .139; pain was perceived as more severe in physical scenarios in which the target sought help (M = 3.89, SD = 0.72) versus physical scenarios in which the target did not seek help (M = 3.10, SD = 0.89): F (1, 110) = 28.18, p < .000.
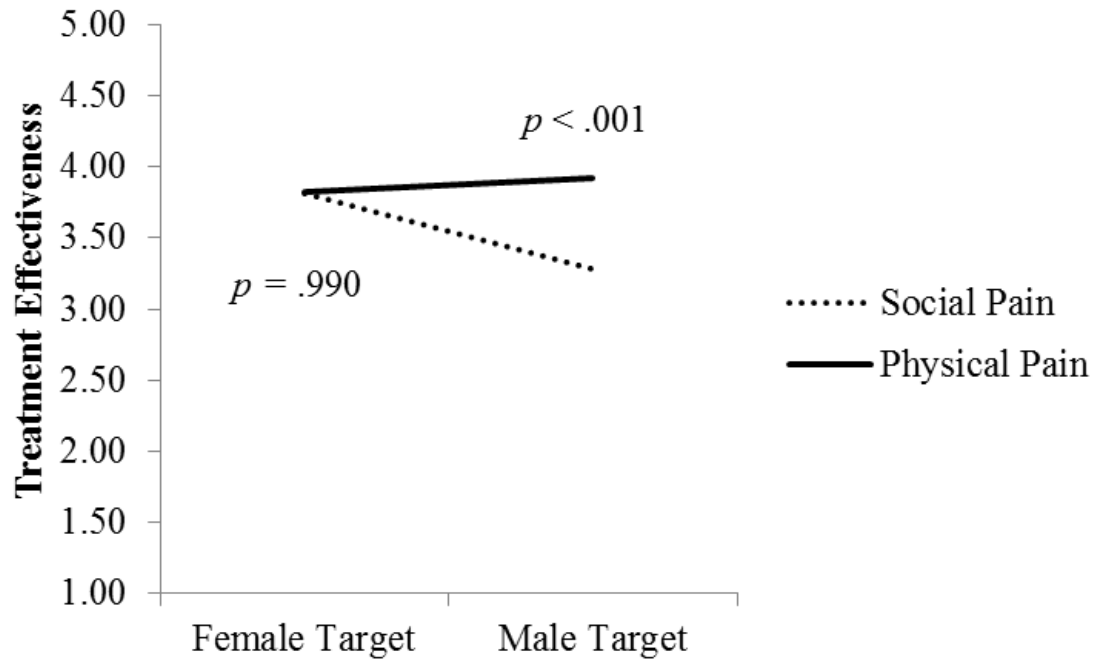
Figure 5. Study 1 Help-seeking and target gender on treatment effectiveness

Study 1 two way interaction between help-seeking and target gender on treatment effectiveness from preliminary analyses: (F (1,215) = 8.08, p = .005). Follow-up tests indicated, treatment was perceived as equally effective for women in situations involving social pain (M =3.81, SD = 0.91) and physical pain (M =3.83, SD =1.04): F (1, 105) = 0.00, p = .990; treatment was perceived as more effective in scenarios involving physical pain for men (M =3.92, SD = 0.68) versus scenarios involving social pain for men (M =3.28, SD = 0.80): F (1, 110) = 22.77, p < .001.
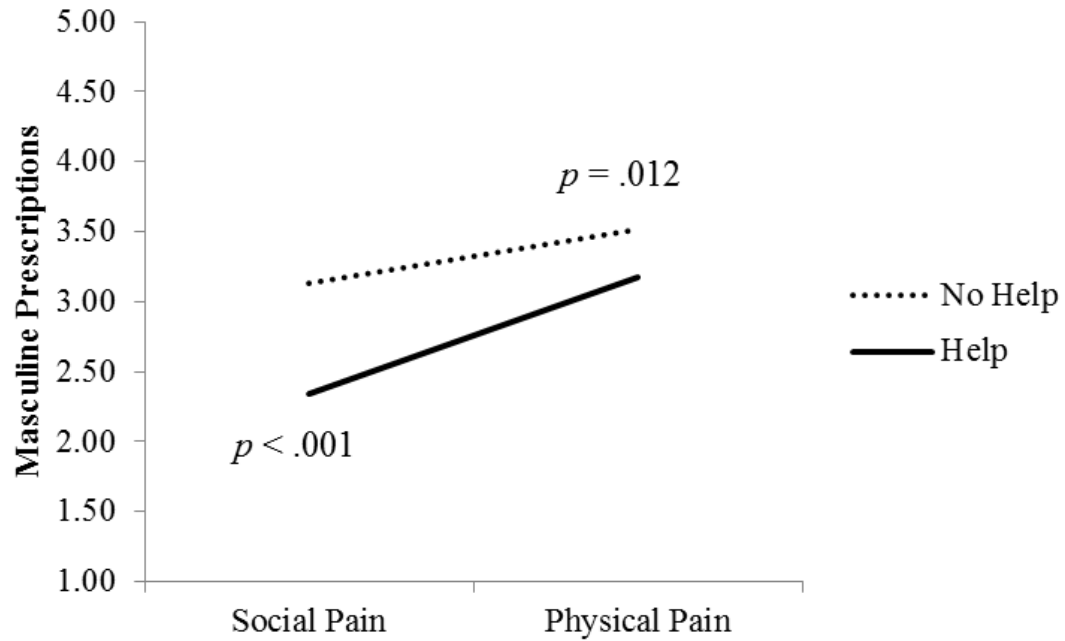
Figure 6. Study 1 Help-seeking and pain type on masculine prescriptions

Study 1 two way interaction between help-seeking and pain type on masculine

prescriptions from the main analyses: $F(1, 210) = 5.05$, $p = .026$. Follow-up tests

indicated targets were perceived as more masculine when they did not seek help ($M =$

3.13, $SD = 0.75$) relative to those who sought help ($M = 2.34$, $SD = 0.76$) in situations

involving social pain: $F(1, 105) = 33.24$, $p < .001$. Likewise, in situations involving

physical pain, targets were perceived as more masculine when they did not seek help (M

$= 3.51$, $SD = 0.65$) relative to those who sought help ($M = 3.20$, $SD = 0.68$): $F(1, 110) =$

6.56, $p = .012$. Though the simple effects were in the same direction, the effect was larger

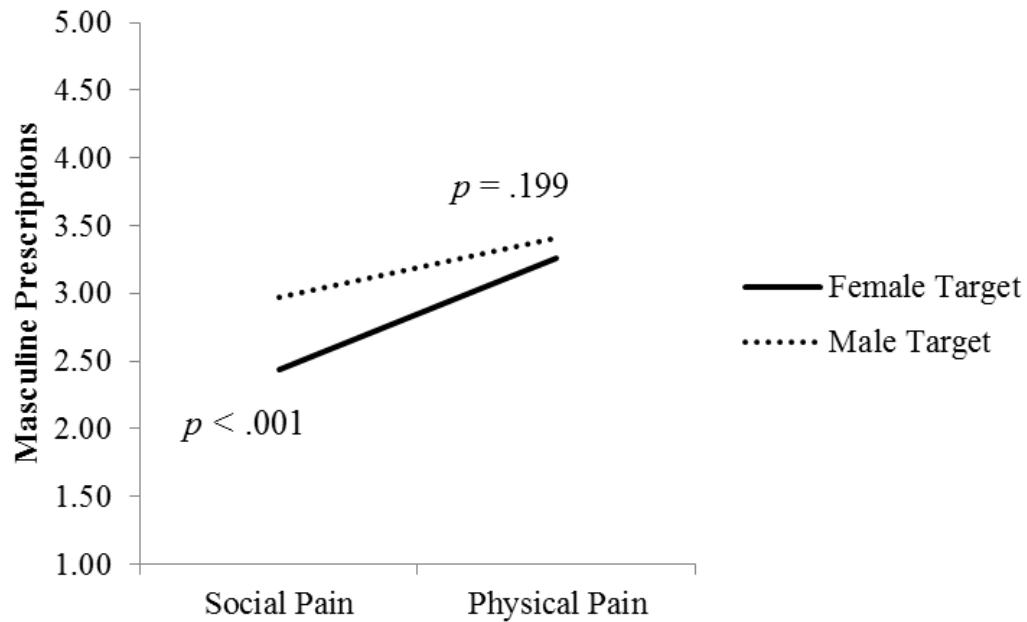for social pain ($\eta_p^2 = 0.24$) relative to physical pain ($\eta_p^2 = 0.06$).

Figure 7. Study 1 Target gender and pain type on masculine prescriptions

Study 1 two way interaction between target gender and pain type on masculine

prescriptions from the main analyses: F (1, 210) = 6.01, p = .007. Follow-up tests

indicated male targets were perceived as more masculine (M = 2.97, SD = 0.76) relative

to female targets (M = 2.44, SD = 0.86) in situations involving social pain: F (1, 105) =

15.09, p < .001. No differences in masculinity emerged for male (M = 3.44, SD = 0.71)

and female (M = 3.26, SD = 0.63) targets experiencing physical pain: F (1, 110) = 1.67, p
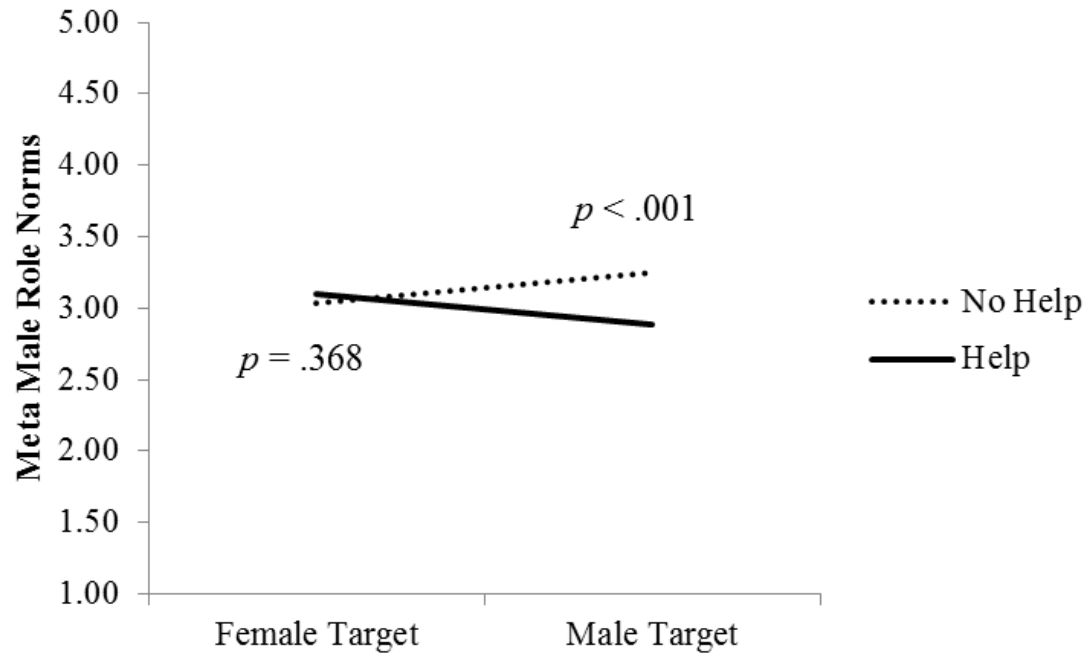
= .199.

