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Predictors of Self-Injurious Behaviors: A Person by Situation Analysis of Health-Compromising Behavior

by

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Submitted to the Graduate Faculty as partial fulfillment of the requirements for the Doctor of Philosophy Degree in Experimental Psychology

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An Abstract of

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One health-related issue gaining momentum and notoriety at the national level is the health disparity between men and women with men experiencing poorer health outcomes in a variety of domains. I propose that one determinant for this disparity is the conformity to masculine gender expectations. As masculine gender expectations are often characterized by displays of toughness and invulnerability, it is important to establish under which conditions these expectations effect health behavior. Study 1 examined the combined effects of participant sex, masculine identity threat, and gender role orientation on self-injurious behavior. Gender role orientation was measured using the Bem Sex-Role Inventory during a mass screening and during the laboratory session participants either received a masculine threat or no threat. Men engaged in more self-injurious behavior than did women. Importantly, gender role orientation qualified this effect with higher masculine men exhibiting more self-injurious behaviors than higher masculine women. Study 2 examined if self-affirmation is one condition under which self-injurious behaviors could be reduced for higher masculine men. After measuring gender role orientation in a prescreening session, male participants were randomly assigned to either a self-affirmation or no self-affirmation condition during laboratory sessions. All men
were exposed to a masculine identity threat. As expected, high masculine men given a chance to self-affirm showed a decrease in self-injurious behaviors relative to high masculine men not given this opportunity. Theoretical contributions, implications, and future directions for this line of research are discussed.
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List of Symbols

α ..........Alpha level
β ..........Standardized beta
χ² ......Chi-square

BSRI...Bem sex-role inventory
mV....Millivolts
p ........Probability of obtaining a particular test statistic
r .........Pearson statistic that examines a correlation between two variables
t..........Test statistic associated with analysis
X........Interaction effect between two variables
Chapter One

Predictors of self-injurious behaviors: A person by situation analysis of health-compromising behavior

Across several industrialized nations, an alarming pattern of data suggests that there are health disparities between men and women such that men experience increasingly poorer health outcomes. A close examination of the data reveal that men are at greater risk for experiencing a much higher rate of illness and negative health outcomes in general relative to women. According to public health agencies within the United States, men are 24% less likely to have visited a doctor in the last year, approximately 30% more likely to be hospitalized for preventable conditions such as pneumonia and congestive heart failure, and twice as likely to die of cancer by age 75 (Center for Disease Control, CDC, 2011; United States Department of Health and Human Services, USDHHS, 2010). Partially elucidating on why these differences may exist are data communicated by the World Health Organization (WHO; 2008) showing that across North America and Western Europe, men were twice as likely to drink and drive, four times as likely to successfully commit suicide, 16% more likely to smoke cigarettes, and 53% more likely to use anabolic steroids.

It is still unclear, however, why men may be engaging in these health-compromising behaviors. Answering this question is pivotal in successfully reducing the health disparity gap and developing interventions that improve the quality and longevity of men’s lives. Although biological factors certainly contribute to this disparity (e.g., diseases related to Y-chromosome), men’s lower life expectancy in all industrial countries cannot simply be reduced to only biological factors. Instead, there may be
important psychosocial variables exerting an impact on the observed sex disparities in health. In fact, public health campaigns aimed at closing this gap point to the masculinization of men as one culprit for why men may suffer more than women (Advancement of Men, n.d.). Perhaps then it may be fruitful to focus on when and for whom masculine gender expectations influence health-related behaviors.

**Current Investigation**

The purpose of the current proposal is to examine when masculine gender expectations impact health-related behaviors. As the cultural masculine gender norm includes displays of invulnerability and toughness (Deaux, 1985; Deaux & LaFrance 1998; Prentice & Carranza, 2002), understanding when these expectations exert an influence on health behaviors may be of particular importance for reconciling and reducing sex-related health disparities. Therefore, the main focus of this investigation examines under which conditions masculine gender norms are most likely to lead to health-compromising behaviors, for whom they are most likely to occur, and how to reduce this behavior.

Two studies were proposed in the current investigation. Study 1 examined the combined influence of masculinity threat (e.g., not being “man enough”) and gender role orientation (i.e., adherence to masculine gender role) on self-injurious behaviors. Self-injurious behaviors are defined as behaviors that are directed toward harming the self and are, by definition, health-compromising in nature. Furthermore, Study 2 tested whether or not the opportunity to self-affirm (i.e., reflecting upon a cherished aspect of self) reduces self-injurious behaviors.
The beginning of the manuscript introduces research on the social expectations placed on males to be masculine and how expressions of masculinity can lead to negative health outcomes. Following this, I propose one situational factor under which self-injurious behaviors may be more likely to occur, namely, when men experience a masculinity threat. Further, I then explicate why the masculinity threat factor should be moderated by adherence to masculine gender roles. Finally, I review the relevant literature on self-affirmation and defensive processing and lay out the logic that self-affirmation may reduce the drive to engage in self-injurious behavior via a reduction in defensive processing. Therefore, the goal of the current project is to understand when and for whom self-injurious behaviors are likely to occur, and importantly, under which conditions self-injurious behaviors can be reduced.

**Expressions of Masculinity and Negative Health Outcomes**

In the United States, there are normative expectations that men should act like men and that real men possess invulnerability and toughness (Gilmore, 1990; Prentice & Carranza, 2002; Vandello & Cohen 2008, Morrissey, 2008). To be a man, one must act like a man. Consequently, masculine gender expectations may have the ability to result in health-compromising behaviors. For example, one extensively examined type of masculine health behavior is excessive alcohol use with excessive drinking viewed as a manly activity (de Visser & Smith, 2007; Wilsnack & Wilsnack, 1997). In one study utilizing a qualitative research design, de Visser and McDonnell (2012) interviewed stereotypically masculine men (i.e., fraternity brothers and football players) and found these men believed that drinking heavily was one way in which they could uphold their masculine identity. Interestingly, several men described their engagement of this activity
as a means of scoring “man points” or masculine capital, with the idea that men earn respect from one another by earning masculine capital. Thus, the more capital earned, the higher the status among his peers.

What other behaviors do men engage in as a means of racking up man points? Another health-related behavior is masculinization of the body. The issue that arises with working toward a more stereotypically masculine physique is that many men are relying on the use of steroids to achieve such physical status (Keane, 2005). Being buff and muscular has its advantages such as access to women and respect from men. However, steroid use among young men has increased 35% in the last 10 years compared to less than 1% for young women (CDC, 2011) with the dangers of steroid use including increased risk of heart attack, prostate cancer, and liver malfunction. Researchers have also documented that expressions of masculinity include bungee-jumping and reckless driving (Courtenay, 2000; Mast, Sieverding, Esslen, Graber, & Jancke, 2008; Morrissey, 2008), behaviors that earn respect from peers but puts an individual at risk for negative health consequences. It appears that these cultural expectations for men to display toughness and invulnerability may manifest as early as when the child is born. For example, parents are likely to describe sons as tough, strong, and alert, with this assessment being particularly true for fathers (Rubin, Provenzano, & Luria, 1974). Critically, these expectations and manifestations of manliness (e.g., reckless driving, binge drinking) may come at a price to one’s health and may be one source driving the health disparities between the sexes.
Social Pressures to Prove Masculinity

“The male stereotype makes masculinity not just a fact of biology but something that must be proved and re-proved, a continual quest for an ever-receding Holy Grail.” Marc Feigen Fasteau, (1974)

It has been suggested that maintaining a masculine self-concept requires regular proof (Bosson, Vandello, Burnaford, Weaver, & Wasti, 2009; Vandello, Bosson, Burnaford, Weaver, & Cohen, 2008) and according to Vandello et al. (2008), the glorification of “manhood” makes it a highly elusive, precarious self-concept that forces some men to “prove” their masculinity, particularly in public (Bosson et al., 2009; Leary, Tchividjian, & Kraxberger, 1994). This assertion is corroborated by men’s greater concern about being gender deviant than women (McCreary, 1994) and evidence suggests that gender transgressions are less tolerated in males than females. For example, boys are significantly more likely than girls to be punished for straying from gender norms (Fagot, 1977; Fagot & Hagan, 1991) and are more readily referred to psychologists for Gender Identity Disorder (Zucker, Bradley, & Sanikhani, 1997). Similarly, there is greater disapproval when boys engage in gender-opposite behavior (e.g., boys playing with dolls, girls playing with GI Joes; Feinman, 1974; 1981).

Critically, however, it would not be feasible or sustainable for men to perpetually prove masculinity via displays of toughness and invulnerability with every move they make on a daily basis. That is, men cannot prove their manhood through every action in their daily routines and continue to function. Instead, there may be certain circumstances or qualifying conditions under which the pressure to be manly influences conformity to
masculine gender expectations. Thus, it would be fruitful to determine which factors are influencing conformity and in turn the engagement of health-compromising behaviors.

**Masculinity Threat**

One situation that demands conformity to masculine gender expectations is when men experience a threat to their masculine identity. Specifically, a masculinity threat occurs when men are made to feel inadequate or inferior in their masculinity and is often achieved by ridicule for not being “man enough.” In turn, researchers show that threatening men’s masculine identity can create a state of defensiveness (e.g., Chalus, 1976; Cramer, 1998). For example, fraternity brothers may challenge each other to drinking games or teenage boys may dare each other to street car racing with the penalty for not participating as being branded as weak, scared, or worse—girly. Coupled with sayings such as “boys don’t cry” and fear of being called derogatory names such as “pansy” or “faggot” for “chickening out” of a dare (Berdahl, Magley, & Waldo, 1996; Burn, 2000), males may try and prove their masculinity by putting themselves in a position that jeopardizes health. The engagement of health-compromising behaviors may result from the defensiveness that is evoked from a masculinity threat. Thus, the fraternity brother who accepts the keg-stand challenge and drinks himself into a stupor, for instance, may end up hospitalized for injuries sustained during a car accident or have his stomach pumped due to alcohol poisoning. Or the worst case scenario may end up at the morgue.

It is no surprise that masculine identity threats has been studied across a variety of domains as it is an all too common occurrence for many men. In conjunction with the idea that masculinity threat produces defensiveness, masculinity threats have unleashed a
variety of compensatory behaviors including aggression toward others (Bosson et al., 2009; Cohn, Seibert, & Zeichner, 2009), sexual harassment (Hitlan, Pryor, Hesson-McInnis, & Olson, 2009; Maass, Cadinu, Guarnieri, & Grasselli, 2003), demeaning of gay men (Glick, Gangl, Gibb, Klumper, & Weinberg, 2007; Jakupcak, Lisak, & Roemer, 2002), and increased physical prowess (Chalus, 1976; Funk & Werhun, 2011; Goff, DiLeone, & Kahn, 2012; Holmes, Study 2, 1971; Mills & D’Alfonso, 2007). All of the domains in which these outcomes occurred suggest that when a masculinity threat occurs, men will compensate in the domain in which he was threatened. As with the studies listed above, masculinity threat can also lead to masculine compensatory behaviors such as derogation of gay men and exerting physical dominance or prowess.

These findings may be explained in part by existing social psychological theory on the self-concept. Specifically, research indicates that when individuals feel threatened on a central dimension of the self (e.g., biological sex), they will compensate in the injured area as to reestablish their standing on this characteristic (Funk & Werhun, 2011; Leary et al., 1994; Markus & Wurf, 1987). One way in which people can restore an injured dimension of the self is to compensate in the area in which the self has just been injured. Thus, if a man’s manhood is threatened, he should presumably attempt to compensate via exaggeration of efforts in the area in which the threat was targeted (i.e., engagement of masculine behaviors). This exaggeration of efforts, then, serves as a means of reducing the threat and restoring the injured dimension of the self.

Similarly, women may also compensate in the feminine domain if they experience a feminine identity threat. Although not the scope of the current research, it is important to acknowledge the prospect that compensating for a feminine identity threat may also
lead to negative health outcomes. For example, in order to reestablish womanhood following a feminine identity threat, women may be likely to engage in behaviors associated with femininity (e.g., striving to be thin) such as smoking cigarettes, reducing or restricting calories, taking laxatives, purging, and excessive exercise. Societal norms for men to be masculine and women to be feminine may come at a cost to one’s health.

Therefore, the idea of compensating in the area for which the self has taken a hit may be of particular importance to health-related outcomes since expressions of masculinity are often associated with harmful health behaviors. The drive to compensate in the masculine domain may ultimately end up compromising one’s health. For example, if a male skateboarder is harassed by other skaters—perhaps they use derogatory names to make him feel girly—he may attempt a 360 flip over a 6 foot gap as a means of compensating for the threat and restoring the self. Unfortunately, he may end up breaking several bones in the process. Thus, his identity as a man has been injured and to repair the injured self he then compensates by attempting a cool but highly dangerous acrobatic feat. Essentially, then, a masculine identity threat should lead to behaviors that make up for this exploited gap of the self. In turn, this compensation process may increase the incidence of such negative health outcomes.

Accordingly, one arena in which men can try to reestablish their masculinity after experiencing a masculinity threat is physical activity and prowess (Chalus, 1976; Holmes, 1971; Study 2). Specifically, in one study, male participants who experienced a masculinity threat (i.e., were led to believe they were going to have to suck on a baby’s rattle, bottle, and pacifier while their level of enjoyment was being recorded) elected to squeeze a hand dynamometer for a greater number of times relative to men in a control
condition. In this case, a greater number of squeezes can be viewed as evidence of compensation. Similarly, Goff et al. (2012) found that masculinity threatened participants completed a greater number of push-ups relative to men not under masculinity threat. Thus, completing more push-ups is another means by which men can prove manliness. Mills and D’Alfonso (2007) provide a conceptual replication of the aforementioned findings such that men who experience a masculinity threat show an increase in behavioral intentions for muscularity relative to non-threatened participants. These studies indicate that the recognition of deficiency or inferiority as a man can lead to exaggerated efforts in the same area of functioning as a means of restoring and reestablishing masculinity. The compensation behavior in these cases was increased physical prowess. Researchers find a similar pattern of results with masculine threatened men compensating in traditionally masculine domains such as aggression and sexual harassment (Bosson et al., 2009; Cohn et al., 2009; Hitlan et al., 2009).