Figure 8 Study 1 Target gender and help-seeking on meta-male role norms

Study 1 two way interaction between target gender and help-seeking on meta-male role norms from the main analyses: $F(1, 209) = 7.34$, $p = .007$. Follow-up tests indicated participants believed male targets endorsed male role norms beliefs more strongly when they did not seek help ($M = 3.25$, $SD = 0.56$) relative to those who sought help ($M = 2.88$, $SD = 0.57$): $F(1, 110) = 13.22$, $p < .001$. Participants did not believe female targets varied on male role norm beliefs regardless of whether they sought help ($M = 3.10$, $SD = 0.59$) or did not seek help ($M = 3.04$, $SD = 0.65$): $F(1, 96) = 0.82$, $p = .368$.
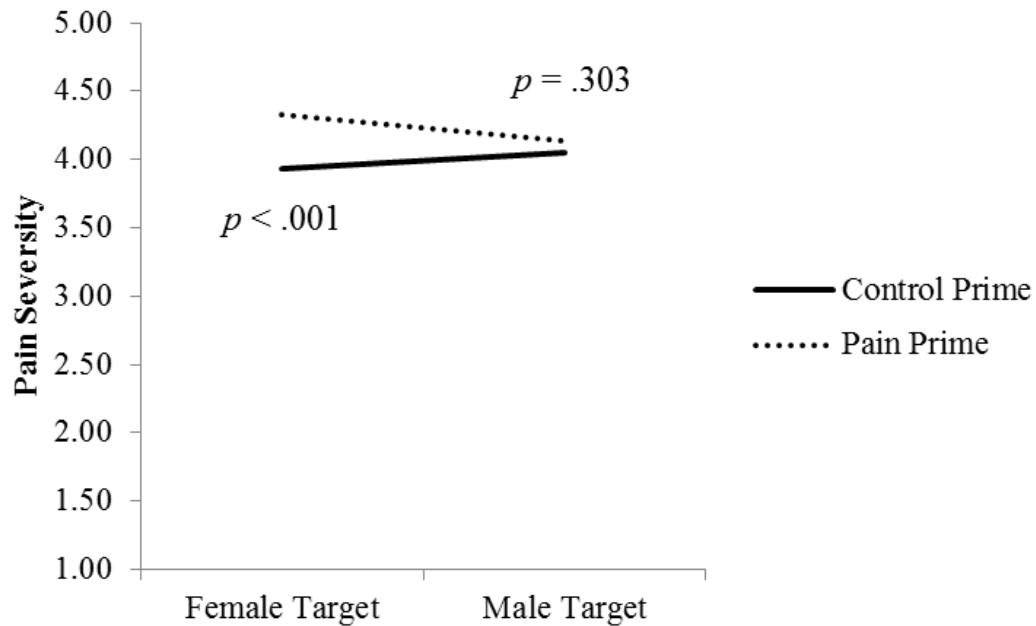
Figure 9. Study 2 Prime and target gender on pain severity

Study 2 two way interaction between prime and target gender on pain severity from preliminary analyses: $F (1, 220) = 3.89$, $p = .050$. Follow-up tests indicated pain was perceived as equally severe for male targets after participants read the control prime ($M = 4.06$, $SD = 0.65$) and pain prime ($M = 4.18$, $SD = 0.64$): $F (1, 120) = 1.07$, $p = .303$; pain was perceived as more severe in for female targets after participants read the pain prime ($M = 4.38$, $SD = 0.49$) relative to the control prime ($M = 3.98$, $SD = 0.81$): $F (1, 115) = 12.70$, $p = .001$.
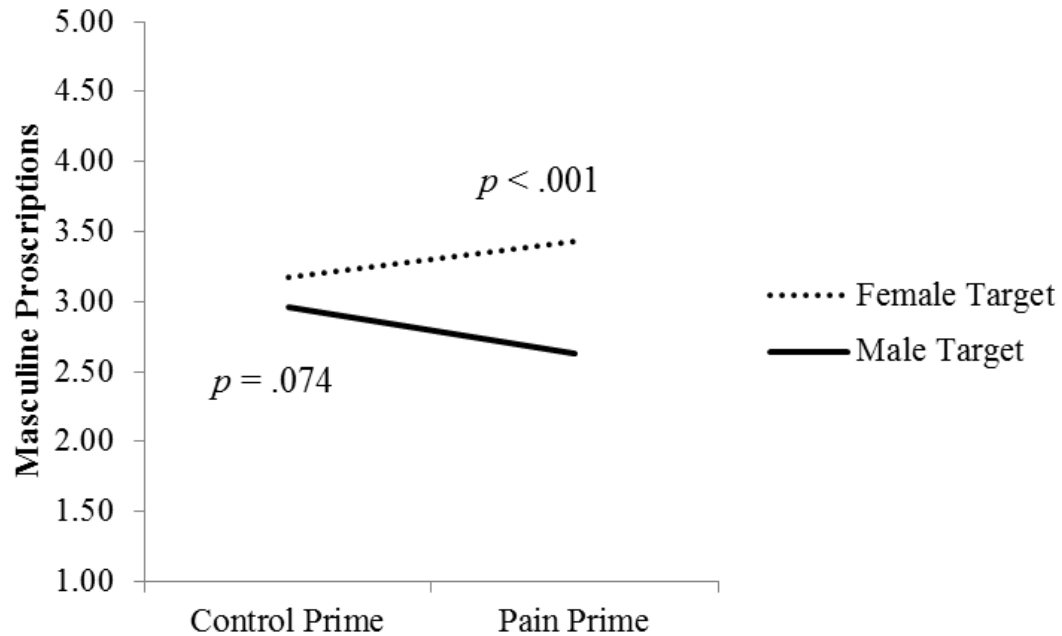
Figure 10. Study 2 Prime and target gender on masculine proscriptions

Study 2 two way interaction between prime and target gender on masculine proscriptions

from main analyses: F (1, 215) =12.38, p < .001. Follow-up tests indicated after reading

the control prime, participants rated male targets (M = 2.94, SD = 0.64) and female

targets (M = 3.20, SD = 0.72) equally on masculine proscriptions: F (1, 215) = 3.26, p =

.074. After reading the pain prime, participants rated male targets (M = 2.70, SD = 0.77)

as more masculine (i.e., less weak) relative to female targets (M = 3.50, SD = 0.62): F (1,
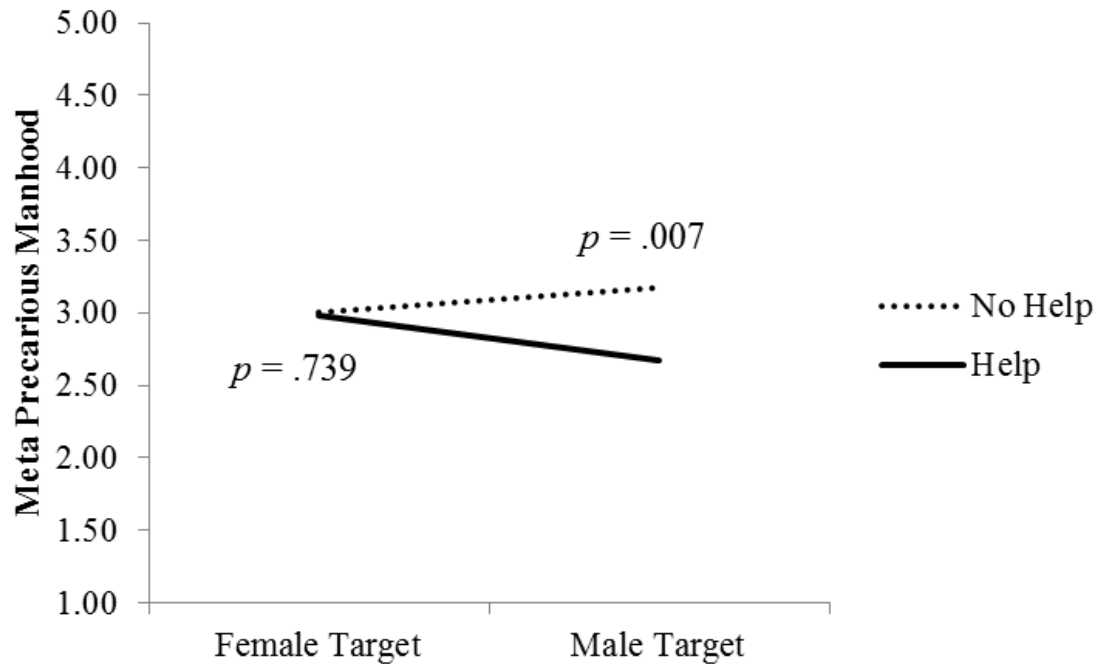
215) = 42.59, p < .001.

Figure 11. Study 2 Help-seeking and target gender on meta precarious manhood

Study 2 two way interaction between help-seeking and target gender on meta precarious

manhood from main analyses: $F (1, 215) =4.38$, $p < .037$. Follow-up tests indicated

participants did not believe precarious manhood beliefs would vary for the female target

when she sought help (M = 3.03, SD = 0.86) or did not seek help (M =3.02, SD = 0.91):

$F (1, 112) = 0.11$, $p = .739$. Participants believed male targets would endorse precarious

manhood more when the male target did not seek help (M = 3.21, SD = 0.82) versus

when male targets sought help (M = 2.78, SD = 0.82): $F (1, 115) = 7.50$, $p = .007$.
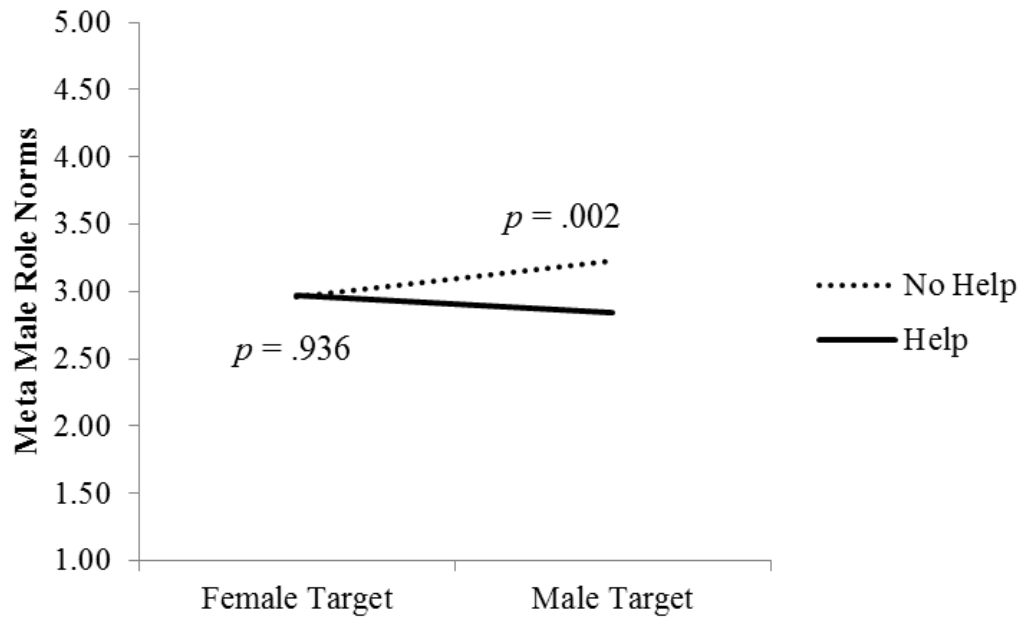
Figure 12. Study 2 Help-seeking and target gender on masculine proscriptions

Study 2 two way interaction between help-seeking and target gender on masculine

proscriptions from main analyses: F (1, 215) =5.31, p = .022. Follow-up tests indicated

participants did not believe male role norms would vary for the female target when she

sought help (M = 3.02, SD = 0.67) or did not seek help (M =3.00, SD = 0.69): F (1, 112)

= 0.01, p = .936. Participants believed male targets would endorse male role norms more

when the male target did not seek help (M = 3.24, SD = 0.68) versus when male targets

sought help (M = 2.90, SD = 0.64): F (1, 115) = 10.08, p = .002.

Appendix A: Final Pretesting for Study 1

Pretesting: Study 1

	df	F	p
Painful			
Pain Type	1, 75	2.67	0.106
Target Gender	1, 75	0.27	0.608
Pain Type * Target Gender	1, 75	0.50	0.480
Serious			
Pain Type	1, 75	0.61	0.438
Target Gender	1, 75	0.00	0.997
Pain Type * Target Gender	1, 75	1.36	0.248
Treatment Effectiveness			
Pain Type	1, 75	1.36	0.248
Target Gender	1, 75	0.53	0.470
Pain Type * Target Gender	1, 75	2.34	0.130
Target Masculinity			
Pain Type	1, 75	1.90	0.173
Target Gender	1, 75	0.32	0.575
Pain Type * Target Gender	1, 75	1.73	0.193

Appendix B: Eligibility Questions

Are you able to read and write in English fluently?	**Yes**	No
Do you currently reside in the United States?	**Yes**	No
Have you ever visited a licensed professional for mental health concerns?	**Yes**	No

What is your age?

Under 25	**25-35**	36-50	50-65	Over 65

Appendix C: Scenarios

Study 1 Only:

Male Target Physical Help-Seeking: John recently injured his foot and is really hurting. He thinks about seeing a doctor for help with his foot, and ultimately decides seeing a doctor to cope is the best option.

Male Target Physical Non Help-Seeking: John recently injured his foot and is really hurting. He thinks about seeing a doctor for help with his foot, but ultimately decides coping on his own is the best option.

Female Target Physical Help-Seeking: Jane recently injured her foot and is really hurting. She thinks about seeing a doctor for help with her foot, and ultimately decides seeing a doctor to cope is the best option.

Female Target Physical Non Help-Seeking: Jane recently injured her foot and is really hurting. She thinks about seeing a doctor for help with her foot, but ultimately decides coping on her own is the best option.

Studies 1 & 2:

Male Target Social Help-Seeking: John recently broke-up with his girlfriend and is really hurting. He thinks about seeing a therapist for help with his breakup, and ultimately decides seeing a therapist to cope is the best option.

Male Target Social Non Help-Seeking: John recently broke-up with his girlfriend and is really hurting. He thinks about seeing a therapist for help with his breakup, but ultimately decides coping on his own is the best option.

Studies 1 & 2:

Female Target Social Help-Seeking: Jane recently broke-up with her boyfriend and is really hurting. She thinks about seeing a therapist for help with her breakup, and ultimately decides seeing a therapist to cope is the best option.

Female Target Social Non Help-Seeking: Jane recently broke-up with her boyfriend and is really hurting. She thinks about seeing a therapist for help with her breakup, but ultimately decides coping on her own is the best option.

Appendix D: Prescriptive & Proscriptive Masculine Stereotypes

How much does John/ Jane embody each of these traits?

	Not at all Like John	Not much like John	Somewhat like John	Very much like John	Exactly like John
Prescriptions					
Masculine	1	2	3	4	5
Independent	1	2	3	4	5
Strong	1	2	3	4	5
Manly	1	2	3	4	5
Tough	1	2	3	4	5
Self-Reliant	1	2	3	4	5
Proscriptions					
Weak	1	2	3	4	5
Emotional	1	2	3	4	5
Melodramatic	1	2	3	4	5
Expresses emotion	1	2	3	4	5
Womanly	1	2	3	4	5
Feminine	1	2	3	4	5

Appendix E: Meta Precarious Manhood

For the next set of questions, please respond **as you believe John/ Jane would**. John/ Jane is the man/ woman in the scenario you read about. **Think about how s/he would respond and mark the option you think s/he would choose.**

	Strongly Disagree	**Disagree**	**Unsure**	**Agree**	**Strongly Agree**
It's fairly easy for a man to lose his status as a man.	1	2	3	4	5
A male's status as a real man sometimes depends on how other people view him.	1	2	3	4	5
A man needs to prove his masculinity.	1	2	3	4	5
A boy needs to become a man; it doesn't 'just happen.'	1	2	3	4	5
The title of 'manhood' needs to be reserved for those who deserve it.	1	2	3	4	5
You're not a man if you don't like masculine things.	1	2	3	4	5
A real man enjoys a bit of danger now and then	1	2	3	4	5

Appendix F: Meta Male Role Norms

For the next set of questions, please respond **as you believe John/ Jane would**. John/ Jane is the man/ woman in the scenario you read about. **Think about how s/he would respond and mark the option you think s/he would choose.**

1	2	3	4	5
Disagree	Slightly Disagree	Neither Agree nor disagree	Slightly Agree	Agree

Success in his work has to be man's central goal in this life.	1	2	3	4	5
The best way for a young man to get the respect of other people is to get a job, take it seriously, and do it well.	1	2	3	4	5
A man owes it to his family to work at the best-paying job he can get.	1	2	3	4	5
A man should generally work overtime to make more money whenever he has the chance.	1	2	3	4	5
A man always deserves the respect of his wife and children.	1	2	3	4	5
It is essential for a man to always have the respect and admiration of everyone who knows him.	1	2	3	4	5
A man should never back down in the face of trouble.	1	2	3	4	5
I always like a man who's totally sure of himself.	1	2	3	4	5
A man should always think everything out coolly and logically, and have rational reasons for everything he	1	2	3	4	5

does.

A man should always try to project an air of confidence even if he really doesn't feel confident inside.	1	2	3	4	5
A man must stand on his own two feet and never depend on other people to help him do things.	1	2	3	4	5
When a man is feeling pain he should not let it show.	1	2	3	4	5
Nobody respects a man very much who frequently talks about his worries, fears, and problems.	1	2	3	4	5
A good motto for a man would be "When the going gets tough, the tough get going."	1	2	3	4	5
I think a young man should try to become physically tough, even if he's not big.	1	2	3	4	5
Fists are sometimes the only way to get out of a bad situation.	1	2	3	4	5
A real man enjoys a bit of danger now and then	1	2	3	4	5
In some kinds of situations a man should be ready to use his fists, even if his wife or his girlfriend would object.	1	2	3	4	5
A man should always refuse to get into a fight, even if there seems to be no way to avoid it.	1	2	3	4	5
It bothers me when a man does something that I consider "feminine"	1	2	3	4	5
A man whose hobbies are cooking, sewing, and going	1	2	3	4	5

to the ballet probably wouldn't appeal to me

It is a bit embarrassing for a man to have a job that is usually filled by a woman.	1	2	3	4	5
Unless he was really desperate, I would probably advise a man to keep looking rather than accept a job as a secretary	1	2	3	4	5
If I heard about a man who was a hairdresser or a gourmet cook, I might wonder how masculine he was.	1	2	3	4	5
I think it's extremely good for a boy to be taught to cook, sew, clean the house, and take care of younger children.	1	2	3	4	5
I might find it a little silly or embarrassing if a male friend of mine cried over a sad love scene in a movie.	1	2	3	4	5

Appendix G: Covariate Questions

	1 Not at all / Minor	2 A little	3 Somewhat	4 A lot	5 Very much/ Major
Likeability					
How much respect do you have for John/Jane?	1	2	3	4	5
How likeable is John/Jane?	1	2	3	4	5
How much would you like to interact with John/Jane?	1	2	3	4	5
How much do you want to be friends with John/Jane?	1	2	3	4	5
Pain Severity					
How painful is this for John/Jane?	1	2	3	4	5
How serious is this for John/Jane?	1	2	3	4	5
How distressed is John/Jane?	1	2	3	4	5
How major or Minor is this pain for John/Jane?	1	2	3	4	5

Treatment Effectiveness

Physical Scenario (Study 1 Only): How effective will the treatment be if

Jane/John sees a doctor for help with her/his foot?

Not at all   Somewhat   Not Sure   Effective   Very Effective

effective   effective

Social Scenario (Studies 1 & 2): How effective will the treatment be if John/Jane

sees a therapist for her help with his/her breakup?

Not at all   Somewhat   Not Sure   Effective   Very Effective

Effective   Effective

Emotional Disclosure

Physical Scenario (Study 1 Only): If Jane/John sees a doctor for help with her/

his foot, how emotional will disclosing her/his pain be for Jane/John?

Not at all   Somewhat   Not Sure   Emotional   Very

Emotional

Emotional   Emotional

Social Scenario (Studies 1 & 2): If John/Jane sees a therapist for help with

his/her breakup, how emotional will disclosing his/her pain be for John/Jane?

Not at all   Somewhat   Not Sure   Emotional   Very

Emotional

Emotional   Emotional

How credible was the article?

Not at all   somewhat not   not sure   somewhat   very credible

credible   credible   credible

How believable was the article?

Unbelievable   somewhat   not sure   somewhat   very

believable

unbelievable   unbelievable

How scientific was the article?

Not scientific   somewhat not   not sure   somewhat   very

scientific

scientific   scientific

Appendix H: Manipulation Checks

Attention Check (All Studies):

In order to facilitate our research we are interested in knowing certain factors about you. Specifically, we are interested in whether you are reading the information we present to you, if not, your responses will be invalid as they depend on your ability to read and respond accurately. So, in order to demonstrate that you have read the instructions, please enter the word "reading" in the text box below.

What is your favorite food?

Manipulation Check (Studies 1 and 2):

What happened to John/Jane?

- o   John/ Jane hurt his/ her foot
- o   John/ Jane hurt his/ her back
- o   John/ Jane broke-up with his/ her girlfriend
- o   John/ Jane lost a friend
- o   None of these things happened to John

What did John/ Jane do?

- o   John/ Jane sought help from a doctor/ therapist
- o   John/ Jane did not seek help from a doctor/ therapist

- o John/ Jane talked to a friend

- o John/ Jane talked to a parent

- o John/ Jane did none of these things

Manipulation Check (Studies 2 and 3):

Briefly describe the article (e.g., what was the topic/ what did the article conclude/ what was the main point of the article).