Critically, if masculinity threats can lead to greater a number of masculine compensatory behaviors, would a masculinity threat lead some men to deliberately inflict harm upon himself? There is only one study to date that has attempted to answer this question. Holmes (1971; Study 1) examined the effect of masculinity threat on participants’ willingness to take electrical shock. Examining only male participants, participants either experienced a masculinity threat (e.g., sucking on baby rattle) or were assigned to a control condition (i.e., no threat). Following this, both groups of participants were given an opportunity to compensate and prove how "tough they really were" via ratings of how much electrical shock they would be willing to receive. The experimenter explained that because some people are “afraid of electrical shock” they would be
allowed to tell the experimenter what level of shock they would like to receive. Using a shock-intensity rating scale (ranging from 50-500 in 10 interval increments), participants then rated aloud the level of shock they preferred for the task — for which the shock was never actually administered. Consequently, masculinity threatened participants elected to receive higher levels of shock relative to control participants. In other words, men facing a masculinity threat were willing to hurt themselves to a greater degree than were men not threatened. Presumably, electing to receive a higher level of shock was one way these male participants were able to re-assert their masculinity. Building off of these findings, it is reasonable to expect that men who experience a masculinity threat will inflict harm upon themselves to a greater degree than men not under threat.

**Gender role identity as a moderator.** One way to account for men’s reactions to a perceived masculine identity threat is to return to the idea of the self-concept. Although research suggests that biological sex is often a core component of the self-concept (e.g., Witt & Wood, 2010), social scientists recognize that the self is a multi-dimensional construct referring to an individual's perception of self in relation to any number of characteristics, such as gender roles, sexual orientation, and racial identity (Aries et al., 1998; Baumeister, 1998; Deaux, 1996; Hoffman, Hattie, & Borders, 2005; Markus & Wurf, 1987; Wade, 1998). Critically, defensive reactions are especially likely to occur when the dimension of the self-concept being threatened is a central aspect of the individual’s identity (e.g., Deaux, 1996; Markus & Wurf, 1987; Solomon, Greenberg, & Pyszczynski, 1991). Perhaps conformity to the masculine gender role will increase self-injurious behaviors following a threat? In essence, if being masculine is important to
a man, then it can be hypothesized that masculine men would respond more defensively to a masculine identity threat as compared to less masculine men.

Notably, research shows that highly masculine men are likely to consider masculinity as a core self-dimension (Palomares, 2006; Stryker 1980). If threatened on this dimension via a masculine identity threat, they may be more likely to attempt compensation as to re-establish their masculinity. On the other hand, men for whom masculinity is less important (i.e., low masculine men) may not be as offended by a masculinity threat because it is not an integral part of their self-concept. Therefore, men who identify strongly with masculinity (i.e., central aspect of the self) should be more likely to engage in compensatory behaviors following a masculinity threat relative to men who identify weakly with masculinity (i.e., peripheral aspect of the self).

From the perspective of personality research, gender role identity concerns the meanings and traits that an individual associates with being male or female (Bem, 1974; 1981; Deaux, 1985; Rosenkrantz, Vogel, Bee, Broverman, & Broverman, 1968; Spence, Helmreich, & Stapp, 1975; Unger, 1979). The masculine gender role is characterized by dominance, ambitiousness, and independence whereas the feminine gender role is characterized by warmth, compassion, and emotionality (Bem, 1974, Spence et al., 1975). Although individuals can possess masculine and feminine characteristics simultaneously (i.e., androgyny) or possess cross-sexed characteristics (e.g., masculine female), males are especially expected to adhere to their prescribed societal gender role (see Deaux & LaFrance 1998 for a review). Thus, adherence to the masculine gender role is operationally defined as agreeing to masculine characteristics as describing the self and disagreeing to feminine characteristics as describing the self.
Surprisingly few studies have addressed how adherence to the masculine gender role affects defensiveness and compensation following a masculine identity threat. Of those studies, defensive identification and endorsement of anti-social behaviors were examined as masculine compensatory reactions (Babl, 1979). Specifically, Babl (1979) randomly assigned male participants to a masculinity threat (i.e., told that masculinity is on the decline in U.S. men), masculinity validation (i.e., told that masculinity is on the rise for U.S. men), or control condition (i.e., no information given). Additionally, adherence to the masculine gender role was measured using the Bem Sex-Role Inventory (Bem, 1974). The compensation measures included participants’ agreement of traits on a masculinity-femininity scale and behavioral intentions to engage in anti-social behaviors. Results supported the hypothesis that under threat, masculine men will show greater masculine compensation relative to feminine or androgynous men by a) identifying more strongly with masculine traits and b) exhibiting greater endorsement of anti-social behaviors. Interestingly, there was also a marginally significant comparison for masculine men across experimental conditions revealing that threat led to greater masculine compensation relative to the control and validation conditions. In the current context, one interpretation is that masculine gender role adherence amplified masculine compensation when these male participants faced a masculinity threat.

Similarly, researchers have examined masculine compensation in the context of aggression with a masculinity threat serving as a catalyst for aggressive intentions and behaviors among men who rigidly adhere to masculine role norms (Cohn & Zeichner, 2006; Cohn et al., 2009; Eisler & Skidmore, 1987; Moore & Stuart, 2004). For example, Cohn et al. (2009) examined the effects of masculinity threat and adherence to gender
roles with male participants only. Male participants’ adherence to the masculine gender role was measured using the Bem Sex-Role Inventory (Bem, 1974) and masculinity threat was manipulated via feedback from a general knowledge inventory (e.g., participants were shown they either fell in the masculine or feminine knowledge range). It was found that masculinity threatened participants (i.e., shown a graph that their score fell in the feminine knowledge range) administered greater frequency and duration of shock to a confederate relative to control participants (i.e., shown that their score fell in masculine knowledge range). Critically, this effect was qualified by gender role orientation with high masculine men exhibiting the greatest amount of aggression toward the confederate following a masculine identity threat.

If aggression toward others is sparked by a masculinity threat for masculine men, then perhaps this set of factors will increase the likelihood that one would aggress toward the self. Given the findings of Cohn et al. (2006) and the logic following from the self-concept literature, I hypothesize that high as compared to low masculine men under masculinity threat will be more likely to engage in compensation-evoked self-injurious behaviors as a means of reestablishing their masculine identity. Importantly, no study to date has examined whether masculine gender adherence is a catalyst for compensation-evoked self-injurious behaviors. Therefore, I propose that a masculinity threat will lead to greater self-injurious behaviors that are perceived as gender identity compensatory for men who adhere more strictly to the masculine gender role.

Critically, what is missing from the literature so far is the effect of masculinity threat on women who adhere to the masculine gender norm. That is, if the masculine gender role is a core component of the self for a woman, then perhaps threatening this
aspect of the self will also produce masculine compensatory behaviors for this person. As all of the aforementioned studies have examined only male participants, there is no way of knowing if women for whom the masculine gender role is a core component of the self will display masculine compensatory behaviors following a masculine threat. Therefore, it is important to include women in the design as to test this idea. Further, including women in the design will increase the generalizeability of the findings.

**Self-Affirmation Reduces Defensive Processing**

An important aspect of the current investigation is that it will also explore the conditions under which compensation-evoked self-injurious behaviors can be reduced. As masculine compensatory behaviors appear to be a partial function of the defensiveness that is evoked following a masculinity threat—particularly among highly masculine men—examining ways in which to successfully reduce defensiveness is an important element of the research scope. Although many theories have been advanced to explain why people respond defensively to threatening information, one theory in particular has made a significant impact on reducing defensiveness in the face of threat: Self-affirmation theory.

According to self-affirmation theory (Steele, 1988), people are fundamentally motivated to preserve a positive self-image and to maintain self-integrity. This means that threats to the self-concept (e.g., masculine shortcomings) will undermine self-worth unless the self-concept can be bolstered. Researchers have been successful at reducing defensive processing by asking participants to self-affirm on a cherished value or identity. Thus, self-affirmation involves thinking about “one’s affirming and sustaining valued self-images” (Steele, 1988, p. 291) and is operationalized in studies by instructing
participants to reflect on their most cherished values or characteristics (see McQueen & Klein, 2006 for a review of self-affirmation manipulations).

According to Steele’s principle of substitutability (also known as fluid compensation), the self-image can be bolstered by self-affirming in one domain (e.g., one’s pride in school success) even if one’s self-identity has been recently threatened in another domain (e.g., masculinity). That is, after experiencing a threat to the self-concept, people are able to affirm their self-adequacy through whatever means are most readily available or accessible.

Subsequently, researchers have used manipulations derived from self-affirmation theory to reduce defensive responding to information concerning health risks associated with unsafe sex, excess caffeine and alcohol consumption, and cigarette smoking (e.g., Harris, Mayle, Mabbott, & Napper, 2007; Harris & Napper, 2005; Reed & Aspinwall, 1998; Sherman, Nelson, & Steele, 2000). For example, Harris et al. (2007) found that affording smokers the opportunity to recall positive characteristics about their self-concept prior to viewing graphic images of smoking-related illnesses reduced defensive processing relative to smokers who did not recall positive self-characteristics. That is, smokers who were able to self-affirm prior to seeing graphic images ultimately rated the images as more threatening and more personally relevant than did the non-affirmed smokers. This data suggest that, compared to non-affirmed smokers, smokers who affirmed were less defensive about the threatening information thereby leading to greater health message receptivity. Similarly, Sherman et al. (2000) had sexually active undergraduates watch an educational video suggesting that their sexual behavior could put them at risk for HIV. Participants either did or did not self-affirm prior to watching
the video. Although all participants were at-risk due to their sexual behavior, affirmed participants responded to the information by acknowledging their potential for contracting HIV. In contrast, non-affirmed participants responded in a more defensive manner—that is, had lower rates of risk acknowledgment. It appears that at-risk groups become defensive when threatened; however, inducing these individuals to restore the threatened portion of the self-concept via self-affirmation yields positive consequences—greater message receptivity. Self-affirmation serves to reduce defensiveness after threat by restoring the perceived worth and integrity of the self (Sherman & Cohen, 2002). The restoration of worth and self-integrity reduces the impact of the threat thereby allowing people to be more receptive to potentially threatening information.

In context with the current investigation, then, perhaps allowing men—especially when high in masculinity—to self-affirm would reduce the defensiveness produced by a masculinity threat. In turn, if defensiveness is reduced, then men should not feel the drive to compensate and reestablish the injured masculine self-concept. Critically, there are no studies examining self-affirmation in the context of masculinity identity threat. Therefore, extrapolating from self-affirmation theory, I am predicting that allowing highly masculine men to self-affirm following a masculinity threat will restore the self-worth and thereby reduce motivation to re-establish their masculine self-identity via compensatory behaviors. That is, highly masculine men who self-affirm versus do not self-affirm following a threat should show a reduction in compensation-evoked self-injurious behaviors.
Unique Contributions of Current Project

There are several unique contributions of the current research. First, the variables under investigation in the current project have been looked at in isolation from one another. As the goal of the project is to examine how masculine identity threat, masculine gender role adherence, and self-affirmation affect self-injurious behaviors, there is a gap in the literature only examining a subset of the variables in relation to each other instead of examining the combined effect of these variables in predicting health behavior. The research conducted by Babl (1979) is probably the closest in relation to the goals of the current investigation. Specifically, this work examined masculinity threat and adherence to gender roles as predictors of masculine compensation. However, masculine compensation was operationalized as defensive identification and endorsement of anti-social behaviors. Self-injurious or health-compromising behaviors more generally were not incorporated in that work. Additionally, although that research established the combined effects of masculinity threat and adherence to masculine gender roles as increasing masculine compensation among male participants, it did not examine any factors that may reduce this outcome.

In addition, no study to date has tried to tease apart biological sex, socialized gender role adherence in the context of masculinity threats and self-injurious behaviors. Therefore, another unique aspect of the current proposal is that this is the first investigation examining the effects of masculinity threat and adherence to masculine gender roles among female participants. In all of the studies cited in the body of the introduction, female participants were not included in the study designs. It is possible that masculinity may be a core or central dimension to the self for a highly masculine woman.
If so, when masculine women are presented with a masculine identity threat, it is plausible that masculine compensatory behavior will also be displayed. In other words, even masculinity among female participants may be related to self-destructive behaviors due to masculine identity compensation. However, because researchers have focused solely on masculinity and men, it is unknown how masculine women will respond following a masculinity threat.

Although not the focus of the current investigation, it is important from a conceptual standpoint to determine if masculinity in both men and women relates to negative health behavior following a masculine identity threat. Specifically, if the masculine gender role exerts a larger influence on health-behavior than does biological sex, then perhaps health behavior may be driven by social norms to a greater extent than biological mechanisms. Health disparities due to biological sex may be harder to change since it involves physiological make-up of the person whereas socialized expectations may be slightly more flexible and subject to change. Subsequently, this information is useful for tailoring interventions and targeting the appropriate audience when framing health messages.

Along the same lines, another unique contribution is that researchers have not used a direct behavioral measure of self-injurious behavior in an experimental study. Although Holmes (1971) asked participants to verbally rate the amount of electric shock they would like to receive when examining the effects of masculinity threat on compensation, participants nonetheless rated the level of shock out loud so the experimenter could set the machine for participants as opposed to participants setting the shock machine themselves. Building from Holmes (1971; Study 1), participants in the
current proposal will also be led to believe that part of the study will involve electrical current (i.e., shock). Consistent with Holmes’ procedure, participants will be told they can choose the level of millivolts (mV) they would like to receive. Importantly, instead of rating the level of current out loud, participants will actually take their hand and set a dial that is ostensibly hooked up to an “electrodermal machine.” Thus, the action of setting the dial at the desired level of electrical current will serve as the behavioral measure of self-injurious behavior.

**Hypotheses**

Bridging the literatures on sex-related health disparities, masculine gender expectations, masculinity threats, adherence to gender roles, and health outcomes, several hypotheses can be derived.