_____

What was the article's conclusion?

- o Motor areas of the brain and areas detecting music are linked which partly explains how we detect musical beats

- o Motor areas of the brain and areas detecting music are not related and have nothing to do with detecting musical beats

What was the article's conclusion?

- o Social pain is the same as physical pain

   - o Social pain is not the same as physical pain

Appendix I: Ancillary Analyses

Though no hypotheses were made about participant gender, participant gender

was explored in a post-hoc, exploratory analysis on each masculinity variable for studies

1 and 2. The results should be interpreted with caution and need replication.

Study 1: Ancillary Analyses

Zero-order correlations by target gender for all continuous variables may be found

in Ancillary Table 1.

A four-way ANOVA on masculine prescriptions (see Ancillary Table 2) by pain

type, help-seeking, target gender, and participant gender (controlling for treatment

effectiveness, emotional disclosure, and pain severity) yielded similar results to the three-

way ANOVA without participant gender. The main effect of target gender in the three-

way ANOVA was replaced by a main effect of participant gender on masculine

prescriptions in the four-way ANOVA. The other two main effects remained the same

(pain type, help-seeking). In addition to the interactions present in the three-way ANOVA

on masculine prescriptions (pain type*help-seeking; pain type*target gender), a three-

way interaction emerged among pain type, help-seeking and participant gender. As in the

three-way ANOVA, targets experiencing physical pain (M =3.57, SD = 0.71) were

perceived as more masculine on prescriptive masculine traits (e.g., strong, tough) relative

to targets experiencing social pain (M = 2.90, SD = 0.93): $F(1, 202) = 19.70$, $p < .001$.

As in the three-way ANOVA, targets who chose not to seek help (M = 3.61, SD = 0.73)

were seen as more masculine on prescriptive traits relative to targets who chose to seek

help (M = 2.92, SD = 0.90): $F(1, 202) = 51.90$, $p < .001$. In the four-way ANOVA, the

main effect of participant gender replaced the main effect of target gender such that

female participants rated targets are more masculine (M = 3.39, SD = 0.83) relative to male participants (M = 3.13, SD = 0.92): F (1, 202) = 5.16, p = .024. As in the three-way ANOVA, examining the simple effects for the interaction between pain type and help-seeking (see Ancillary Figure 1: F (1, 202) = 9.29, p = .003) indicated masculinity downgrading when participants sought help versus did not seek help for both social (help: M = 2.42, SD = 0.75; no help: M = 3.45, SD = 0.79; F (1, 202) = 56.11, p < .001) and physical pain scenarios(help: M = 3.38, SD = 0.73; no help: M = 3.76, SD = 0.65 F (1, 202) = 9.06, p < .003). The effect was larger for social pain (η_p^2 = 0.22 versus η_p^2 = 0.04) than physical pain. Examining the simple effects for the interaction between pain type and target gender (see ancillary Figure 2: F (1, 202) = 5.88, p = .016) indicated male targets were seen as less masculine in social scenarios (M = 3.00, SD = 0.33) relative to physical scenarios (M = 3.48, SD = 0.74): F (1, 202) = 4.66, p = .032. Female targets were also seen as less masculine in social scenarios (M = 2.81, SD = 1.01) relative to physical scenarios (M = 3.67, SD = 0.67): F (1, 202) = 4.66, p = .032. Though the simple effects were in the same direction the effect was larger for female targets relative to male targets (η_p^2 = 0.11 versus η_p^2 = 0.02). Examining the simple effects for the three-way interaction among pain type, help-seeking, and participant gender (see ancillary Figure 3: F (1, 202) = 5.00, p = .026) indicated male participants rated targets seeking help in social situations as less masculine (M = 2.34, SD = 0.73) than targets who did not seek help in social situations (M = 3.20, SD = 0.84): F (1, 104) = 18.62, p < .001. Male participants rated targets seeking help in physical situations as less masculine (M = 320, SD = 0.73) than targets who did not seek help in physical situations (M = 3.83, SD = 0.66): F (1, 104) = 9.05, p = .003. Female participants rated targets seeking help in social

situations as less masculine (M =2.52, SD = 0.78) than targets who did not seek help in social situations (M =3.73, SD = 0.65): F (1, 95) = 38.54, p < .001. Female participants rated targets seeking help in physical situations as equally masculine (M =3.54 , SD = 0.70) relative to targets who did not seek help in physical situations (M =3.69, SD = 0.64): F (1, 95) = 1.53, p .219.

A four-way ANOVA on masculine proscriptions (see Ancillary Table 2) by pain type, help-seeking, target gender, and participant gender (controlling for treatment effectiveness, emotional disclosure, and pain severity) yielded similar results to the three-way ANOVA without participant gender. In addition to the existing main effects in the three-way ANOVA (target gender, pain type, and help-seeking), a main effect of participant gender emerged in the four-way ANOVA on proscriptions. The four-way ANOVA on proscriptions also yielded the following two new interactions: a two-way interaction between help-seeking and pain type, and a four-way interaction among pain type, help-seeking, participant gender and target gender. As in the three way ANOVA targets experiencing social pain (M =3.22, SD = 0.65) were perceived as more weak than targets experiencing physical pain (M =2.24, SD = 0.70): F (1, 202) = 58.20, p < .001. As in the three way ANOVA, targets who sought help (M =2.96, SD = 0.84) were perceived as more weak than targets did not seek help (M =2.46, SD = 0.75): F (1, 202) = 24.69, p < .001. As in the three way ANOVA, female targets (M =2.84, SD = 0.87) were perceived as more weak than male targets (M =2.62, SD = 0.79): F (1, 202) = 5.87, p = .016. A new effect of participant gender emerged such that male participants rated targets as (M = 2.87, SD = 0.83) more weak relative to the target ratings of female participants (M = 2.56, SD = 0.81): F (1, 202) = 9.27, p = .003. Simple effects for the interaction

between target gender and help-seeking ($F (1, 202) = 4.82$, $p < .029$) indicated that when male targets sought help they were ($M = 2.79$, $SD = 0.86$) perceived as less weak relative to female targets who sought help ($M = 3.14$, $SD = 0.80$): $F (1, 202) = 10.98$, $p < .001$. When male targets did not seek help ($M = 2.45$, $SD = 0.69$) they were perceived as equally weak relative to female targets ($M = 2.49$, $SD = 0082$): $F (1, 202) = .03$, $p = .873$. Simple effects on the four-way interaction ($F (1, 202) = 8.16$, $p < .005$) indicated male participants rated male targets who sought help for social pain as more weak ($M = 3.53$, $SD = 0.43$) relative to male targets who did not seek help for social pain ($M = 2.84$, $SD = 0.53$): $F (1, 54) = 6.47$, $p = .014$. Male participants rated male targets who sought help for physical pain as equally weak ($M = 2.29$, $SD = 0.86$) relative to male targets who did not seek help for physical pain ($M = 2.26$, $SD = 0.74$): $F (1, 54) = 0.1$, $p = .907$. Male participants rated female targets who sought help for social pain as equally weak ($M = 3.53$, $SD = 0.39$) relative to female targets who did not seek help for social pain ($M = 3.48$, $SD = 0.45$): $F (1, 47) = 0.07$, $p = .798$. Male participants rated female targets who sought help for physical pain as more weak ($M = 2.90$, $SD = 0.70$) relative to female targets who did not seek help for physical pain ($M = 1.98$, $SD = 0.60$): $F (1, 47) = 15.11$, $p < .001$. Female participants rated male targets who sought help for social pain as equally weak ($M = 3.09$, $SD = 0.76$) relative to male targets who did not seek help for social pain ($M = 2.80$, $SD = 0.40$): $F (1, 50) = 1.80$, $p = .186$. Female participants rated male targets who sought help for physical pain as equally weak ($M = 2.15$, $SD = 0.48$) relative to male targets who did not seek help for physical pain ($M = 2.01$, $SD = 0.67$): $F (1, 50) = 0.11$, $p = .739$. Female participants rated female targets who sought help for social pain as more weak ($M = 3.82$, $SD = 0.83$) relative to female targets who did not

seek help for social pain (M = 2.62, SD =0.44): F (1, 42) = 21.17, p < .001. Female

participants rated female targets who sought help for physical pain as more weak (M =

2.45, SD = 0.53) relative to female targets who did not seek help for physical pain (M =

1.86, SD = 0.55): F (1, 42) = 5.43, p = .025.

Two three-way ANOVAs using male targets for meta-precarious manhood and

meta male role norms by pain type, help-seeking, and participant gender, yielded the

exact same results as the two way ANOVA above (see ancillary Table 2 and main results

for Study 1). Participants believed help-seekers would endorse masculinity beliefs more

than non-help seekers. Likewise targets experiencing physical pain were perceived to

endorse these beliefs more than targets experiencing social pain.

Study 2: Ancillary Analyses

Zero-order correlations by target gender for all continuous variables may be found

in Ancillary Table 2.

A four-way ANOVA on masculine prescriptions (see Ancillary Table 3) by

prime, help-seeking, target gender, and participant gender (controlling for treatment

effectiveness, emotional disclosure, and pain severity) yielded a main effect of help-

seeking and a three-way interaction among participant gender, prime and help-seeking.

No effect of target gender emerged as in the three-way ANOVA on masculine

prescriptions without participant gender. As in the three way ANOVA on masculine

prescriptions, help-seekers (M = 2.73, SD =0.89) were perceived as more masculine than

non-help-seekers (M =3.52, SD = 0.83). F (1, 207) = 40.35, p < .001. Simple effects for

the three-way interaction among participant gender, prime and help-seeking (F (1, 207) =

12.51,p = .001) indicated male participants who read the control prime viewed help-

seekers as less masculine (M =2.79, SD =0.96) relative to non-help-seekers (M = 3.76, SD = 0.72): F (1, 99) = 21.91, p < .001. Male participants who read the pain reframing prime rated help-seekers (M = 2.94 SD = 0.84) as equally masculine relative to non-help-seekers (M = 3.09 SD = 0.89): F (1, 99) = 0.66, p = .420. The opposite occurred for female participants; female participants who read the control prime rated help-seekers (M = 2.77 SD = 0.73) and non-help-seekers (M = 3.33, SD = 0.86) as equally masculine: F (1, 105) = 2.39, p = .125. Female participants who read the pain reframe prime believed targets who did not seek help were much more masculine (M = 3.78 SD = 0.70) than targets who sought help (M = 2.56 SD = 0.93): F (1, 105) = 39.11, p < .001.

A four-way ANOVA on masculine proscriptions (see Ancillary Table 3) by prime, help-seeking, target gender, and participant gender (controlling for treatment effectiveness, emotional disclosure, and pain severity) yielded similar results to the three-way ANOVA without participant gender. As in the three-way ANOVA without participant gender a main effect emerged for help-seekers and an interaction between prime and target gender emerged. No main effect of target gender emerged in the four-way ANOVA as it did in the three-way ANOVA. Help-seekers (M = 3.33, SD = 0.71) were perceived as more weak than non-help-seekers (M =2.84, SD = 0.74): F (1, 207) = 6.22, p= .013. Simple effects for the interaction between prime and target gender (F (1, 207) = 17.85, p < .001) indicated those who read the pain reframe prime felt female targets (M =3.48, SD =0.60) were much weaker than male targets (M =2.95, SD =0.71): F (1, 207) = 15.77, p < .001. Participants who read the control prime felt female targets (M =3.18, SD = 0.72)were slightly weaker than male targets (M =3.31, SD = 0.77): F (1, 207) = 4.56, p = .034.