**Hypothesis 1.** First, consistent with the societal expectation for men to prove toughness, and the findings suggesting men are at greater risk than women for a variety of negative health outcomes, a main effect of participant sex should emerge with men engaging in more self-injurious behavior than women. Essentially, there should be no social pressure for women to prove themselves to the same extent as there is for men, thus men should set the machine at a higher level of electrical current.

**Hypothesis 2.** Second, based on the masculinity threat literature suggesting that a threat leads to more masculine compensation in a variety of health-related domains (e.g., physical prowess), greater engagement of self-injurious behavior is expected to occur following a threat to masculinity relative to absence of threat (e.g., Goff et al., 2012, Mills & D’Alfonso, 2007). It is expected that the masculinity threat effect should occur for male instead of female participants. However, as women were never included as
participants in these literatures, it is important to provide empirical support for this assertion.

**Hypothesis 3.** Furthermore, the masculinity threat effect is expected to be qualified by adherence to the masculine gender role. There is existing data supporting the assertion that the defensive processes triggered by a masculinity threat are in turn amplified by stricter adherence to the masculine gender role (e.g., Chalus, 1976; Cohn et al., 2009; Cohn & Zeichner, 2006). And that this combination of factors leads to an amplified demonstration of compensatory outcomes. Therefore, based on these findings, I expect greater self-injurious behaviors among higher masculine men relative to less masculine men in the threat condition.

Again, as women have not been included in the relevant literature cited above, it remains uncertain whether women who consider the masculine gender role as an important aspect of their identity will engage in self-injurious behaviors if they are threatened on that dimension of the self. I anticipate this will not be the case and that masculine women will not take offense and become defensive following a masculine identity threat. Masculine women still have the woman aspect of their identity that should more than likely buffer against such a threat.

**Hypothesis 4.** Finally, one account for why high masculine men should engage in self-injurious behaviors following a masculine identity threat may be due to the defensive processing that is evoked by the threat (e.g., Sherman et al., 2000; Sherman & Cohen, 2002). If this is the case, and defensive processing leads participants to reestablish masculinity via displays of toughness, then perhaps giving participants the opportunity to self-affirm may reduce defensiveness. In turn, if defensiveness is reduced, then perhaps
the drive to compensate for the threat may be reduced as well thereby leading to a reduction in health-compromising behaviors. Therefore, the opportunity to self-affirm as compared to not being given the opportunity should reduce self-injurious behavior following threat, particularly for high as opposed to low masculine men. Hypotheses 1, 2, and 3 will be tested in Study 1 and Hypothesis 4 will be tested in Study 2.
Chapter Two

Study 1

Overview

Participants were run individually and told that the study occurred in two parts: a cognitive attributes and physical attributes portion. The cognitive attributes portion of the study consisted of participants completing a personality assessment and general knowledge inventory on the computer using the MediaLab software program (Jarvis, 2008). Following completion of both tasks, participants received bogus feedback regarding their score. Feedback on both the personality assessment and general knowledge inventory were accompanied by a personalized printout showing participants where their score fell relative to other participants in the sample. Importantly, feedback on the general knowledge inventory served as the threat manipulation such that participants were randomly assigned to receive either masculinity threat feedback or gender-neutral feedback.

Following the threat manipulation, participants moved on to the physical attributes portion of the study. Participants were told they will now take part in a standard physical attributes task that involves the use of electrical current. Further, participants were told that because some people are uncomfortable with electrical current, they would be given an opportunity to set the intensity of the “electrodermal” machine. During this time, participants were shown a power transformer dial that ostensibly controlled the level of mV administered by the “electrodermal machine.” Participants were then given the opportunity to set the dial to the desired amount of current. The action of setting the dial served as the behavioral outcome measure of self-injurious behavior. Greater self-
injurious behavior was operationalized by higher level of mV selection. At the end of the study session, participants were thoroughly debriefed about the true nature of the study and thanked for their participation.

**Participants and Design**

Participants were 43 male and 53 female University of Toledo introductory psychology students. Participants identified with the White (86.5%), Black (6.5%), Asian (3.2%), and Middle Eastern (3.8%) races. Additionally, participants’ ages ranged from 18 to 50 ($M = 20.35, SD = 5.29$). Participants were recruited to participate in the study through Sona Systems. Importantly, because having knowledge of or experience with mV could influence at what level participants set the dial, the experimenter asked participants about their experience with electrical current and their understanding of mV in addition to participants’ current major. Participants reported being unaware of the intensity of mV and had no prior experiences that would expose them to electrical current. In addition, participants’ majors did not include any discipline that would educate them about electrical current. Study 1 consisted of a 2 (feedback: masculine identity threat, gender-neutral feedback) X 2 (participant sex: male, female) between-participants design with gender role scores serving as the continuous predictor variable.

**Bem Sex-Role Inventory**

Gender roles were measured during a mass-screening prior to the experimental sessions using the Bem Sex-Role Inventory (BSRI; Bem, 1974; 1981). The BSRI has been used in numerous studies to measure adherence to gender roles (e.g., Babl, 1979; Cramer, 1998; Fowler, Geers, & Brown, 2012; Otto & Dougher, 1986; Palomares, 2006). It contains 20 masculine and 20 feminine adjectives (Appendix A). Participants rated the
degree to which they endorsed each of the adjectives (e.g., sympathetic, assertive) using a 7-point scale with endpoints labeled 1 (never or almost never true) and 7 (always or almost always true). The BSRI was scored by summing the masculine and feminine items separately and then subtracting the feminine score from the masculine score (Bem, 1974; 1981; Cohn & Zeichner, 2006; Eisler & Skidmore, 1987; Moore & Stuart, 2004; Otto & Dougher, 1985) such that higher scores yield greater masculinity and lower scores yield greater femininity. The BSRI is shown to possess high test-retest reliability and internal consistency (Bem, 1981a; Campbell, Gillaspy, & Thompson, 1997; Holt & Ellis, 1998). In this sample, Cronbach’s alpha for the masculinity scale equaled .830 and for the femininity scale equaled .834.

It is important to note that there are other ways of scoring the BSRI. Specifically, one common way to score the scale is to perform a median split on both the feminine and masculine subscales and then categorize participants as being feminine (i.e., above the median on femininity and below the median on masculinity), masculine (i.e., above the median on masculinity and below the median on femininity), androgynous (i.e., above the median for both subscales), and undifferentiated (i.e., below the median on both subscales). Additionally, some researchers classify individuals as being either high or low in masculinity (femininity) by performing a median split on the masculinity (femininity) subscale and then classify individuals as high in masculinity (femininity) who fall above the median and low in masculinity (femininity) who fall below the median. I examined the data using these different forms of scoring and the results did not clarify the findings beyond what was found using the original scoring technique. Therefore, all analyses for both studies use the original scoring technique mentioned first.
Procedure

Participants were greeted by a female experimenter and escorted to a lab room designed to look like a medical waiting area. The room was set up in such a way to maximize mundane realism. After reading and signing an informed consent document (Appendix B), it was explained to participants that the study is examining cognitive and physical attributes of college students. Participants were then told they would be completing a personality assessment and a general knowledge inventory as part of the cognitive attributes portion of the study. The cognitive attributes portion of the study was completed on the computer.

**Personality assessment.** The personality assessment consisted of 25 items for which participants rated their degree of agreement or disagreement to each item using a 7-point scale with endpoints labeled 1 = *strongly disagree* and 7 = *strongly agree* (Appendix C). Example items include, “At parties and social gatherings, I attempt to say or do things that others will like” and “I have considered being an entertainer.”

Following completion of the assessment, the computer generated a screen showing participants that their answers to the assessment were now being “analyzed and scored.” Next, a “printing results screen” appeared on the screen informing participants that their results sheet was being printed. Once the results sheet ostensibly printed, the experimenter reentered the room with the results sheet and showed participants where their score fell in relation to the other students in the sample. Specifically, the experimenter informed participants that “your score fell in the middle of the distribution just like the majority of participants in the sample. This means that at times you are extroverted and social and at other times
introverted and reserved.” In reality, feedback on the personality test was false and identical for each participant. Specifically, feedback was modified from work on the Barnum Effect which refers to a person’s willingness to accept an arbitrary, ambiguous statement as pertaining accurately to the self. Importantly, false feedback on the personality assessment was intended to make participants less suspicious regarding the masculine identity threat feedback and the subsequent placement of mV dial later in the study.

**General knowledge inventory.** Participants next completed the general knowledge inventory consisting of 35 items that ostensibly assess general knowledge. More specifically, the general knowledge inventory contains 15 items reflecting gender-ambiguous knowledge, 10 items reflecting masculine knowledge, and 10 items reflecting feminine knowledge (Appendix D). The masculinity items in the general knowledge inventory have been validated by other researchers as evoking threat in male participants (Hitlan et al., 2009; Vandello et al., 2008). Thus, these researchers have demonstrated that the feedback is both believable and evokes a sense of threat. On the other hand, no formal feminine knowledge test existed within the literature, therefore, I created the feminine items and pilot-tested them with male and female college student participants to determine that these items appeared to tap into feminine knowledge. Importantly, pilot testing revealed that both male \( n = 6 \) and female \( n = 7 \) participants viewed the feminine knowledge items as assessing feminine rather than neutral knowledge, \( t (12) = 3.22, p = .03, d = .32 \).

The general knowledge inventory was in a multiple-choice format and participants were able to select one out of four plausible answers to each question.
Participants were given a maximum of 15 seconds per question after which the computer screen automatically moved to the next question. Following completion of all 35 items, participants received false feedback about their performance. False feedback on the knowledge inventory served as the threat manipulation. Specifically, participants were randomly assigned to receive either a masculine identity threat feedback or gender-neutral feedback. Similar to the personality assessment, the computer generated a screen showing participants that their answers to the inventory are now being “analyzed and scored.” Next, a “printing results screen” appeared which informed participants that their results sheet was being printed. Identical to the personality assessment, the experimenter reentered the room with the general knowledge inventory results sheet and showed participants where their score fell in relation to the other students in the sample. The print out used for the manipulation was modified from the print outs used by Cohn et al. (2006) and Vandello et al. (2008) for threatening masculinity (please see Appendix F for both control and threat results sheets). In the masculine identity threat condition, participants were told that:

Majority of participants’ scores fall in the middle of the distribution. Participants who score out here (experimenter points to results sheet) possess high feminine knowledge and participants who score out here (experimenter points) possess high masculine knowledge. It looks like your score fell in the feminine knowledge range (experimenter points) meaning that, like other feminine participants in the sample, you have a lot of feminine knowledge.
The masculinity threat feedback was adapted from prior masculinity threat studies in the literature (Cohn et al. 2006; Hitlan et al, 2009; Vandello et al., 2008). In the gender-neutral feedback condition, participants were told that:

Majority of participants’ scores fall in the middle of the distribution. Participants who score out here (experimenter points to results sheet) possess high feminine knowledge and participants who score out here (experimenter points) possess high masculine knowledge. It looks like your score fell here (experimenter points to middle of distribution) meaning that, like the majority of other participants in the sample, your score fell in the middle of the distribution meaning that you possess some masculine and some feminine knowledge.

Pilot testing revealed that there was no sex difference in perceived neutrality between men ($n = 8$) and women ($n = 10$) regarding the gender-neutral feedback, $t(17) < 1.10, ps > .42, ds < .02$.

**Self-injurious behavior.** Following the feedback manipulation, the experimenter told participants they will now begin with the physical attributes portion of the study. Specifically, it was explained to participants that they will take part in a standard physical attributes task in which electrical current is sent to their right forearm during which a variety of physiological measures are recorded. Participants were told that, because some people are uncomfortable with electrical current, they will be given the opportunity to set the “electrodermal machine” to the level of mV they are comfortable with for the task. It was further explained to participants that the task is safe and the electrical current will only last for 2 seconds. Participants then relocated from the seat behind the computer to an area of the lab room set up with props highlighting the authenticity of the
electrodermal activity task. Directly in front of participants was a power transformer dial which served as the apparatus capturing the behavioral measure self-injurious behavior (Appendix E). The dial ranges from 0-140 units. For the purpose of the study, the units on the dial were referred to as level of mV. Participants were told that “to set the machine, please take your hand and manually turn the knob to the level of mV you are comfortable with.” At this time, the experimenter placed in front of participants an intensity rating scale which included anchors at 0 (slightly noticeable), 20 (slight tingle), 40 (annoying twitch), 60 (moderate), 80 (noticeable jolt), 100 (intense), 120 (extreme), and 140 (very painful) mV, respectively (Appendix F). The intensity rating scale was adapted from Holmes (1971; Study 1) and Buss (1966). Importantly, participants never actually received any electrical current and in reality a 140 mV current is undetectable to humans.

After viewing the intensity rating scale, participants were instructed to take their hand and manually set the dial to the desired number of mV while the experimenter went “next door to retrieve an information checklist.” Thus, the experimenter was not present during participants’ setting of mV on the dial. Additionally, prior to setting the dial, the default setting was at 0 mV. Once the experimenter reentered the room with her checklist, she then non-obtrusively recorded the dial setting by first asking participants to state their height, weight, and whether or not participants have taken any pain relieving medicine within the last 24-hours. From there, she nonchalantly glanced down at the dial and recorded at which level of mV the dial was set.

Next, the experimenter instructed participants to return to the chair behind the computer so that she can “get the machine and electrodes set up.” Once participants
moved seats, she then hand participants a survey packet to complete while she ostensibly set up the machine. The first two questions in the survey packet served as ancillary measures of self-injurious behaviors (Appendix G). The first question asked participants if they would be willing to endure the electrical current for longer than the 2 second default. This served as the *prolonged exposure* dependent measure. Participants were provided a space in which to write the number of additional seconds they would be willing to endure the current. Participants were told that the safest amount of exposure time with the dial set at 140 mV or less would be up to 90 additional seconds allowing participants to range from 0-90 seconds of added exposure time. The second question asked participants to write in the number of additional trials they would be willing to participate in. This question served as the *repeated exposure* dependent measure. It was explained that each subsequent trial lasts 2 seconds and that the safest amount of additional trials with the dial set at 140 mV or less is 20 allowing participants to range from 0-20 additional trials. Importantly, once she explained how to answer the two ancillary questions, she then exited the room prior to participants providing a response.

**Manipulation check item.** Participants also answered a manipulation check item asking them to “please circle what type of feedback you received on the general knowledge inventory” for which participants responded by selecting either “a. Scored in the masculine knowledge range, b. Scored in the feminine knowledge range, c. Scored high in pop culture, d. Scored in average between masculine and feminine knowledge.”

**Feedback as threatening and accurate.** Following the manipulation check item were two questions designed to measure participants thought processes about the threat manipulation. Specifically, two separate questions asked participants to rate on a 1-7
scale how threatening and accurate was the feedback on the general knowledge inventory. Higher scores indicated greater threat and accuracy ratings, respectively.

**Debriefing.** At the end of the study, the experimenter reentered the room and explained that the study session was over and that she would now begin the debriefing session. She began by asked broad questions about the study (e.g., were all of the directions easy to understand) and then narrowed down to specific elements of the study (e.g., was there anything that happened that you think may have influenced at what level you set the dial). Following the questions, participants were thoroughly debriefed about the nature of study, were given a chance to ask any questions, and thanked for their participation.
Chapter Three

Study 1 Results

Manipulation Check Item

Did participants accurately remember the feedback they received? Prior to testing the hypotheses under investigation, answers on the manipulation check item asking participants what type of feedback they received on the general knowledge inventory were submitted to a chi-square test for independence. This test was run to determine if participants accurately remembered to which feedback condition they had been assigned. As anticipated, participants in the masculinity threat condition accurately reported the feedback as stating they scored in the feminine knowledge range and participants in the gender-neutral feedback condition accurately reported the feedback as falling average between masculine and feminine knowledge, \( \chi^2 (2) = 84.45, p < 0.001 \).

Observations for each condition are also presented in Table 1.

Table 1

<table>
<thead>
<tr>
<th>Condition</th>
<th>In Masculine Range</th>
<th>In Feminine Range</th>
<th>In the Middle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neutral</td>
<td>5</td>
<td>1</td>
<td>41</td>
</tr>
<tr>
<td>Threat</td>
<td>0</td>
<td>47</td>
<td>2</td>
</tr>
</tbody>
</table>

Correlations

Gender role orientation and self-injurious measures. The means, standard deviations, and correlations are displayed in Table 2 for participant sex, BSRI scores, and placement of the mV dial, prolonged exposure, and repeated exposure measures. As expected, sex was related to gender role orientation, mV dial placement, and repeated
exposure measures such that being male was positively related to these measures, $rs > .35, ps < .01$. Additionally, BSRI scores (higher scores, greater masculinity) were positively related to placement of the mV dial, $r = .240, p = .019$. Furthermore, placement of the mV dial was moderately positively associated with the prolonged and repeated exposure measures, $rs > .302, ps < .05$. Finally, the prolonged exposure and repeated exposure measures were strongly related, $r = .743, p < .001$. Interestingly, however, there was no relationship between BSRI scores and the prolonged and repeated exposure measures, $ps > .48, rs < 10$.

Table 2
Correlations and Descriptive Statistics for Variables in Study 1

<table>
<thead>
<tr>
<th>Study 1 Variables</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Participant Sex</td>
<td>.357**</td>
<td>.434**</td>
<td>.144</td>
<td>.286**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Gender Role Orientation</td>
<td>.240*</td>
<td>.097</td>
<td>.091</td>
<td>3.10</td>
<td>21.28</td>
<td></td>
</tr>
<tr>
<td>3. mV Rating</td>
<td>.302**</td>
<td>.344**</td>
<td>47.69</td>
<td>35.51</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Prolonged Exposure</td>
<td>.743**</td>
<td></td>
<td>33.15</td>
<td>34.38</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Repeated Exposure</td>
<td>6.92</td>
<td>7.27</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: BSRI scored by subtracting the feminine from the masculine subscale (M-F) with a possible range of scores from -140 to +140. Also, mV ratings on a 0-140 scale, prolonged exposure on a 0-90 scale, and repeated exposure on a 0-20 scale. *$p< .05$; **$p< .01$

Furthermore, scores on the BSRI were compared between the two experimental conditions to verify that the groups did not differ in their gender role orientation prior to the manipulation. There was no significant difference between conditions for gender role orientation scores, $F < 1, p = .956, \eta^2_p = .002$. There was a significant sex difference such that men ($M = 11.43, SD = 20.65$) scored higher on the BSRI relative to women ($M = -3.62, SD = 19.44$), $F (1, 91) = 13.21, p < .01, \eta^2_p = .13$. Importantly, there was no
interaction between sex and feedback condition on BSRI scores, $F(1, 91) = .167, p = .65, \eta^2_p = .010$.

**Study 1 Hypotheses**

Three main hypotheses were proposed in Study 1. First, it was hypothesized that self-injurious behaviors would be significantly higher for men than women regardless of feedback condition. That is, it was anticipated that men would have higher placement of the mV dial and greater prolonged and repeated exposure ratings relative to women. Second, it was hypothesized that self-injurious behavior would be higher for men in the masculinity threat condition compared to the gender-neutral feedback condition. Finally, it was predicted that adherence to the masculine gender role—represented by higher scores on the BSRI—was expected to amplify self-injurious behaviors following a masculinity threat for male participants. Specifically, men experiencing a masculinity threat should display greater self-injurious behaviors when higher as opposed to lower in masculinity. The idea that higher masculinity is related to greater self-injurious behavior following a masculinity threat among women was also examined.

**Measures of Self-Injury**

**Placement of mV dial.** To test the above predictions, dial settings for the electrodermal activity task were submitted to a hierarchical linear regression as the criterion variable. Feedback condition (dummy-coded: 0 = neutral feedback and 1 = threat feedback), participant sex (dummy-coded: 0 = female and 1 = male), and standardized BSRI scores (higher scores, greater masculinity) were included as predictor variables on the first step of the equation. The second step of the equation included the Sex X Feedback Condition interaction term, Sex X Gender Role interaction term, and
Feedback Condition X Gender Role interaction term. The third step of the equation included the Sex X Feedback Condition X Gender Role three-way interaction term.

Please see Table 3 for the regression model.

Table 3
Hierarchical Regression Analysis with mV Dial Placement as the Criterion Variable in Study 1

<table>
<thead>
<tr>
<th>Model</th>
<th>β</th>
<th>SE</th>
<th>t</th>
<th>df</th>
<th>ΔR²</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Placement of mV dial</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 1</td>
<td></td>
<td></td>
<td>91</td>
<td>.201</td>
<td>.76</td>
<td>7.62**</td>
</tr>
<tr>
<td>Participant Sex</td>
<td>.39</td>
<td>6.56</td>
<td>3.98*</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Threat Condition</td>
<td>.07</td>
<td>6.09</td>
<td>.76</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender Role Orientation</td>
<td>.09</td>
<td>3.23</td>
<td>.99</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 2</td>
<td></td>
<td></td>
<td>88</td>
<td>.045</td>
<td>.43</td>
<td>4.77**</td>
</tr>
<tr>
<td>Sex X Condition</td>
<td>.07</td>
<td>13.39</td>
<td>.43</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sex X Gender Role Orientation</td>
<td>.28</td>
<td>6.84</td>
<td>1.99*</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Condition X Gender Role Orientation</td>
<td>-.05</td>
<td>7.59</td>
<td>-.38</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Step 3</td>
<td></td>
<td></td>
<td>87</td>
<td>.003</td>
<td>.62</td>
<td>4.11**</td>
</tr>
<tr>
<td>Sex X Condition X Gender Role Orientation</td>
<td>-.09</td>
<td>16.73</td>
<td>-.62</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < .10; *p < .05; **p < .01

The regression equation yielded the anticipated main effect of sex such that men (M = 63.28, SD = 36.99) set the electrodermal activity machine at higher levels of mV relative to women (M = 35.01, SD = 21.49), β = .24, t (94) = 2.46, p = .016. This finding supports Hypothesis 1. Additionally, although no hypotheses were made regarding these effects, it should be noted that there were no main effects of gender role orientation or condition, ps > .53. A two-way interaction was also predicted such that men in the
masculinity threat condition relative to the neutral condition would have higher placement of the mV dial. The regression equation did not yield a significant effect for this prediction, $p = .55, \beta = .07$. Thus, Hypothesis 2 was not supported.

Interestingly, however, there was a significant two-way interaction between participant sex and gender role orientation, $\beta = .25$, $t(136) = 2.86, p = .044$. A plot of the regression lines derived from this analysis are presented in Figure 1. To discern the nature of this interaction, simple slope tests were conducted with comparisons made at $+1$ and $-1$ standard deviations from the mean. When centered high on gender role orientation scores (i.e., greater masculinity), there was a significant sex difference such that men set the mV dial higher relative to women, $\beta = .59, p < .001$. When centered low on gender role orientation scores (i.e., greater femininity), there were no sex differences in placement of the mV dial ($\beta = .15, p = .31$). Furthermore, whereas the simple slopes examining differences in mV dial placement for higher versus lower masculine women was not significant ($\beta = .011, p = .87$), there was a marginally significant simple slope for mV dial placement between men higher versus lower in masculinity, $\beta = .248, p = .06$. 
Finally, Hypothesis 3 stated that for men facing a masculine identity threat, higher masculinity would be related to higher mV placement. This hypothesis was not supported, $p = .54$. Please see Figure 2 for a plot of the regression lines.

*Figure 1.* Predicted values for placement of mV dial as a function of Participant Sex and Gender Role Orientation in Study 1. Higher numbers indicate greater mV ratings.
Figure 2. Predicted values for placement of mV dial as a function of Feedback Condition, Participant Sex, and Gender Role Orientation in Study 1. Higher numbers indicate greater mV ratings.
**Prolonged and repeated exposure.** In addition to the predicted results on the mV placement dependent measure, the same pattern of results was expected to emerge on the prolonged exposure (i.e., how long participants would be willing to endure task) and repeated exposure (i.e., how many additional trials participants were willing to participate in) measures. To examine the effects of participant sex, feedback condition, and gender role orientation on both of these additional criterion variables, two separate regression analyses (one for each outcome measure) were conducted using the same set of predictors used to analyze the mV dial placement measure. Tables 4 and 5 include regression output for the prolonged and repeated exposure measures, respectively.

Table 4
Hierarchical Regression Analysis with Prolonged Exposure as the Criterion Variable in Study 1

<table>
<thead>
<tr>
<th>Model</th>
<th>β</th>
<th>SE</th>
<th>t</th>
<th>df</th>
<th>ΔR²</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prolonged Exposure</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participant Sex</td>
<td>.12</td>
<td>7.57</td>
<td>1.09</td>
<td>90</td>
<td>.051</td>
<td>1.60</td>
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<tr>
<td>Threat Condition</td>
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<td>7.04</td>
<td>1.67</td>
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<td></td>
</tr>
<tr>
<td>Gender Role Orientation</td>
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<td>3.77</td>
<td>.52</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Step 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sex X Condition</td>
<td>.20</td>
<td>15.77</td>
<td>1.06</td>
<td>87</td>
<td>.041</td>
<td>1.01</td>
</tr>
<tr>
<td>Sex X Gender Role Orientation</td>
<td>-.08</td>
<td>8.04</td>
<td>-.57</td>
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</tr>
<tr>
<td>Condition X Gender Role Orientation</td>
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<td>8.93</td>
<td>.23</td>
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<tr>
<td>Step 3</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sex X Condition X Gender Role Orientation</td>
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<td>19.69</td>
<td>-.46</td>
<td>86</td>
<td>.002</td>
<td>.89</td>
</tr>
</tbody>
</table>

* p<.10; * p<.05; ** p<.01
Table 5
Hierarchical Regression Analysis with Repeated Exposure as the Criterion Variable in Study 1

<table>
<thead>
<tr>
<th>Model</th>
<th>β</th>
<th>SE</th>
<th>t</th>
<th>df</th>
<th>ΔR²</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Repeated Exposure</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 1</td>
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<td></td>
<td></td>
<td></td>
<td>91</td>
<td>.090</td>
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<td>Participant Sex</td>
<td>.29</td>
<td>4.35</td>
<td>2.78**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Threat Condition</td>
<td>.07</td>
<td>1.00</td>
<td>.69</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender Role Orientation</td>
<td>-.01</td>
<td>.78</td>
<td>-.13</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 2</td>
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<td></td>
<td></td>
<td></td>
<td>87</td>
<td>.021</td>
</tr>
<tr>
<td>Sex X Condition</td>
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<td>3.50</td>
<td>.90</td>
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<td></td>
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</tr>
<tr>
<td>Sex X Gender Role Orientation</td>
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<td>.49</td>
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</tr>
<tr>
<td>Condition X Gender Role Orientation</td>
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<td>1.84</td>
<td>.61</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Step 3</td>
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<td></td>
<td></td>
<td></td>
<td>86</td>
<td>.008</td>
</tr>
<tr>
<td>Sex X Condition X Gender Role Orientation</td>
<td>.15</td>
<td>4.05</td>
<td>.89</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < .10; *p < .05; **p < .01

First, as predicted, there was a significant main effect for participant sex only on the repeated exposure (i.e., how many additional trials participants were willing to participate in) measure. Specifically, men (M = 9.21, SD = 7.93) elected to complete significantly more additional trials relative to women (M = 5.06, SD = 6.15), β = .29, t (94) = 2.78, p = .007. There was no significant sex difference on the prolonged exposure measure, p = .37, β = .12. Additionally, the gender role orientation and condition main effects remained non-significant for both measures, ps > .45, βs < .17. Furthermore, the predicted two-way interaction between sex and condition was not significant for either measure nor were any of the other significant two-way interactions, ps > .34, β = .20.
Finally, there was no significant finding for the predicted three-way interaction between sex, gender role orientation, and condition on either the prolonged or repeated exposure outcome measures, $ps > .56$, $\beta s < .15$.

**Ancillary Analyses**

Two additional items were included in the experiment to examine participants’ perceptions about the masculinity threat manipulation. Specifically, both measures examined how threatening and accurate participants perceived the feedback to be.