Two three-way ANOVAs using male targets for meta-precarious manhood and meta male role norms by prime, help-seeking, and participant gender, yielded the exact same results as the two way analysis above (see ancillary Table 2 and main results for Study 2). Participants believed help-seekers would endorse these beliefs more than non-help seekers.

Conclusions

Adding participant gender to the analyses suggested both male and female participants downgrade targets on prescriptive masculinity (regardless of gender) when they sought help for social pain; male participants also downgraded targets on prescriptive masculinity (regardless of gender) for seeking help for physical pain. Further male participants believed male targets were weaker when male targets sought help for social pain relative to not seeking help for social pain. Male participants believed women were weak when they experience social pain regardless of help-seeking. Female participants did not view male targets as particularly weak regardless of pain type or help-seeking. Rather, female participants believed female targets were particularly weak when female targets sought help for social pain versus when they did not seek help for social pain. Study 2 suggested reframing pain may reduce downgrading on prescriptions, but not proscriptions for male participants. These results were exploratory in nature and all conclusions should be interpreted with caution as a second fully power sample would is needed to replicate these results.

Ancillary Table 1

Study 1 Zero Order Correlations for Study Variables by Target Gender

	1	2	3	4	5	6	7	8
1. Masculine Prescriptions		**-0.65*** **	**-0.01**	**0.08**	**0.32*** **	**-0.30** **	**-0.36*** **	**0.04**
2. Masculine Proscriptions	-0.50***		**0.13**	**0.04**	**-0.12**	**0.38*** **	**0.56*** **	**0.13**
3. Meta Male Role Norms	0.23*	-0.27**		**0.73*** **	**0.14**	**-0.16**	**-0.04**	**0.11**
4. Meta Precarious Manhood	0.25**	-0.21*	0.65***		**0.10**	**-0.09**	**-0.04**	**0.09**
5. Likeability	0.50***	-0.18	0.03	0.02		**0.11**	**0.05**	**0.35*** **
6. Pain Severity	-0.03	0.30***	-0.16	-0.12	0.15		**0.51*** **	**0.20** *
7. Emotional Severity	-0.19*	0.40***	-0.18	-0.23*	0.09	0.50***		**0.18**
8. Treatment Effectiveness	0.18*	-0.08	0.20*	0.17	0.21*	0.04	-0.21*	

Note. Male targets are displayed on the lower diagonal. Female targets are displayed on the upper diagonal in bold.

*p < .05. ** p < .01. ***p < .001.

Ancillary Table 2

Study 1 Ancillary Analyses

	df	F	p	η_p^2
Prescriptions				
Treatment Effectiveness	1, 202	3.09	.080	.02
Emotionality	1, 202	.00	.971	.00
Pain Severity	1, 202	.03	.855	.00
Participant Gender	**1, 202**	**5.16**	**.024**	**.09**
Pain Type	**1, 202**	**19.70**	**.000**	.20
Help Seek	**1, 202**	**51.90**	**.000**	.00
Target Gender	1, 202	.01	.907	.02
Pain Type*Help Seek	**1, 202**	**9.29**	**.003**	.04
Pain Type*Target Gender	**1, 202**	**5.88**	**.016**	.03
Help Seek*Target Gender	1, 202	1.76	.186	.01
Pain Type*Help Seek*Target Gender	1, 202	.44	.506	.01
Pain Type*Participant Gender	1, 202	2.06	.153	.00
Help Seek*Participant Gender	1, 202	.12	.731	.00
Target Gender*Participant Gender	1, 202	.00	.945	.00
Pain Type*Help Seek*Participant Gender	**1, 202**	**5.00**	**.026**	.02
Pain Type*Target Gender*Participant Gender	1, 202	.02	.892	.00
Help Seek*Target Gender*Participant Gender	1, 202	.04	.835	.00
Pain Type*Help Seek*Target Gender*Participant Gender	1, 202	.74	.392	.00

Ancillary Table 2 (continued)

	df	F	p	η_p^2
Proscriptions				
Treatment Effectiveness	1, 202	.87	.351	.00
Emotionality	1, 202	1.77	.185	.01
Pain Severity	1, 202	.78	.378	.00
Participant Gender	**1, 202**	**9.27**	**.003**	**.04**
Pain Type	**1, 202**	**58.20**	**.000**	**.22**
Help Seek	**1, 202**	**24.69**	**.000**	**.11**
Target Gender	**1, 202**	**5.87**	**.016**	**.03**
Pain Type*Help Seek	1, 202	1.56	.212	.01
Pain Type*Target Gender	1, 202	.78	.379	.00
Help Seek*Target Gender	**1, 202**	**4.82**	**.029**	**.02**
Pain Type*Help Seek*Target Gender	1, 202	2.50	.116	.01
Pain Type*Participant Gender	1, 202	.00	.960	.00
Help Seek*Participant Gender	1, 202	.63	.427	.00
Target Gender*Participant Gender	1, 202	.26	.609	.00
Pain Type*Help Seek*Participant Gender	1, 202	2.38	.124	.01
Pain Type*Target Gender*Participant Gender	1, 202	.04	.847	.00
Help Seek*Target Gender*Participant Gender	1, 202	2.52	.114	.01
Pain Type*Help Seek*Target Gender*Participant Gender	**1, 202**	**8.16**	**.005**	**.04**

Ancillary Table 2 (continued)

	df	F	p	η_p^2
Meta Precarious Manhood (Male Targets Only)				
Treatment Effectiveness	1, 106	.43	.515	.00
Emotionality	1, 106	.56	.455	.01
Pain Severity	1, 106	.12	.734	.00
Participant Gender	1, 106	.00	.956	.00
Pain Type	**1, 106**	**8.56**	**.004**	**.07**
Help Seek	**1, 106**	**8.22**	**.005**	**.07**
Pain Type*Help Seek	1, 106	.27	.603	.00
Pain Type*Participant Gender	1, 106	.06	.809	.00
Help Seek*Participant Gender	1, 106	1.86	.175	.02
Meta Male Role Norms (Male Targets Only)				
Pain Type*Help Seek*Participant Gender	1, 106	.88	.351	.01
Treatment Effectiveness	1, 106	2.02	.158	.02
Emotionality	1, 106	1.09	.299	.01
Pain Severity	1, 106	.10	.752	.00
Pain Type	**1, 106**	**6.67**	**.011**	**.06**
Help Seek	**1, 106**	**12.62**	**.001**	**.11**
Participant Gender	1, 106	.20	.656	.00
Pain Type*Help Seek	1, 106	.02	.895	.00
Pain Type*Participant Gender	1, 106	2.05	.156	.02

Ancillary Table 2 (continued)

	df	F	p	η_p^2
Help Seek*Participant Gender	1, 106	.45	.505	.00
Pain Type*Help Seek*Participant Gender	1, 106	.27	.605	.00

Note. Significant effects are bolded, p values are as indicated

Ancillary Table 3

Study 2 Zero Order Correlations for Study Variables by Target Gender

	1	2	3	4	5	6	7	8
1. Masculine Prescriptions		**-0.51***	**0.10**	**0.04**	**0.52***	**-0.01**	**0.01**	**0.19***
2. Masculine Proscriptions	-0.40***		**0.08**	**0.12**	**-0.14**	**0.21***	**0.13**	**0.09**
3. Meta Male Role Norms	0.25**	-0.10		**0.79***	**0.05**	**0.04**	**0.14**	**0.15**
4. Meta Precarious Manhood	0.16	-0.11	0.77***	**0.01**	**0.07**	**0.17**	**0.26****	
5. Likeability	0.61***	-0.30***	0.19*	0.12		**0.22***	**0.22***	**0.43***
6. Pain Severity	-0.15	0.11	-0.09	-0.06	-0.01		**.52***	**0.26****
7. Emotional Severity	-0.11	0.11	-0.07	-0.11	0.08	0.52***		**0.42***
8. Treatment Effectiveness	0.07	0.17	0.16	0.01	0.33***	0.18*	0.26**	

Note. Male targets are displayed on the lower diagonal. Female targets are disaplayed on the upper diagonal in bold

*p < .05. ** p < .01. ***p < .001.

Ancillary Table 4

Study 2 Ancillary Analyses

	df	F	p	η_p^2
Prescriptions				
Treatment Effectiveness	**1, 207**	**7.80**	**.006**	**.04**
Emotionality	1, 207	.32	.572	.00
Pain Severity	1, 207	.20	.655	.00
Participant Gender	1, 207	.13	.724	.00
Prime	1, 207	.77	.382	.00
Target Gender	1, 207	2.62	.107	.01
Help Seek	**1, 207**	**4.35**	**.000**	**.16**
Prime * Target Gender	1, 207	.98	.323	.00
Prime * Help Seek	1, 207	.45	.503	.00
Target Gender * Help Seek	1, 207	.10	.753	.00
Participant Gender * Prime * Target Gender	1, 207	.10	.750	.00
Participant Gender * Prime	1, 207	2.59	.109	.01
Participant Gender * Target Gender	1, 207	.01	.929	.00
Participant Gender * Help Seek	1, 207	1.03	.310	.00
Participant Gender * Prime * Help Seek	**1, 207**	**12.51**	**.001**	**.06**
Participant Gender * Target Gender * Help Seek	1, 207	.42	.517	.00
Prime * Target Gender * Help Seek	1, 207	1.29	.257	.01
Participant Gender * Prime * Target Gender * Help Seek	1, 207	1.27	.261	.01

Ancillary Table 4 (continued)

|	df	F	p	η_p^2
Proscriptions				
Treatment Effectiveness	1, 207	1.92	.167	.01
Emotionality	1, 207	.07	.799	.00
Pain Severity	1, 207	.64	.426	.00
Participant Gender	**1, 207**	**6.22**	**.013**	**.03**
Prime	1, 207	.42	.519	.00
Target Gender	1, 207	1.17	.282	.01
Help Seek	**1, 207**	**2.95**	**.000**	**.09**
Prime * Target Gender	**1, 207**	**17.85**	**.000**	**.08**
Prime * Help Seek	1, 207	.81	.369	.00
Target Gender * Help Seek	1, 207	3.22	.074	.02
Participant Gender * Prime * Target Gender	1, 207	.28	.596	.00
Participant Gender * Prime	1, 207	3.13	.079	.01
Participant Gender * Target Gender	1, 207	.86	.354	.00
Participant Gender * Help Seek	1, 207	2.27	.133	.01
Participant Gender * Prime * Help Seek	1, 207	3.16	.077	.02
Participant Gender * Target Gender * Help Seek	1, 207	.09	.763	.00
Prime * Target Gender * Help Seek	1, 207	.75	.389	.00
Participant Gender * Prime * Target Gender * Help Seek	1, 207	.41	.524	.00

Ancillary Table 4 (continued)

	df	F	p	η_p^2
Meta Precarious Manhood (Male Targets Only)				
Treatment Effectiveness	1, 104	.17	.683	.00
Emotionality	1, 104	.37	.546	.00
Pain Severity	1, 104	.10	.748	.00
Participant Gender	1, 104	.28	.597	.00
Prime	1, 104	.38	.537	.00
Help Seek	**1, 104**	**7.41**	**.008**	**.07**
Participant Gender * Prime	1, 104	.25	.621	.00
Participant Gender * Help Seek	1, 104	.13	.719	.00
Prime * Help Seek	1, 104	1.77	.186	.02
Participant Gender * Prime * Help Seek	1, 104	.02	.892	.00

Ancillary Table 4 (continued)

	df	F	p	η_p^2
Meta Male Role Norms (Male Targets Only)				
Treatment Effectiveness	1, 104	4.997	.028	.046
Emotionality	1, 104	.036	.849	.000
Pain Severity	1, 104	.428	.515	.004
Participant Gender	1, 104	1.181	.280	.011
Prime	1, 104	.169	.682	.002
Help Seek	**1, 104**	**7.584**	**.007**	**.068**
Participant Gender * Prime	1, 104	.326	.570	.003
Participant Gender * Help Seek	1, 104	.327	.568	.003
Prime * Help Seek	1, 104	.665	.417	.006
Participant Gender * Prime * Help Seek	1, 104	1.439	.233	.014

Note. Significant effects are bolded, p values are as indicated
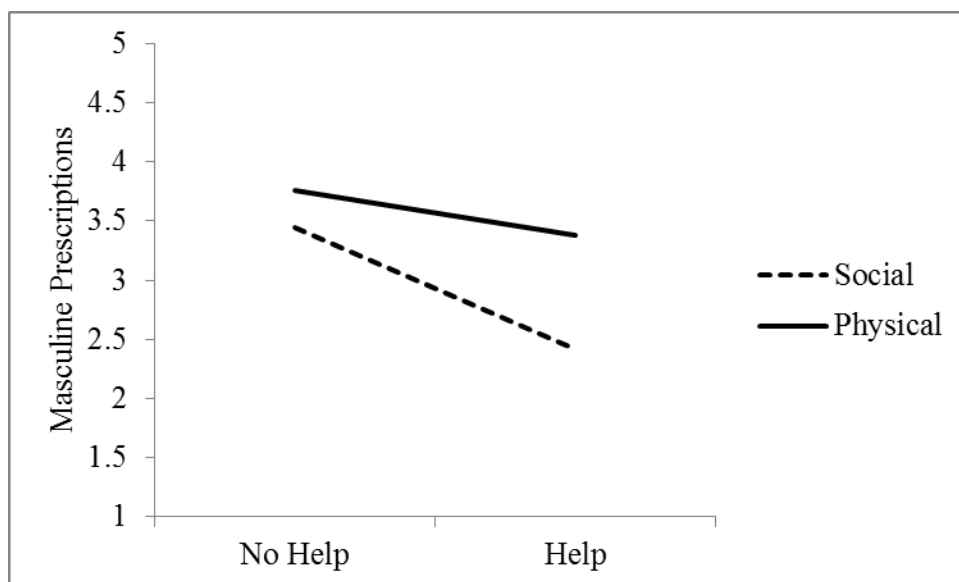
Ancillary Figure 1: Study 1 Prescriptions Pain Type x Help Seek
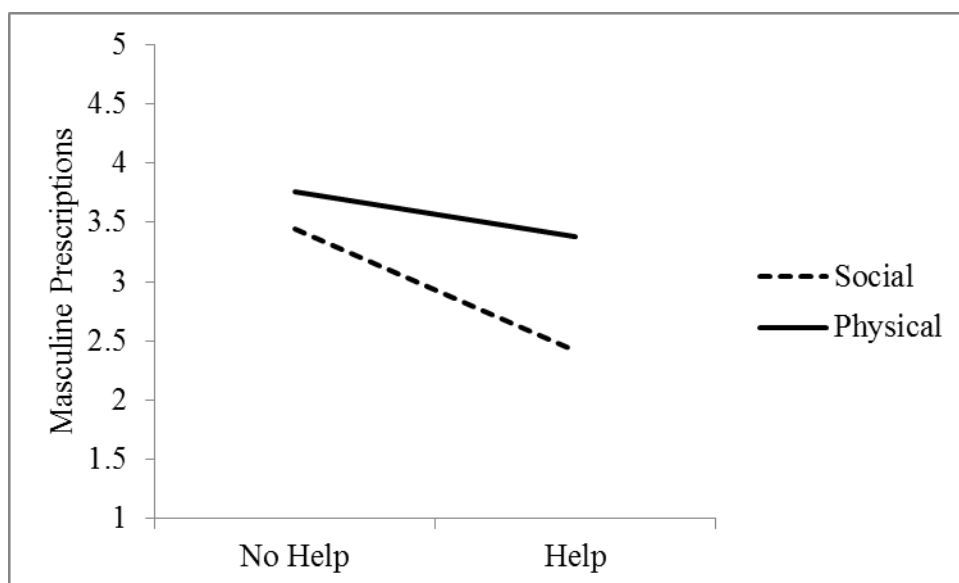
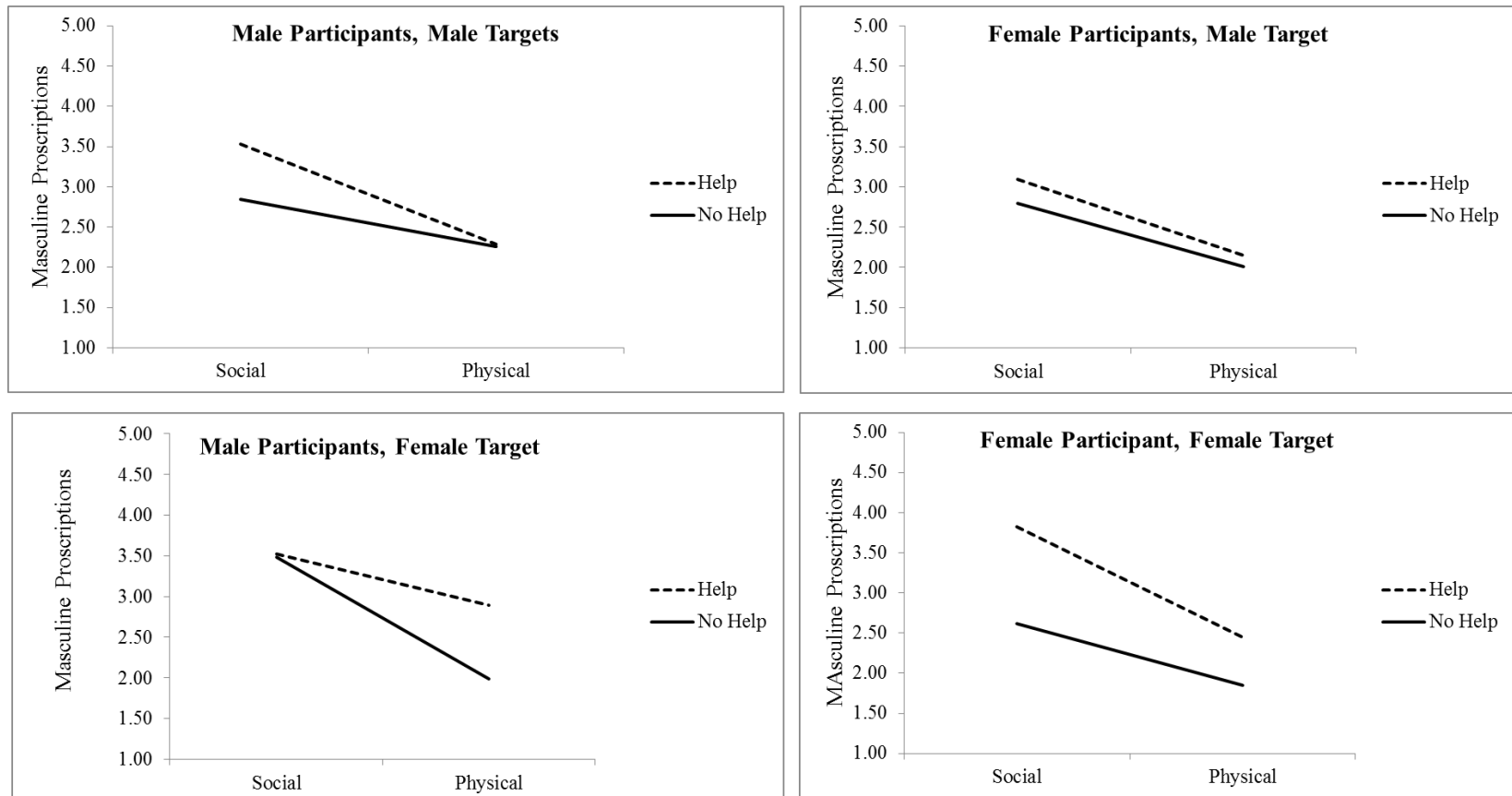Ancillary Figure 2: Study 1 Prescriptions Pain Type x Target Gender Prescriptions
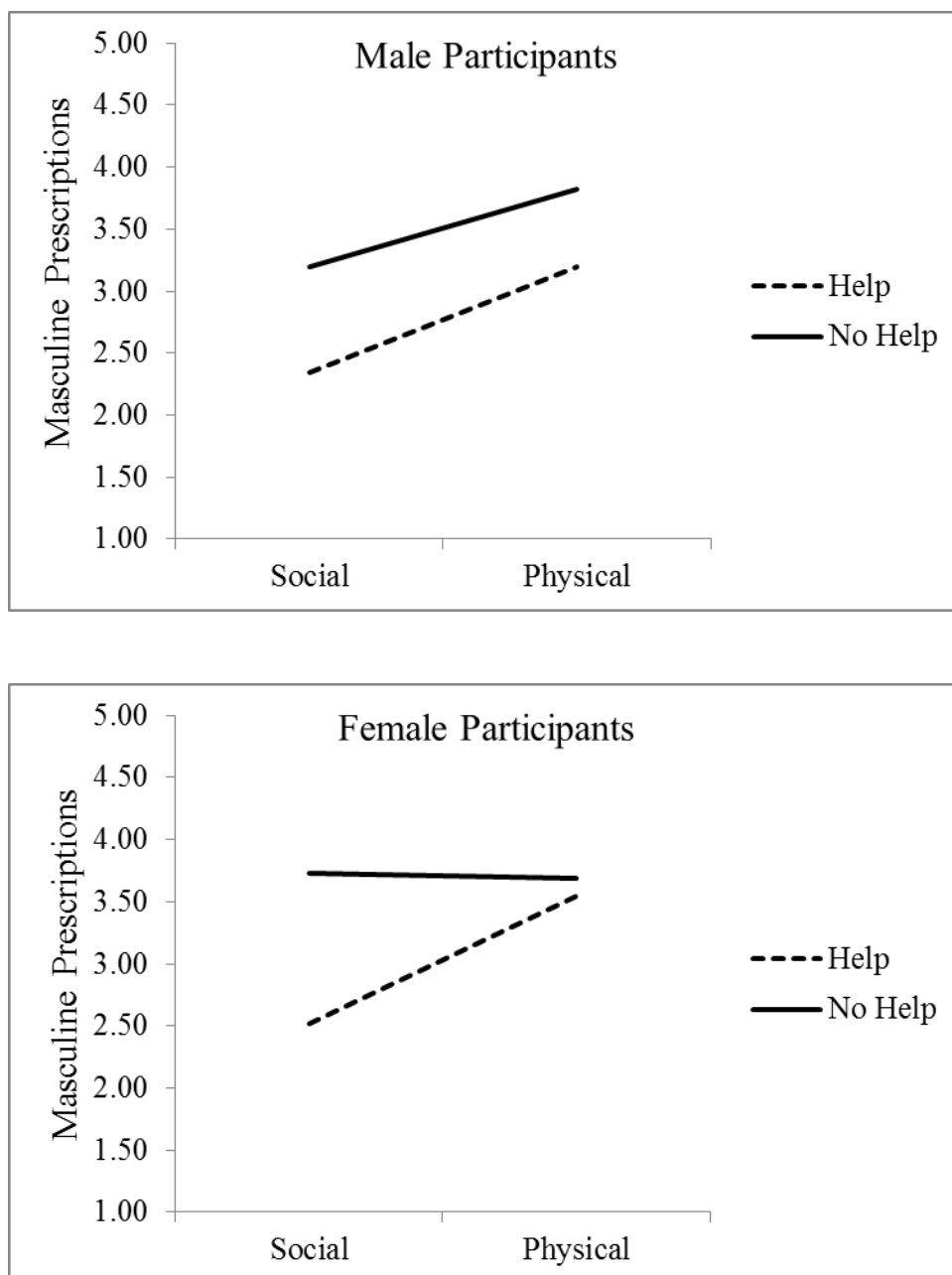
Ancillary Figure 3: Study 1 Four Way Interaction