**Feedback as threatening.** Scores on the question asking participants how threatening was the feedback received on the general knowledge inventory were submitted to the same hierarchical linear regression used to analyze the self-injurious measures. There was only a marginally significant main effect on the first step of the equation for participant sex such that men ($M = 1.56$, $SD = .99$) reported the feedback (regardless of condition and gender role) as more threatening than women ($M = 1.30$, $SD = .69$), $\beta = .21$, $t (90) = 1.83$, $p = .070$.

**Feedback as accurate.** Scores on the question asking participants how accurate was the feedback received on the general knowledge inventory were submitted to the same hierarchical linear regression used previously. Two findings emerged in this analysis. First, there was a marginally significant main effect of participant sex on the first step of the regression equation such that men ($M = 4.72$, $SD = 1.70$) reported the feedback as less accurate than women ($M = 5.38$, $SD = 1.35$), $\beta = -.21$, $t (90) = -1.93$, $p = .057$. Additionally, there was a significant main effect of condition on the first step of the regression equation such that participants in the masculinity threat condition ($M = 4.73$, $SD = 1.58$) reported the feedback as less accurate relative to participants in the neutral
feedback condition ($M = 5.51, SD = 1.39$), $\beta = -.24, t (90) = -2.37, p = .020$. Although non-significant, it should be noted that there was a trend for men in the masculinity threat condition to rate the feedback as less accurate than men in gender-neutral condition, $p = .12$. There were no main effects or higher order interactions with gender role orientation, $ps > .35$. 
Chapter Four

Study 1 Discussion

Study 1 included one manipulated variable (i.e., feedback condition) and two non-manipulated individual difference variables (i.e., dichotomous participant sex and continuous gender role orientation). The goal of Study 1 was to determine which psychosocial factors were involved in health-compromising behavior and tested hypotheses 1, 2, and 3 of the proposal. Consistent with Hypothesis 1, men set the mV dial at higher level of shock and elected to receive a greater number of additional mV trials relative to women. This finding did not emerge on the prolonged exposure measure. Additionally, I did not find support for Hypothesis 2 which stated that men would engage in greater self-injurious behavior when facing a masculine identity threat as opposed to not facing this threat.

Hypothesis 3 predicted that higher masculine men as opposed to higher feminine men would engage in more self-injurious behaviors when facing a masculine identity threat. This hypothesis was not supported. Importantly, however, there was an interaction between participant sex and gender role orientation such that men higher in masculinity set the mV dial at significantly higher levels of shock relative to women higher in masculinity. This effect only emerged on the overt behavioral mV dial placement measure.

It is also important to mention that participants correctly identified to which condition they had been assigned. With the exception of 7 participants, participants accurately identified the type of feedback received on the general knowledge inventory. Additionally, it should be noted that there was no evidence showing that participants
were threatened by the masculinity threat feedback. There is some evidence that participants construed the feedback differently based on the condition differences on the feedback as accurate measure, but it is unclear if the threat manipulation worked as intended and if anything, the non-significant condition effect on the threat question suggests that the manipulation did not threaten participants.
Chapter Five

Study 2

The goal of Study 2 was to try and identify under which conditions self-injurious behaviors may be reduced. In Study 2, only male participants were examined and all men experienced a masculine identity threat. Thus, women were excluded from the design and there was no manipulation of the gender-related feedback. After male participants received masculine identity threat feedback, they were either given an opportunity or not to self-affirm on an important aspect of their self-identity prior to completing the self-injurious measures. It was expected that higher masculine men experiencing a masculinity threat would exhibit lower placement of the mV dial, lower prolonged exposure ratings, and lower repeated exposure ratings when given a chance to affirm an important aspect of the self relative to not being given this opportunity.

Participants and Design

A total of 55 male University of Toledo psychology students were recruited to participant through Sona Systems. Because 7 of the participants did not follow directions throughout the duration of the study, they were excluded from the analyses. Specifically, 4 of the excluded participants were on their cell phones during the computer portion of the study although the experimenter asked them several times to put their phone away for the duration of the study, and 2 participants did not follow directions for either the computer or physical attributions portions of the study. Additionally, there was a computer malfunction for 1 participant making it impossible to deliver the masculine threat feedback. All of these instances compromise both the effectiveness of the threat
feedback and authenticity of the shock paradigm. Therefore, these men were excluded from all analyses. Instead, a total of 48 men were included in the subsequent analyses.

Participants identified with White (83.8%), Black (8.5%), Asian (1.4%), and Middle Eastern (6.3%) races. Participants ages ranged from 18-51 ($M = 19.98$, $SD = 5.06$). Identical to Study 1, participants were screened for their knowledge about mV. Participants were unaware of the intensity of mV and had no experience with any industry in which they would be exposed to electrical current. Participants’ current majors were also in disciplines unrelated to the education of mV or electrical current. Study 2 consisted of one manipulated variable (self-affirmation: yes, no) and one continuous predictor variable (gender role orientation score) and included only male participants.

**Procedure**

Prior to the experimental sessions, gender role orientation was measured using the BSRI during prescreening. During the laboratory session, male participants were greeted by a female experimenter and run individually. Identical to Study 1, participants signed an informed consent document and the study was explained as taking part in two components: cognitive attributes and physical attributes component. Identical to the cognitive attributes portion of Study 1, participants received feedback after completing both the personality assessment and general knowledge inventory. Unlike Study 1 in which the feedback was manipulated, men only received masculinity threat feedback in Study 2.

**Self-affirmation manipulation.** Following the feedback, participants continued with the computer portion of the study during which they were randomly assigned to
either a self-affirmation or no self-affirmation condition. Specifically, for participants in the self-affirmation condition, the computer screen read “as part of a recall task, please write about an aspect of your identity, a talent, a relationship, or an accomplishment that makes you feel fulfilled. You will be given three minutes.” In contrast, for participants in the no-affirmation condition, the computer screen read “as part of a recall task, please write all of the meals you have eaten in the last 5 days. You will be given three minutes, please be as specific as possible.” The self-affirmation manipulation was adapted from Harris et al. (2007) and Blanton, Pelham, DeHart, and Carvallo (2001). In addition, the computer screen was timed to automatically move forward following the allotted three minute period.

Following the self-affirmation manipulation, the experimenter explained to participants they will be moving on to the physical attributes portion of the study. Instructions regarding the electrodermal activity task and placement of mV dial were identical to Study 1. Thus, participants first set the dial at the desired level of mV and then rated how long they were willing to endure the task (i.e., prolonged exposure) and for how many additional trials they were interested in participating in (i.e., repeated exposure).

**Manipulation check.** Study 2 included a manipulation check item asking participants to “Please circle which of the following tasks you participated in during the study” followed by “a. Listed the food you’ve consumed in the last 5 days, b. Wrote a short description about a positive aspect of my life that makes me feel fulfilled, c. Completed a resume of academic experiences to be submitted for feedback, d. Completed a word-search puzzle task.”
**Debriefing.** Following the completion of these questions, the experimenter administered a funnel debriefing and then explained in detail the nature of the study. Participants were given an opportunity to ask questions at this time. Finally, participants were thanked for their participation.
Chapter Six

Study 2 Results

Manipulation Check Item

Did participants accurately remember completing the assigned task? First, answers to the manipulation check item asking participants which activity they had taken part in during the study were submitted to a chi-square test for independence. This test was conducted to determine if participants accurately remembered to which self-affirmation condition they had been assigned. As anticipated, participants in the self-affirmation condition accurately reported the activity as writing about a cherished value and participants in the no self-affirmation condition accurately reported the activity as recalling the foods consumed in the last 5 days, $\chi^2 (1) = 47.00, p < .001$. Observations for each condition are also presented in Table 6.

Table 6
Number of Observations for Study Activity based on Affirmation Condition for Study 2
Reported Activity Participated In

<table>
<thead>
<tr>
<th>Condition</th>
<th>Listed Consumed Foods</th>
<th>Wrote about Cherished Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Affirm</td>
<td>25</td>
<td>0</td>
</tr>
<tr>
<td>Self-Affirm</td>
<td>0</td>
<td>23</td>
</tr>
</tbody>
</table>

Correlations

Gender role orientation and self-injurious measures. The means, standard deviations, and correlations are displayed in Table 7 for BSRI scores and placement of the mV dial, prolonged exposure, and repeated exposure measures. Interestingly, the only significant association to emerge was between the prolonged exposure and repeated exposure measures, $r = .522, p < .001$. Unlike Study 1 and what was expected, there was
no association between gender role orientation and any of the three measures of self-injurious behaviors, $rs < .15, ps > .55$. Furthermore, there was no significant association between mV dial placement and prolonged or repeated exposure measures, $rs < .25, ps > .23$.

Table 7
**Correlations and Descriptive Statistics for Variables in Study 2**

<table>
<thead>
<tr>
<th>Study 2 Variables</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Gender Role Orientation</td>
<td>.014</td>
<td>-.137</td>
<td>-.146</td>
<td>7.23</td>
<td>16.06</td>
</tr>
<tr>
<td>2. mV Rating</td>
<td>.120</td>
<td>.249</td>
<td></td>
<td>64.89</td>
<td>28.72</td>
</tr>
<tr>
<td>3. Prolonged Exposure</td>
<td></td>
<td>.522**</td>
<td></td>
<td>30.74</td>
<td>30.78</td>
</tr>
<tr>
<td>4. Repeated Exposure</td>
<td></td>
<td></td>
<td>5.79</td>
<td>6.33</td>
<td></td>
</tr>
</tbody>
</table>

*Note: BSRI scored by subtracting the feminine from the masculine subscale (M-F) with a possible range of scores from -140 to +140. Also, mV ratings on a 0-140 scale, prolonged exposure on a 0-90 scale, and repeated exposure on a 0-20 scale.*

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

Finally, scores on the BSRI were compared between the two experimental conditions to verify that the groups did not differ in their gender role orientation prior to the manipulation. There was no significant difference on gender role orientation scores between self-affirmation conditions, $t(46) = .762, p = .45, d = .06$.

**Study 2 Hypotheses**

The focus of Study 2 was on the potential for self-affirmation to reduce compensatory behaviors among masculine men who experience a masculine identity threat. All men experienced masculinity threat in Study 2. The main hypothesis under investigation was that self-affirmation will reduce the engagement of self-injurious behaviors for higher masculine men under masculinity threat. Specifically, it was expected that for men higher in masculinity, an opportunity to self-affirm will reduce the
drive to engage in masculine compensatory behaviors following threat as compared to not being given the chance to self-affirm (Hypothesis 4 in manuscript). Therefore, I expected to see lower placement of the mV dial, lower prolonged exposure ratings, and lower repeated exposure ratings among higher masculine men in the self-affirmation condition as compared to the no affirmation condition.

Self-Injurious Behaviors

Placement of mV dial. To test the hypothesis that self-affirmation reduces self-injurious behavior for higher masculine men under masculinity threat, mV dial settings were submitted to a hierarchical linear regression as the criterion variable. Self-affirmation condition (dummy-coded: 0 = no affirmation and 1 = self-affirmation) and standardized BSRI scores (higher scores, greater masculinity) were included as predictor variables on the first step of the equation. The second step of the equation included the Affirmation Condition X Gender Role Orientation interaction. Please see Table 8 for the regression output.
Table 8  
Hierarchical Regression Analysis with mV Dial Placement as the Criterion Variable in Study 2

<table>
<thead>
<tr>
<th>Model</th>
<th>β</th>
<th>SE</th>
<th>t</th>
<th>df</th>
<th>ΔR²</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Placement of mV dial</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Self-Affirmation Condition</td>
<td>-.02</td>
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<td></td>
<td>.09</td>
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<td>Gender Role Orientation</td>
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<td>5.94</td>
<td>1.79</td>
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<td></td>
</tr>
<tr>
<td>Step 2</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Condition X Gender Role Orientation</td>
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<td>8.01</td>
<td>-2.37</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

*β<.10; *β<.05; **β<.01

First, there was no significant main effect for self-affirmation condition, $p = .87, β = .02$. Regarding gender role orientation, there was a marginally significant main effect such that masculinity was positively related to placement of the mV dial, $β = .39, t(46) = 1.79, p = .076$. Importantly, the anticipated Affirmation Condition X Gender Role Orientation interaction emerged significant from this analysis, $β = -.51, t(46) = -2.37, p = .022$. A plot of the regression lines can be found in Figure 3. To discern the nature of this interaction, simple slope tests were conducted with comparisons made at +1 and -1 standard deviations from the mean. When centered high on gender role orientation scores (i.e., greater masculinity), there was a significant effect of self-affirmation condition such that higher masculine men in the self-affirmation condition set the mV dial lower relative to higher masculine men in the no affirmation condition, $β = -.36, p = .05$. When centered low on gender role orientation scores (i.e., greater femininity), there were no condition differences ($β = .29, p = .17$). This finding firmly supports Hypothesis 4. Furthermore, the simple slopes examining differences in the mV setting between higher
and lower masculine participants was non-significant for both conditions, $\beta < .09$, $ps > .21$. The opportunity for highly masculine men to self-afﬁrm led to a reduction in behaviors aimed at harming the self.

![Figure 3](image.png)

*Figure 3.* Predicted values for placement of mV dial as a function of Self-Affirmation Condition and Gender Role Orientation in Study 2. Higher numbers indicate greater mV ratings.

**Prolonged and Repeated Exposure.** Two additional hierarchical linear regression analyses were conducted on the prolonged exposure and repeated exposure measures using the same set of predictors as listed above. Tables 9 and 10 present the regression output for these measures, respectively. First, there were no significant main effects of either afﬁrmation condition or gender role orientation on the prolonged or repeated exposure measures, $ps > .66$, $\beta$s $< .15$. Furthermore, the anticipated two-way interaction between afﬁrmation condition and gender role orientation emerged as non-significant on both measures, $ps > .46$, $\beta$s $< .17$. Therefore, there was no support for Hypothesis 4 on either the prolonged exposure (i.e., how many seconds are participants
willing to endure the mV task) or repeated exposure (i.e., how many additional trials are participants willing to participate in) measures in Study 2.