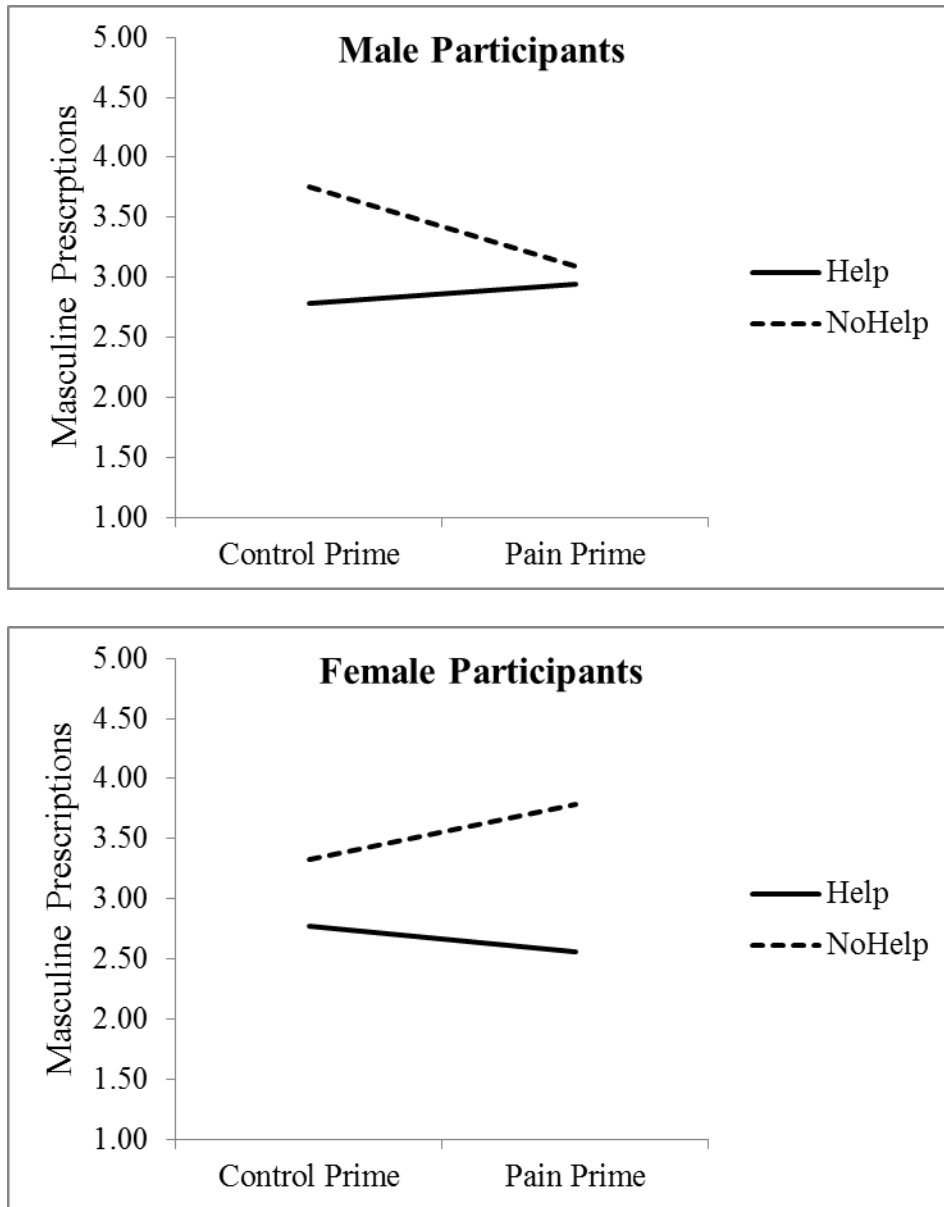Study 1 Prescriptions Pain Type x Help Seek x Participant Gender
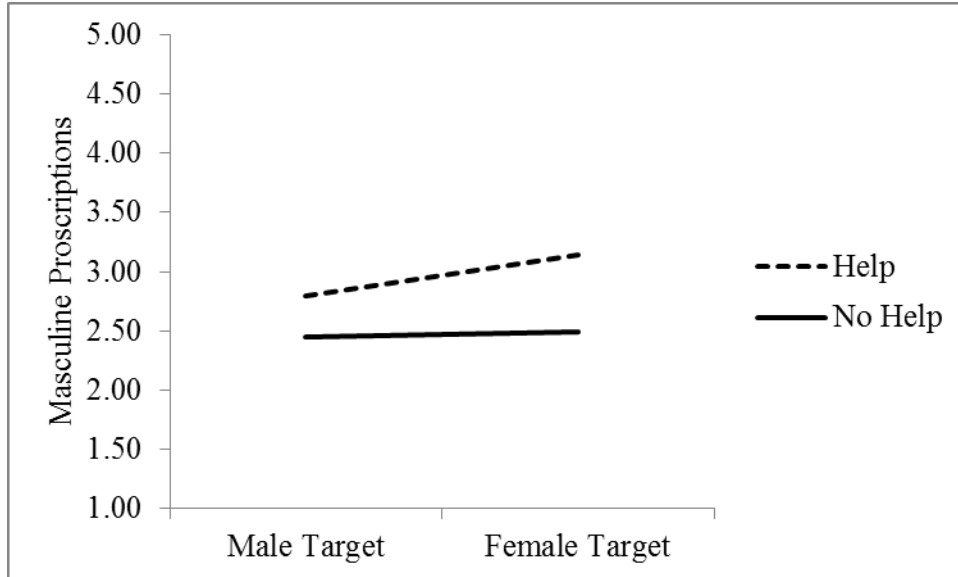
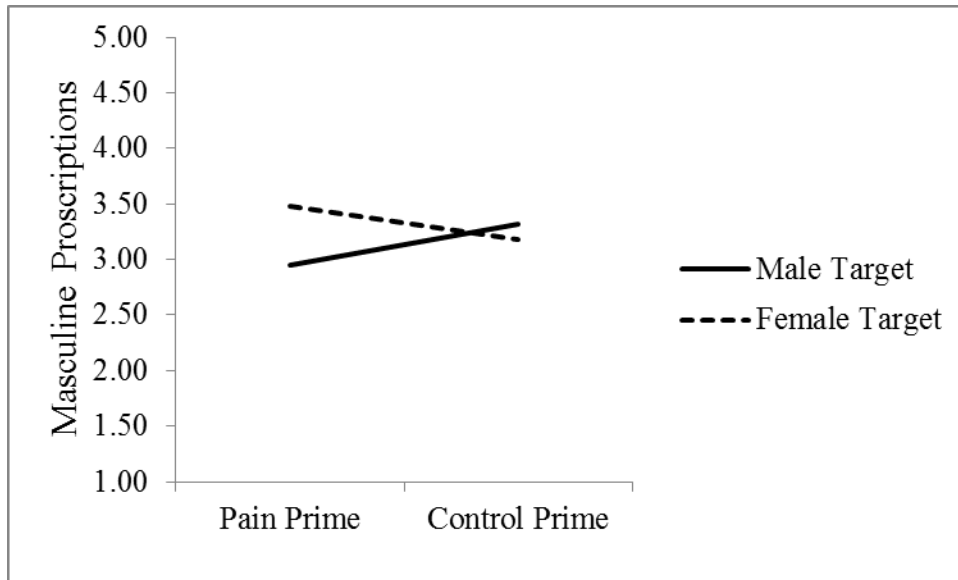Ancillary Figure 4: Study 1 Proscriptions Target Gender x Help-seeking

Ancillary Figure 5: Four Way Interaction

Study 1 Proscriptions Participant Gender x Target Gender x Pain Type x Help-Seeking

Ancillary Figure 6: Three Way Interaction

Study 2 Prescriptions Participant Gender x Prime x Help-Seeking

Ancillary Figure 7 Study 2 Proscriptions Pain Prime x Target Gender

Appendix J: Prime article 1

AMERICAN PSYCHOLOGICAL ASSOCIATION

SCIENCE WATCH

Move to the music
New research is uncovering links between beat perception and the motor areas of the brain

February 2015, Vol 79, No 4
Print version: Page 50

Brain imaging techniques as fMRI and MEG, researchers are finding evidence that music and motion are neurologically intertwined, and that motor areas of the brain may be key to our ability to perceive music's beat. One of the scientists behind that finding is Jessica Grahn, PhD, a researcher at the Medical Research Council's Cognition and Brain Sciences Unit. Grahn is also a musician—a pianist—and she's particularly interested in how people extract a steady "beat" from many different rhythms.

A beat is what makes you want to tap your foot to a song at a steady pace, but it's not at all clear how the brain finds that regular beat among a song's complicated rhythms. Now, Grahn's research suggests that motor areas may be involved. In a study published last year in the Journal of Cognitive Neuroscience, Grahn used fMRI to scan people's brain activity as they listened to different types of rhythms. Those rhythms were simply strings of different-length computer-generated beeps: "Doooo Doo Doo, Doooo Doo Dooo Doo."