Table 9
*Hierarchical Regression Analysis with Prolonged Exposure as the Criterion Variable in Study 2*

<table>
<thead>
<tr>
<th>Model</th>
<th>β</th>
<th>SE</th>
<th>t</th>
<th>df</th>
<th>ΔR²</th>
<th>F</th>
</tr>
</thead>
<tbody>
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<td></td>
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<td>.019</td>
<td>.42</td>
<td>42</td>
<td>.42</td>
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<td>.14</td>
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</tr>
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<td>Gender Role Orientation</td>
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<td>4.57</td>
<td>.88</td>
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<td>Step 2</td>
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<td>.001</td>
<td>.29</td>
<td>42</td>
<td>.29</td>
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<tr>
<td>Condition X Gender Role Orientation</td>
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<td>9.32</td>
<td>.18</td>
<td></td>
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</tbody>
</table>

*p<.10;  *p<.05;  **p<.01

Table 10
*Hierarchical Regression Analysis with Repeated Exposure as the Criterion Variable in Study 2*

<table>
<thead>
<tr>
<th>Model</th>
<th>β</th>
<th>SE</th>
<th>t</th>
<th>df</th>
<th>ΔR²</th>
<th>F</th>
</tr>
</thead>
<tbody>
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<td></td>
</tr>
<tr>
<td>Step 1</td>
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<td>.52</td>
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<td>.52</td>
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</tr>
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<td>Threat Condition</td>
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<td>1.95</td>
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<td>Gender Role Orientation</td>
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*p<.10;  *p<.05;  **p<.01
Chapter Seven

Study 2 Discussion

Study 2 utilized one manipulated variable (self-affirmation condition) and one continuous predictor variable (gender role orientation). The manipulation check item for the self-affirmation variable suggested that participants accurately recognized to which condition they were assigned. The goal of Study 2 was to determine under which conditions self-injurious behaviors could be reduced. Specifically it was predicted that when facing masculinity threat, higher masculine men would display less self-injurious behaviors when given the opportunity to self-affirm versus not being given this opportunity. Results from Study 2 mostly support this hypothesis. Specifically, higher masculine men set the mV dial at lower levels of shock when given a chance to reflect upon a cherished aspect of the self as opposed to listing the food consumed in the last 5 days. However, this effect did not emerge on either the prolonged exposure or repeated exposure measure of self-injurious behaviors. Importantly, there was also a trend that emerged between gender role orientation and placement of the mV dial such that both variables were moderately positively related.
Chapter Eight

General Discussion

Background of Current Research

The goal of the current investigation was to examine potential psychosocial variables involved in sex-related health disparities. As men are more likely than women to engage in behaviors that harm the self, it is important to establish under which conditions and for which types of men this is likely to occur. One possibility for why men may be engaging in health-compromising behavior could be due to the socialization process. As men are often pressured into performing acts of toughness and invulnerability as a means of proving manhood, conditions under which men’s masculinity were threatened was expected to lead to greater self-injurious behaviors. Additionally, stricter adherence to the masculine gender role was also expected to amplify health-compromising behavior. The idea was that a threat to a masculine identity should lead to more defensive processing for men higher versus lower in masculinity. In turn, to compensate for the threat, higher masculine men were expected to behave in a manner that allows them to restore this part of their self-identity. One way to accomplish this goal would be to set higher levels of shock, expose oneself to shock for a longer period of time, and expose oneself to shock for repeated number of times --- behaviors that highlight toughness and invulnerability.

Another important goal of the current proposal was to not only identify the factors involved in health-compromising behavior, but also to determine under which conditions this behavior can be reduced. The literature on self-affirmation demonstrates that defensive processing can be eliminated by the processes of self-affirmation. During self-
affirmation, people can buffer against a threat to their self-identity by drawing on instances in which they have maintained self-integrity. This may include reflecting on a cherished or important aspect of the self. In the current proposal, self-affirmation was expected to restore the threatened sense of self thereby leading to a reduction in self-injurious behaviors. Although neither study provided direct evidence that defensive processing mediated the threat-compensation link, the results do suggest that self-affirmation had an important impact on reducing how much participants engaged in self-injurious behavior.

**Overview of Hypotheses and Summary of Results**

**Hypothesis 1.** Several hypotheses were tested in the current investigation. For Hypothesis 1, I predicted that men would engage in greater self-injurious behaviors relative to women. This hypothesis was supported on two of the three measures of self-injurious behaviors in Study 1. Specifically, compared to women, men set the mV dial at higher levels of shock and elected to receive greater number of additional trials on the mV task. As Study 2 did not include women in the design, I was not able to test this hypothesis in the second study.

**Hypothesis 2.** Hypothesis 2 predicted an interaction between participant sex and threat condition. According to this hypothesis, men should engage in greater self-injurious behaviors when facing a masculine identity threat versus when not facing this threat. Study 1 was designed in such a way to test this hypothesis; however, this hypothesis was not supported on any of the three measures of self-injurious behaviors. Study 2 did not include women nor the manipulation of threatening feedback (all men were threatened). Therefore, I was not able to directly assess this hypothesis in Study 2.
**Hypothesis 3.** Hypothesis 3 stated that stricter adherence to the masculine gender role when facing a masculine identity threat should amplify self-injurious behaviors. Importantly, this effect was hypothesized to occur for men and not women. Study 1 was designed in such a way to directly assess this hypothesis. However, there was no support for it. Furthermore, female participants were also included in the Study 1 as a means of exploring to what extent adherence to the masculine gender role was related to self-injurious behaviors aimed at proving toughness and invulnerability for women. I wanted to tease apart to what extent masculine compensatory behaviors were a function of biological sex and gender role orientation. That is, do gender roles or biological sex play a larger role in the engagement of self-injurious behaviors aimed at proving one’s masculinity? When examining the data from this perspective, an interesting pattern of results emerged. Specifically, in Study 1, there was a significant Sex X Gender Role Orientation interaction on mV dial placement such that higher masculine men set the mV dial at higher levels of shock relative to higher masculine women. This finding suggests that stricter adherence to the masculine gender role may be more important at predicting behavior for men than women in the context of proving toughness and invulnerability. In addition, there was a trend for masculinity to be slightly positively related to placement of mV dial for men and not women. This pattern of results also emerged in Study 2 with gender role orientation being marginally related to placement of the mV dial.

**Hypothesis 4.** Hypothesis 4 stated that the opportunity to self-affirm would reduce self-injurious behaviors among higher masculine men facing a masculine identity threat. This hypothesis was tested in Study 2 and the comparison group was highly masculine men not given the chance to self-affirm when facing a masculine identity
threat. Thus, among men higher in masculinity, the chance to self-affirm as opposed to not self-affirm was expected to lead to a reduction in self-injurious behaviors. This hypothesis was only supported on the mV dial placement outcome measure. Therefore, Study 2 lends support to the idea that self-affirmation may be one processes by which to reduce the engagement of at least a subset of self-injurious behaviors for higher masculine men when facing a masculine identity threat.

Lack of Masculinity Threat Effect in Study 1

The lack of condition results in Study 1 raise the question was the masculinity threat condition effective or was the control condition flawed? Or, was there some other element of the design or paradigm responsible for why the effect of condition did not emerge? There are several plausible explanations that I review below.

Feedback not threatening. Finally, feedback on the general knowledge inventory may not have been threatening at all to male participants. For example, men may think that falling in the feminine knowledge range reflects their understanding of women and could be construed as a compliment. Importantly, Study 1 measured the degree to which participants construed the feedback as threatening. The results showed that there were no significant condition differences or sex differences in perceived threat caused by the manipulation. Additionally, there was no interaction effect between sex and condition contrary to what would be expected if men viewed the feedback as threatening (i.e., masculinity threatened men with the highest threat ratings). Therefore, these data suggest that men were not threatened by the masculinity threat feedback.

Perhaps one reason why the feedback was not viewed as threatening could be due to the transparency of the manipulation. That is, men could have seen right through the
manipulation and not viewed the feedback as plausible. This explanation is consistent with the feedback accuracy data collected in Study 1. As the pattern of data suggest, there was a trend for men in the masculinity threat condition to rate the feedback as less accurate than men in the control condition. This pattern of data suggests that threatened men may have viewed the feedback as bogus and thus less accurate. Consequently, if men did not believe the feedback, this may have ultimately led to a lack of condition effect.

Additionally, the feedback may not have been powerful enough to evoke a threat response. Men were only told that they scored in the feminine knowledge range. Perhaps if this information were coupled with information about also scoring low on the masculine knowledge range would it have evoked a feeling of threat. In essence, placing men as both high in feminine knowledge and low in masculine knowledge would reduce any ambiguity and maximize the efficiency of the threat. Future research may want to explore this possibility.

Other control conditions? With that being said, was there a better control condition alternative that could have been implemented instead? For example, instead of receiving feedback stating one fell in the middle of knowledge distribution, participants could have received feedback unrelated to gender all together (e.g., scored high in pop culture). Or, participants could have received feedback stating they possessed high masculine knowledge. Another possibility is that participants could have received no feedback whatsoever. The issue I had with these other control conditions was that they were either confounded or did not serve as a true control condition. For example, if participants received feedback unrelated to gender or did not receive any feedback at all,
it would be difficult to determine if an effect was due to feedback in general or feedback specific to gender. As the masculine identity threat condition relates specifically to one’s gender knowledge, I wanted to make sure the control condition also included this element.

In addition, because this was the first masculinity threat study including female participants, I had to choose control feedback that was neutral for both men and women. Giving participants feedback saying they fell in the masculine knowledge range has the potential to threaten women and validate men. This specific feedback would not serve as a true control condition for this reason. Consequently, I thought the best way of implementing a true control for both men and women would be to include feedback emphasizing that they fell in the middle of the knowledge distribution like most other participants in the sample. Therefore, the control feedback centered on gender knowledge minimizing any cofounds while emphasizing that participants scored like most other participants in the sample. Future studies may want to include two different control conditions in the study design with one of the control conditions including gender-related feedback and the other condition including feedback not at all related to gender. By including both types of control conditions, researchers can assess if there is something about gender-related feedback in general---regardless of the masculinity/femininity component---or if a specific type of gender-related feedback is important in affecting health-compromising behaviors.

**Mere presence of gender role cues as threatening?** On that token, perhaps the mere presence of feedback relating to gender regardless of whether it is feminine or masculine may be enough to influence men’s behaviors. For example, I have data
showing that the mere presence of feminine and masculine cues is enough to alter pain tolerance. Specifically, when men are introduced to feminine and masculine primes, they exhibit greater pain tolerance relative to when these gender cues are not present (Fowler & Geers, unpublished data). Interestingly, this unpublished data is particularly robust for men higher in masculinity. When higher masculine men are presented with any cue relating to gender they tolerate a pain stimulus for longer periods of time relative to higher masculine men not presented with a gender-neutral cue.

Given these findings, higher masculine men may tend to be reminded of their masculinity when facing any type of gender-related feedback. Thus, the lack of condition effect in Study 1 may be because both the threat and control conditions included gender-related information. Therefore, masculine men may be sensitive to any kind of gender-related information which in turn may be accounting for the lack of condition effect in Study 1. One way future research could address this issue would be to include nonconscious primes of masculine and feminine gender cues. As nonconscious priming occurs outside of participants’ awareness, researchers may be able to determine if the recognition versus non-recognition of gender-related cues may be influencing self-injurious behavior. Thus, by experimentally manipulating the extent to which the gender cue is outside or inside conscious awareness, researchers could determine if the recognition of gender cues is an important determinant for self-injurious behaviors among men, particularly men high in masculinity.

Aspects of paradigm as threatening? Similarly, any situation that is set up to challenge a man’s masculinity could be responsible for why there were no condition effects in Study 1. That is, being asked to set the dial at the desired level of shock may be
enough to remind a man of social expectations of masculinity and in turn wash out any effect of feedback condition.

On a similar token, another feature of the paradigm that could have been inherently threatening for men was having a female experimenter. In both studies, a female experimenter delivered information about participants’ gender-related knowledge and could clearly see at what level of mV participants set the dial. For example, research shows that the presence of a female increases masculine responding with men reporting less pain and exhibiting greater pain tolerance when in the presence of a female versus male experimenter (Aslaksen, Myrbakk, Hoifodt, Flaten, 2007; Gijsbers & Nicholson, 2005). Thus, the way in which the experiment was set up may have been perceived as threatening to men above and beyond any gender-related feedback.

**Discrepancy Between mV Dial Placement and Prolonged/Repeated Exposure Measures**

Most of the research findings from both studies also occurred on the overt behavioral measure of self-injurious behavior in which participants had to take their hand and manually set the dial to the desired level of shock. The measures in which participants selected how many additional seconds and how many additional trials they were willing to complete did not seem to be capturing the same systematic variability that the mV dial placement measure was capturing. Below I speculate on why this may be the case.

**Overt behavior versus behavioral intentions.** First, placing the dial at the desired level of mV can be conceptualized as a true behavioral measure whereas requesting how many additional seconds or how many additional trials one would like to
participate in is a behavioral intention measure. Behavioral intentions are typically assessed by the participant’s identification with her or his willingness to engage in specific behaviors (Ajzen, 1991; Fishbein & Ajzen, 1974). However, what one reports she or he is intending to do and what this individual actually does do are often times only slightly to moderately correlated (see Webb & Sheeran, 2006 for a review) suggesting that an intention is not always an accurate predictor of behavior. This explanation is consistent with the low correlation between mV dial placement and the prolonged/repeated exposure measures in Study 1 and then the lack of significant relationship correlation obtained in Study 2. Therefore, one interpretation for the obtained results is that the measure of behavior and behavioral intentions were tapping into different constructs.

**Order effects.** Perhaps a second reason why most of the systematic variability was captured on the mV dial placement measure could be due to order effects. Specifically, the order in which participants completed the three self-injurious measures was never counterbalanced and participants always set the dial prior to completing the prolonged exposure and repeated exposure measures. Technically, not counterbalancing the order in which participants completed the measures created a confound in both studies.