Only some of the rhythms produced a perception of a beat—the ones where the beep lengths were all integer multiples, such as one, two, three or four. To produce a beat, the researchers also had to arrange the beeps in groups where beep lengths added up to four (2-1-1 | 3-1 | 4).

That's because most Western music is in 4/4 time, Grahn says, and she wanted to use rhythms that she knew would produce a beat experience for her participants. People from other cultures, whose music is structured differently, might experience beat and rhythm differently.

"If you took a tribe from South America, would they feel these particular rhythms as having a beat? I don't know," she says. "But we wanted to test people with rhythms they were used to moving to."

Grahn found that when people listened to the beat-generating rhythms, their basal ganglia and supplementary motor areas lit up. When they listened to the non-beat-generating rhythms, those areas stayed dark. That suggests that we may use the areas—both of which are involved in motor control and coordinating movement—in detecting beats as well.

Prime Article 2

SCIENCE WATCH

Social pain and Physical Pain
As far as your brain is concerned, a broken heart is not so different from a broken arm.

Anyone who lived through high school gym class knows the anxiety of being picked last for the dodgeball team. The same hurt feelings bubble up when you are excluded from lunch with co-workers, fail to land the job you interviewed for or are dumped by a romantic partner. Rejection feels lousy, but does the pain of being excluded look and feel the same as the pain of physical injury? Over the past 15 years, researchers Naomi Eisenberger (University of California, Los Angeles) and Kipling Williams (Purdue University) have sought to answer that question and their results may surprise you.

To study rejection inside an fMRI scanner, the researchers used a technique called Cyberball, which Williams designed following his own experience of being suddenly excluded by two Frisbee players at the park. In Cyberball, the subject plays an online game of catch with two other players. Eventually the two other players begin throwing the ball only to each other, excluding the subject. Compared with volunteers who continue to be included, **those who are rejected show increased activity in the dorsal anterior cingulate and the anterior insula — two of the regions that show increased activity in response to physical pain, Eisenberger says. As far as your brain is concerned, a broken heart is not so different from a broken arm.**

The same patterns are seen in situations of real-world rejection, too. University of Michigan psychologist Ethan Kross, PhD, and colleagues scanned the brains of participants whose romantic partners had recently broken up with them. **The brain regions associated with physical pain lit up as the participants viewed photographs of their exes** (*Proceedings of the National Academy of Sciences*, 2011).

The link between physical and social pain is surprising, but it makes biological sense, DeWall says. "Instead of creating an entirely new system to respond to socially painful events, evolution simply co-opted the system for physical pain."

Appendix K: Attitudes Toward Professional Help-Seeking

Read each statement carefully and indicate your degree of agreement using the

scale below.

In responding, please be completely candid.

1	2	3	4	5
Strongly Disagree	Disagree	Unsure	Agree	Strongly Agree

	1	2	3	4	5
1. If I believed I was having a mental breakdown, my first inclination would be to get professional attention.	1	2	3	4	5
2. The idea of talking about problems with a psychologist strikes me as a poor way to get rid of emotional conflicts.	1	2	3	4	5
3. If I were experiencing a serious emotional crisis at this point in my life, I would be confident that I could find relief in psychotherapy.	1	2	3	4	5
4. There is something admirable in the attitude of a person who is willing to cope with his or her conflicts and fears without resorting to professional help.	1	2	3	4	5
5. I would want to get psychological help if I were worried or upset for a long period	1	2	3	4	5

of time.

6. I might want to have psychological counseling in the future.	1	2	3	4	5
7. A person with an emotional problem is not likely to solve it alone; he or she is likely to solve it with professional help.	1	2	3	4	5
8. Considering the time and expense involved in psychotherapy, it would have doubtful value for a person like me.	1	2	3	4	5
9. A person should work out his or her own problems; getting psychological counseling would be a last resort.	1	2	3	4	5
1. Personal and emotional troubles, like many things, tend to work out by themselves.	1	2	3	4	5

Appendix L: Mild Social Needs Help-seeking

Read each statement carefully and indicate your degree of agreement using the

scale below.

In responding, please be completely candid.

1	2	3	4	5
Extremely unlikely	Somewhat unlikely	Neither likely nor unlikely	Somewhat likely	Extremely likely
If I was having a hard time with a recent breakup I would seek help from a doctor or therapist.	1	2	3	4	5
If I was having upset about something going on in my life I would seek help from a doctor or therapist.	1	2	3	4	5
If I was having trouble coping with my everyday activities I would seek help from a doctor or therapist.	1	2	3	4	5
If I was experiencing an unusual amount of stress I would seek help from a doctor or therapist.	1	2	3	4	5

| If I was experiencing an unusual among of negative emotion I would seek help from a doctor or therapist. | 1 | 2 | 3 | 4 | 5 |

Appendix M: Clinical Help-seeking

Read each statement carefully and indicate your degree of agreement using the scale below.

In responding, please be completely candid.

	1 Extremely unlikely	2 Somewhat unlikely	3 Neither likely nor unlikely	4 Somewhat likely	5 Extremely likely
If I were depressed for a significant period (e.g., a few months) I would seek help from a doctor or therapist	1	2	3	4	5
If I experienced anxiety for a significant period (e.g., a few months) I would seek help from a doctor or therapist	1	2	3	4	5
If I experienced several panic attacks over a significant period (e.g., a few months) I would seek help from a doctor or therapist	1	2	3	4	5
If I were no longer interested in activities I previously enjoyed for an extended period of time	1	2	3	4	5

(e.g., a few months) I would seek help from a doctor or therapist					
If I had trouble sleeping or was sleeping too much for an extended period of time (e.g., a few months) I would seek help from a doctor or therapist	1	2	3	4	5
If I felt empty, hopeless or guilty for a significant period of time (e.g., a few months) I would seek help from a doctor or therapist.	1	2	3	4	5
If I found myself unable to concentrate on my daily activities for a significant period of time (e.g., a few months), I would seek help from a doctor or therapist	1	2	3	4	5
If I got so anxious I could not calm down for a significant period of time (e.g., a few months) I would seek help from a doctor or therapist	1	2	3	4	5

Read each statement carefully and indicate your degree of agreement using the scale below. In responding, please be completely candid.

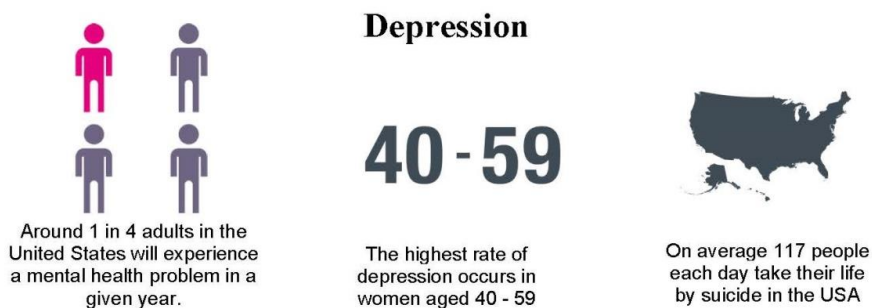|	Extremely unlikely	Somewhat unlikely	Neither likely nor unlikely	Somewhat likely	Extremely likely
If I was felt I was using too much of a substance (e.g., tobacco products, alcohol, narcotics) I would seek help from a doctor or therapist	1	2	3	4	5
If I felt I had no control over my use of a substance (e.g., tobacco products, alcohol or narcotics) I would seek help from a doctor or therapist	1	2	3	4	5
If I experienced consequences (e.g., job loss, loss of relationship) as a result of substance use (e.g., tobacco products, alcohol, narcotics) I would seek help from a doctor or therapist.	1	2	3	4	5

Appendix N: Behavioral Help-Seeking

Behavioral Figure 1

Depression

40 - 59

Around 1 in 4 adults in the United States will experience a mental health problem in a given year.

The highest rate of depression occurs in women aged 40 - 59

On average 117 people each day take their life by suicide in the USA

Mental health: Why it matters

Anyone, of any age, can be affected by poor mental health. Many men find it difficult to share their problems and try to remain 'strong and silent' rather than getting support when it's needed, despite the detrimental effect this can have. It's important to be proactive about your mental health, be aware of risk factors and symptoms, and stay connected with your friends and family.

How to access support

If you or someone you know is experiencing a mental health problem, the most important first step is to talk to someone. Whether it's your doctor, your family, your friends, or an anonymous person on a support line – advice and effective tools are available.

Risk factors

There are a number of factors that have been linked to an increased risk of experiencing poor mental health, including:

- Previous family or personal history of mental health problems
- Drug and alcohol use
- Serious medical illness
- Isolation or loneliness
- Unemployment, homelessness, conflict or other stressful life situation

Ten Things You Can Do for Your Mental Health

Try these tips to help find the right balance in your life.*

1. Value yourself:

Treat yourself with kindness and respect, and avoid self-criticism. Make time for your

hobbies and favorite projects, or broaden your horizons. Do a daily crossword puzzle,

plant a garden, take dance lessons, learn to play an instrument or become fluent in

another language.

2. Take care of your body:

Taking care of yourself physically can improve your mental health. Be sure to:

Eat nutritious meals Avoid cigarettes Drink plenty of water Exercise, which helps

decrease depression and anxiety and improve moods Get enough sleep. Researchers

believe that lack of sleep contributes to a high rate of depression.

3. Surround yourself with good people:

People with strong family or social connections are generally healthier than those who lack a support network. Make plans with supportive family members and friends, or seek out activities where you can meet new people, such as a club, class or support group.

4. Give yourself:

Volunteer your time and energy to help someone else. You'll feel good about doing something tangible to help someone in need — and it's a great way to meet new people.

5. Learn how to deal with stress:

Like it or not, stress is a part of life. Practice good coping skills: Try Tai Chi, exercise, take a nature walk, play with your pet or try journal writing as a stress reducer. Also, remember to smile and see the humor in life. Research shows that laughter can boost your immune system, ease pain, relax your body and reduce stress.

6. Quiet your mind:

Try meditating, Mindfulness and/or prayer. Relaxation exercises and prayer can improve your state of mind and outlook on life. In fact, research shows that meditation may help you feel calm and enhance the effects of therapy.

 7. Set realistic goals:

Decide what you want to achieve academically, professionally and personally, and write down the steps you need to realize your goals. Aim high, but be realistic and don't over-

schedule. You'll enjoy a tremendous sense of accomplishment and self-worth as you progress toward your goal.

8. Break up the monotony:

Although our routines make us more efficient and enhance our feelings of security and safety, a little change of pace can perk up a tedious schedule. Alter your jogging route, plan a road-trip, take a walk in a different park, hang some new pictures or try a new restaurant.

9. Avoid alcohol and other drugs:

Keep alcohol use to a minimum and avoid other drugs. Sometimes people use alcohol and other drugs to "self-medicate" but in reality, alcohol and other drugs only aggravate problems.

1. Get help when you need it:

Seeking help is a sign of strength — not a weakness. And it is important to remember that treatment is effective. People who get appropriate care can recover from mental illness and substance abuse disorders and lead full, rewarding lives.

*Adapted from the National Mental Health Association/National Council for Community Behavioral Healthcare