However, the main focus of the investigation was on behavior and not behavioral intentions. As many correlational studies have linked masculinity with health-compromising behaviors, I wanted to capture behavior (as opposed to intention) using an experimental laboratory design. Because behavior is often difficult to capture in artificial settings, such as a laboratory, I thought it was important to include the mV dial placement
measure as the first measure participants completed. That way, if the other measures always came after the mV placement measure, then there was lower risk of contaminating the mV dial placement measure.

Additionally, in terms of the order of events from the participants’ perspective, it makes the most sense to first set the dial. That way, participants were in a better position to estimate for how much longer or how many additional trials they would be willing to endure the shock because they already knew at how many levels of mV the machine was set. It would make less sense for participants to say how many additional trials they preferred without having an idea of the level of shock they were going to receive. Depending on the goal of future research, research may want to consider counterbalancing the order in which participants complete the measures.

Public versus private. Finally, differences between the results obtained on the different measures may have to do with the degree to which the mV dial placement was public. According to the literature, efforts to restore threatened masculinity stem from concerns about losing masculine standing in the eyes of others. After all, earning masculine capital requires evaluation from peers and the behavior must be deemed masculine enough to be awarded higher status. At its source, proving masculinity is fundamentally a public phenomenon (Deaux & Major, 1987; Leary et al., 1994). Therefore, placement of the mV dial may be conceptualized as a more public act than is writing down how many additional seconds or trials one is willing to participate in. Although participants may unconsciously realize that the experimenter will see their answers to the questionnaire, setting the dial is a more obvious, public act.
Future studies should manipulate the public and private nature of both the gender threat and the attempts to restore masculinity to test whether this factor moderates the link between a threatened sense of masculinity and health-compromising compensatory responding. On one hand, it is possible that masculinity threats only elicit concerns about proving masculinity when there is an audience to observe that there is a deficient in masculinity. On the other hand, the extent to which cultural constructions of masculinity become internalized as a core aspect of the self, even a private masculinity threat may raise men’s concerns about their masculine standing.

In sum, the focus of the investigation examined the psychosocial factors potentially increasing and decreasing health-compromising behavior. The major issue that this dissertation highlights is that men may be more likely than women to put themselves in harm’s way thereby leading to sex-related health disparities. Putting the self in harm’s way involves behavior which is exactly what was captured in the present set of studies. Therefore, self-injurious behavior could be one reason for the health disparity and it is interesting that this set of predictors panned out on the overt behavioral measure of self-injury and not the other behavioral intention measures.

**Theoretical Contributions**

There are several important theoretical and conceptual contributions that can be made from the findings of the current investigation. First, the results highlight that biological sex and gender role orientation are not fully overlapping constructs and that to get a clearer picture of health disparities between the sexes, gender role orientation should be included as an individual difference factor. Importantly, there is unique systematic variability that the combination of sex and gender role orientation account for
above and beyond their individual contribution. Therefore, instead of pitting them against each other, researchers should look at their interactive predictive ability.

Second, it appears that adherence to the masculine gender role affects men and women differently in the context of self-injury with men being more affected by the degree to which they identify with masculinity than women. Specifically, looking at the pattern of results obtained in Study 1, women set the mV dial relatively similarly regardless of how masculine or feminine she was. Men, on the other hand, displayed much more variability in their mV dial placement based on gender role orientation. In fact, this has also emerged in literatures with traditional sex differences. For example, higher femininity in men was shown to be inversely related to spatial rotation ability whereas women performed poorly regardless of gender role orientation (Ortner & Sieverding, 2008). Additionally, higher masculine men displayed greater risk aversion than higher feminine men whereas gender role orientation was not related to risk aversion for women (Meier-Pesti & Penz, 2008).

Furthermore, one way in which the Sex X Gender Role interaction finding could be interpreted is that masculine men have more to prove than their masculine women counterparts. To do so, masculine men prove toughness by electing significantly higher levels of shock compared to masculine women. Similarly, Otto and Dougher (1985) showed that higher masculine men were able to prove toughness by tolerating a painful stimulus for long periods of time compared to higher masculine women. Study 2 also supports the idea that masculine men responded to the task in a manner that would make them look tough. This “defensive processing” interpretation received strong support from the finding that masculine men set the mV dial at significantly lower levels of mV when
given a chance to self-affirm on an important aspect of the self. Thus, masculine men did not respond to the mV task in a defensive manner if they were given a chance to prove themselves via self-affirmation. However, if masculine men were not given the chance to prove themselves by affirming on a valued aspect of the self, they instead did so by setting the mV dial at higher levels of shock.

It is also important to note what the lack of a condition effect in Study 1 would mean in the population if in fact men truly are not affected by a threat to their masculine identity. Although theory suggests that people exaggerate efforts in the area to which the self has been injured (Baumeister, 1998; Funk & Werhun, 2011; Markus & Wurf, 1987; Solomon et al., 1991), perhaps there are limitations to this theorizing that the lack of condition effect in Study 1 highlight. For example, perhaps people do not engage in compensatory behaviors that may put the self in harm’s way. That is, people may still try and compensate for a threat to an important self-identity; however, this compensation may not occur when it involves harming the self. Thus, the failure to engage in self-injurious behaviors as a means for compensating for a threat may be one boundary condition under which the theory would not hold.

In addition, there may be certain types of self-identities that are less susceptible to threat. Gender role orientation is a relatively stable characteristic and children begin identifying with gender roles as early as 5 years old (Deaux, 1985). Individuals may be less threatened on a self-identity that is more stable as opposed to more fluid across time. Therefore, when threatened on a self-identity that is more stable and crystallized, then perhaps the individual may not be as threatened. This idea is consistent with the lack of condition effect for men on the threat measure in Study 1. In particular, masculine men
rated the feedback as not threatening in across both the neutral and masculinity threat conditions supporting the idea that gender role orientation may be crystallized and consequently less susceptible to threat. Thus, a second boundary condition that the current theorizing is limited to may be to self-identities that are less crystallized. Therefore, the lack of condition effect in Study 1 may provide important boundary conditions for the theorizing on threats to self-identities. As such, the theorizing may need to be revised to identify under which conditions effects derived from this theory are likely to occur and not occur.

Finally, several alternative hypotheses could have been derived in the current investigation. For example, based on construct activation theory (see Higgins, 1996 for a review), I would expect that higher femininity in men to be related to fewer displays of self-injurious behaviors when presented with feminine feedback. Specifically, from the construct activation framework, mental constructs are capable of guiding judgments based on the degree to which they are accessible in memory. The more accessible and applicable a construct, the more likely it is to influence subsequent judgments. Temporary sources of accessibility such as cues in the environment (e.g., feminine feedback) and chronic sources of accessibility such as dispositional traits (e.g., higher femininity) both increase the accessibility of a mental construct.

If higher feminine men are presented with feminine feedback, subsequent judgments and behaviors should be consistent with this activated construct. Therefore, it is reasonable to expect a reduction in self-injurious behaviors for higher feminine men following feminine as opposed to neutral feedback.
The idea then is that higher levels of feminine traits should lead to lower levels of masculine responding (e.g., showing toughness and invulnerability). Thus, the more salient these traits are to a man, the more this should influence his judgment. Although a plausible hypothesis to generate based on construct activation theory, the current pattern of data do not support this hypothesis. Specifically, although not statistically significant, Figure 2 shows that feminine men set the dial lower when given neutral feedback as compared to when given feedback about being high in femininity. Thus, feminine men appear to be behaving in a masculine fashion when paired with a temporary cue relating to femininity, the opposite of what is predicted by this theory.

Instead, a second competing hypothesis could be derived about feminine men’s responses to feminine feedback (i.e., masculinity threat). One might expect feminine men to feel inferior in their standing on masculinity (Chalus, 1976, Goff et al., 2012). That is, these men may acknowledge they are feminine and accept that this part of their personality but still feel a sense of inadequacy about their lack of masculinity. Therefore, receiving masculinity threatening feedback may remind them of their inferiority and in turn lead them to engage in compensatory responding. Interestingly, although there was lack of support for the 3-way interaction in Study 1 in the originally hypothesized direction, the pattern of results in Figure 2 support this alternative hypothesis. Specifically, the data show that feminine men set the mV dial higher when facing masculinity threatening feedback relative to neutral feedback. Again, this is only a trend in the data, but perhaps this pattern of data may be telling of how feminine men truly respond to masculinity threatening feedback in the population.
Finally, according to the research on self-identity, anyone receiving threatening feedback about an important aspect of the self should respond in a manner geared at compensating for this threat (Baumeister, 1998; Leary et al., 1994; Solomon et al., 1991). Another hypothesis that may be derived from the self-identity literature is that higher masculine women will engage in masculine compensation when threatened on this dimension of the self. Although I argue why masculine women may respond differently to a masculinity threat relative to masculine men in the introduction, it is certainly plausible to expect this would be the case. The pattern of data fail to support this alternative hypothesis which could suggest that there are qualitative differences in what it means to be a masculine woman as opposed to a masculine man.

Limitations and Future Directions

General threat. One limitation with the current set of studies is that they only included a gender-related threat. Perhaps experiencing a threat unrelated to gender would be enough to make masculine men defensive. Given the current set of designs, it is not possible to determine whether a threat has to specific to be masculinity or not in order to provoke higher masculine men into engaging in self-injurious behavior.

With that being said, however, most of the theorizing of the current research is that higher masculine men when facing masculinity threat should engage in health-compromising behavior as a means of reestablishing his masculinity. It is possible that feeling insecure or inadequate in a domain related to masculinity but is otherwise separate from masculinity could be enough to elicit harmful behaviors. For example, if one were made to feel inadequate about a romantic relationship, then perhaps one means of restoring this aspect of the self would be to engage in self-injurious behaviors like
binge drinking. However, another important aspect of the investigation is that masculinity is often related to the engagement of health-compromising behaviors. Therefore, acting masculine encompasses a variety of behaviors that can be harmful or dangerous to one’s health. The threat would have to be in a domain in which negative health outcomes were associated with this trait. Otherwise, I would argue that just any threat would not be enough to necessarily produce self-injurious behaviors in masculine men.

**Other self-identities.** The theory underlying the present research is broad enough to be applied to a variety of self-identities. I think this mode of theorizing is particularly helpful in identifying negative gender-related behaviors, but can certainly be expanded beyond the context of health. The basic idea is that if a person is threatened on identity X and sees this identity as a core component of the self, this person should try and prove their standing on identity X by engaging in behaviors that are indicative of this identity. For example, I would expect feminine women to compensate for a threat to femininity by engaging in feminine behavior. And just like masculinity, femininity also is related to a host of health-compromising behaviors. Specifically, reaching the feminine ideal often includes a variety of weight restrictive behaviors such as restricted caloric intake, purging, smoking cigarettes, and laxative use. Therefore, a feminine identity threat should lead to feminine-related compensatory behaviors for people who femininity is an important aspect of their identity.

This theorizing that compensatory responding should manifest after an important self-identity has been threatened should generalize to other non-health related domains. For example, if an important self-identity is being a musician and one feels a sense of inferiority in this domain, then I would expect this person to engage in behaviors or
cognitive processes aimed at restoring this aspect of the self. Whether it is spending more time practicing an instrument or running for president of the student music association, efforts will be directed at making up for the loss specific to this particular self-identity.

**Masculine capital.** Another limitation of the current set of studies is that they are set up in such a way that the only means by which a man is able to compensate for a threat to masculinity is via self-injurious behaviors. Specifically, men were only afforded the opportunity compensate in the masculine domain by setting the mV dial at higher levels of electrical shock, electing greater shock duration, and electing greater number of trials. Perhaps there may be other ways in which participants could reestablish masculinity that are not harmful to the self but would also allow participants the chance to regain masculine capital. For example, perhaps allowing men to complete as many push-ups as possible or squeeze a hand-dynamometer would restore any sense of threatened masculinity (e.g., Chalus, 1976; Goff et al., 2012). Both of these behaviors are associated with masculinity while at the same time are not necessarily harmful to health. On a related note, it would also be interesting to give participants a variety of activities to compensate on and examine which type of compensation activity masculinity threatened participants gravitate towards.

Perhaps if there were a multitude of ways in which participants could restore their masculinity, participants may choose a behavior that is less self-injurious. For example, men may choose to complete a greater number of push-ups relative to high levels of electrical shock if given the opportunity to choose between these two types of compensatory behaviors. Or perhaps men may aggress toward another male participant if paired with a confederate instead of aggressing toward the self by selecting high levels of
shock. Based on the design of the current set of studies, it is unknown whether participants would seek out self-injurious or non-self-injurious compensatory behaviors if the situation allowed them to choose.

In addition to a variety of masculine behaviors, it would also be interesting to examine if participants chose cognitive compensation over behavioral compensation. Researchers show that it takes less effort to change a cognition than a behavior (Festinger, 1957) so participants may be more inclined to rely on the former rather than the latter. For example, Chalus (1976) showed that high masculine men compensated for a masculinity threat by demonstrating defensive identification. Specifically, high masculine men identified more strongly with masculine traits after experiencing a masculinity threat. Therefore, it may be more likely that people would change their self-related cognitions as a means of compensating for the threat as opposed to engaging in behavioral compensation. Additionally, there are other types of cognitive self-regulatory strategies people may engage in including minimizing the importance of the domain in which they feel threatened (e.g. Tesser, 1988) or minimizing the threat itself (e.g., Jemmott, Ditto, & Croyle, 1986). Importantly, if people rely on the least effortful way of compensating for a threat, then I would expect people to engage in cognitive as opposed to behavioral compensation if these options were both available. Future research should examine this possibility.

**Procedural issues.** In designing the current set of studies, there were important methodological issues that were taken into consideration. For example, one issue was figuring out the best way to threaten masculinity for men in addition to including an appropriate control condition for men and women. Although the masculine identity threat
feedback was adapted from similar studies in the literature, there may be important tweaks that could be made to the manipulation making it more powerful in eliciting condition effects. For example, a more powerful means of threatening masculinity may be to incorporate feedback stating participants scored both high in feminine knowledge and low in masculine knowledge. Thus, participants experiencing a masculinity threat could be told they score both high in femininity and low in masculinity. Providing participants with both pieces of information reduces any ambiguity about where they specifically score on the gender knowledge range.

Another issue of consideration when designing the current set of studies was whether or not the experimenter would be present in the room during the time participants set the mV dial. In the present investigation, the experimenter was absent from the room during the time participants set the electrodermal activity machine. Perhaps if the experimenter was present, there would have been an effect of threat condition in Study 1. If restoring the masculine self-image is truly a public phenomenon, then perhaps the absence of the experimenter during the setting of the mV dial may have muted any condition effect. Therefore, future studies should directly test the effect of the presence or absence of the experimenter during engagement of the compensatory behavior.

A third important decision to make regarding the methodology centered around the most valid way of threatening masculinity. The masculinity threat feedback used in the current set of studies was adopted from already validated studies in the literature in which participants were told by an experimenter that they scored high in femininity in addition to being handed a print out of their score (Cohn et al., 2006; Vandello et al., 2008).
With that said, there are other valid ways of threatening masculinity. For example, Funk and Werhun (2011) had male participants squeeze and handgrip and then were given bogus feedback by a female experimenter saying that they squeezed the handgrip like a girl. In this case, then, a female told men they were physically weak which produced significant condition effects across the studies in that manuscript. Additionally, men in the Goff et al. (2012) paper were threatened by having a male confederate tell them they looked weak. In both instances, the dimension in which men were being threatened was their physical status. Thus, perhaps future research should threaten men by portraying weakness as opposed to placing men high in feminine knowledge.

A final point of consideration for the design of the studies was the construction of visual feedback accompanying verbal feedback on the general knowledge inventory. In the current set of studies, participants were shown a graph of a bell-shaped curve in which their score — represented by an upper case x — was placed among the distribution. One issue with the placement of the ‘X’ was that it was on the lower portion as opposed to the middle or upper portion of the graph. Therefore, the placement of the X may have potentially created ambiguity as to participants’ standing on the gender knowledge dimension. That is, an X on the lower portion of the graph may intuitively signal lower scores on the masculinity/femininity dimension and weakened the manipulation.

Although the graph was adapted from Cohn et al. (2006) and Vandello et al. (2008), future research may want to modify the visual presentation of the graph so that the X is placed in the upper portion of the graph as to disambiguate where participants score on the knowledge range. Future research could use a qualitatively different visual aid such as pie charts or bar graphs to depict where participants’ score falls in relation to other
people. Additionally, because some people may comprehend written as opposed to graphical information more precisely, future research may want to include written feedback instead of visual feedback. Furthermore, future research could also eliminate the accompaniment of any print out and simply rely on verbal feedback from the experimenter.

**Implications for Public Health**

From a public health perspective, understanding which subset of the population is at risk for any given illness is important to both controlling and ultimately eradicating disease and improving the quality of human life. Therefore, it is important for social and biological scientists to equip health care providers and public health officials with this specific information. Taking a global perspective when summing up the findings across both studies, the main theme is that when facing gender-related feedback masculine men are willing to harm themselves. This information not only alerts public health officials as to who their target populations are but also under which circumstances they are likely to see this population respond in such a manner. Thus, by identifying which subpopulation under which condition is at greatest danger for a specific kind of health issue, public health officials and health care providers are in a better position to tailor health messages and interventions to this subpopulation.

Regarding direct implications for invention strategies, Study 2 showed that giving masculine men a chance to self-affirm reduced the engagement of self-injurious behaviors. From a theoretical standpoint, it is interesting that the self is involved in the engagement of health-compromising behaviors. But, from a perspective that has the ability to affect the quality of life for a subset of the population, self-affirmation gives us
a potential intervention technique that may be implemented among this target population to control the propensity for young men to put themselves in harm’s way. Although it may not be feasible at the population level to have people do exactly what participants did in this study (i.e., reflect on a cherished aspect of the self), it nevertheless signals to clinicians and health care professionals that this is one mechanism by which health-compromising behavior may be reduced. Therefore, not only is it important to notify public health officials of the particular populations of people for whom a particular illness or disease is likely to manifest, but this data could also arm clinicians, health care professionals, and public health officials in terms of tailoring interventions, public health messages, and educational programs in the United States.
Chapter Nine

Conclusion

In conclusion, these studies highlight the complex interplay between gender role orientation, self-identity, and gender-related threats in understanding sex-related health disparities. As men often engage in more health-compromising behavior than women, identifying under which conditions and for whom this is likely to occur is crucial for quality and longevity of life. Thus, understanding how these psychosocial variables interrelate will ultimately equip clinicians and policy makers with the necessary information to target at-risk groups and tailor successful interventions.
References


Prentice, D.A., & Carranza, E. (2002). What women 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.


Appendix A

Bem Sex-Role Inventory

*All rated on 1 (Never or almost never true) through 7 (Always or almost always true) scale:*

1. Dominant
2. Forceful
3. Gentle
4. Tender-hearted
5. Aggressive
6. Acts as a leader
7. Warm
8. Sympathetic
9. Ambitious
10. Shy
11. Analytical
12. Can make decisions easily
13. Affectionate
14. Individualistic
15. Childlike
16. Self-sufficient
17. Understanding
18. Sensitive to the needs of others
19. Self-reliant
20. Cheerful
21. Loyal
22. Willing to take risks
23. Eager to soothe hurt feelings
24. Defends own beliefs
25. Compassionate
26. Strong personality
27. Does not use harsh language
28. Has leadership abilities
29. Independent
30. Flatterable
31. Athletic
32. Gullible
33. Assertive
34. Loves children
35. Willing to take a stand
36. Soft spoken
37. Competitive
38. Yielding
39. Feminine
40. Masculine
Appendix B

ADULT RESEARCH SUBJECT - INFORMED CONSENT FORM
Personality and Body Kinesthetic Study

Principal Investigator: Dr. Andrew Geers, Associate Professor (419) 530-8530

Purpose: You are invited to participate in the research project entitled, Personality and Body Kinesthetic Study, which is being conducted at the University of Toledo under the direction of Dr. Andrew Geers. The purpose of this study is to learn more about student thoughts, feelings, and physical attributes.

Eligibility: You must be 18 or older to participate in this research project. If you are younger than 18, please inform the research assistant at this time.

Description of Procedures: This research will take place in the Social Psychology Research Laboratory located on the 6th floor of University Hall. First, you will be asked to complete several items assessing personality dimensions, complete a general knowledge inventory, and then complete several additional tasks. This participation will take about 30 minutes. After you have completed your participation, the research team will debrief you about the data, theory and research area under study and answer any questions you may have about the research.

Potential Risks: There are minimal risks to participation in this study, including loss of confidentiality. Also, some of the aspects of the project, such as the ice water task, may cause minor psychological uneasiness, discomfort, or stress. You may stop your participation at any time without penalty.

Potential Benefits: Participants will receive 0.5 experimental credits to partially satisfy their PSY 1010 research exposure requirement for participating in this research. The only other direct benefit to you if you participate in this research is that you will learn about psychology research and you may learn more about aspects of stress and perception. Others may benefit by learning about the results of this research.

Confidentiality: The researchers will make every effort to prevent anyone who is not on the research team from knowing that you provided this information, or what that information is. The consent forms with signatures will be kept separate from responses, which will not include names and which will be presented to others only when combined with other responses. Although we will make every effort to protect your confidentiality, there is a low risk that this might be breached.

Voluntary Participation: Your refusal to participate in this study will involve no penalty or loss of benefits to which you are otherwise entitled and will not affect your relationship with The University of Toledo or any of your classes. In addition, you may discontinue participation at any time without any penalty or loss of benefits. If you decide not to participate or wish to discontinue your participation at any point you will still receive 0.5 a research credit.

Contact Information: Before you decide to accept this invitation to take part in this study, you may ask any questions that you might have. If you have any questions at any
time before, during or after your participation or experience any psychological distress as a result of this research you should contact a member of the research team Dr. Andrew Geers, (419) 530-8530; or Stephanie Fowler, (419) 530-8441.

If you have questions beyond those answered by the research team or your rights as a research subject or research-related injuries, the Chairperson of the SBE Institutional Review Board may be contacted through the Office of Research on the main campus at (419) 530-2844.

Before you sign this form, please ask any questions on any aspect of this study that is unclear to you. You may take as much time as necessary to think it over.

**SIGNATURE SECTION – Please read carefully**

You are making a decision whether or not to participate in this research study. Your signature indicates that you have read the information provided above, you have had all your questions answered, and you have decided to take part in this research.

The date you sign this document to enroll in this study, that is, today's date must fall between the dates indicated at the bottom of the page.

<table>
<thead>
<tr>
<th>Name of Participant (please print)</th>
<th>Signature</th>
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<tr>
<th>Name of Person Obtaining Consent</th>
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This Adult Research Informed Consent document has been reviewed and approved by the University of Toledo Social, Behavioral and Educational IRB for the period of time specified in the box below.

Approved Number of Subjects: 
Appendix C

Personality Assessment

All rated on 1 (Not at all) through 7 (Very Much) scale:

1. I find it hard to imitate the behavior of other people.
2. I can make impromptu speeches even on topics about which I have almost no information.
3. I would probably make a good actor.
4. In a group of people I am rarely the center of attention.
5. In different situations and with different people, I often act like very different persons.
6. I am not particularly good at making other people like me.
7. I would not change my opinions (or the way I do things) in order to please someone or win their favor.
8. I have never been good at games like charades, pictionary, or improvisational acting.
9. I have trouble changing my behavior to suit different people and different situations.
10. At parties, I let others keep the jokes and stories going.
11. I may deceive people by being friendly when I really dislike them.
12. I really enjoy a task that involves coming up with new solutions to problems.
13. I prefer to be direct and forthright when dealing with people I've just met.
14. I feel comfortable using someone's first name soon after I meet them, even when they are much older.
15. I am the same person at home that I am at school.
16. I am comfortable being singled out for praise or awards.
17. Speaking up in class is not a problem for me.
18. Even when I strongly disagree with group members, I avoid an argument.
19. I will sacrifice my self-interest for the benefit of the group I am in.
20. I enjoy my friends a lot.
21. It is important to me to respect decisions made by the group.
22. I will stay in a group if they need me, even when I'm not happy with the group.
23. I'd rather say "No" directly than risk being misunderstood.
24. I should take into consideration my parents' advice when making education/career plans.
25. I often have the feeling that my relationships with others are more important than my own accomplishments.
Appendix D

General Knowledge Inventory

1. What is the longest river in the world?
   a. Amazon
   b. Mississippi
   c. Nile
   d. Ottawa River
   e. 

2. How many official planets are in our solar system?
   a. 10
   b. 9
   c. 8
   d. 7

3. How many rings are on the Olympic flag?
   a. 8
   b. 7
   c. 6
   d. 5

4. What is the capital of New York?
   a. Albany
   b. Buffalo
   c. Rochester
   d. New York

5. Which volcano erupted and destroyed the city of Pompeii?
   a. Mount Tambora
   b. Mount St. Helens
   c. Mount Kilimanjaro
   d. Mount Vesuvius

6. How many cups are in 1 quart?
   a. 2
   b. 6
   c. 5
   d. 4

7. The Harry Potter series was written by?
   a. E.L. James
   b. J.K. Rowling
   c. J.J.R. Tolkien
   d. Suzanne Collins

8. In Greek mythology, Hades is the God of what?
   a. Love
   b. The underworld
   c. The sea
   d. The sky

9. Which country gave the Statue of Liberty to the U.S. as a gift?
a. Spain  
b. England  
c. France  
d. Italy  

10. How many permanent teeth should an adult human have?
   a. 30  
   b. 32  
   c. 34  
   d. 36  

11. What alcoholic beverage is commonly made from grapes?
   a. Vodka  
   b. Beer  
   c. Whiskey  
   d. Wine  

12. What was the female main character’s original name in “Titanic”?
   a. Rose Bukater  
   b. Rosemarie Dawson  
   c. Rosalie Bukater  
   d. Rosie Dawson  

13. Who were the male and female leads in “Pretty Woman”?
   a. Harrison Ford and Michelle Pfeiffer  
   b. Richard Gere and Julia Roberts  
   c. Hugh Grant and Sandra Bullock  
   d. Tom Hanks and Julianne Moore  

14. Which is not a fashion designer?
   a. Christian Dior  
   b. Gianni Versace  
   c. Bella Isadora  
   d. Coco Chanel  

15. In “The Notebook” young Noah is played by?
   a. Ryan Merriman  
   b. Ryan Reynolds  
   c. Ryan Phillippe  
   d. Ryan Gosling  

16. What is a fringe?
   a. Bangs  
   b. A hair care product  
   c. A type of purse  
   d. A style of high heel  

17. What company uses the famous slogan “Because You’re Worth it”?
   a. Maybelline  
   b. Dove  
   c. Herbal Essences  
   d. L’Oreal  

18. What does PMS stand for?
   a. Postmenstrual syndrome
b. Premenstrual syndrome
c. Prenatal monitoring system
d. Premenstrual dysphoric syndrome

19. Out of the list below, who was not a member of NSYNC?
   a. Lance Bass
   b. Chase Meloney
   c. J.C. Chasez
   d. Justin Timberlake

20. What does Neutrogena Specialize in?
   a. Hair care products
   b. Skin care products
   c. Nail and hand care products
   d. Foot care products

21. How do you wear a fedora?
   a. On your head (hat)
   b. Around your neck (scarf)
   c. On your feet (shoes)
   d. On your wrist (watch)

22. Which of the following is NOT a manufacturer of motorcycles?
   a. Harley Davidson
   b. Honda
   c. BMW
   d. Mitsubishi

23. In professional football, how many players is each team allowed to have on the field at the same time?
   a. 9
   b. 11
   c. 13
   d. 15

24. When changing a flat tire, the lug nuts should always be tightened in which order?
   a. Clockwise
   b. In a star pattern
   c. Counter clockwise
   d. Top to bottom and right to left

25. Which of the following college football bowl games is played in Pasadena, CA?
   a. Cotton Bowl
   b. Gator Bowl
   c. Rose Bowl
   d. Orange Bowl

26. What is the most popular professional sport in America as measured by attendance?
   a. Football
   b. Basketball
27. What is considered a good maximum benching weight?
   a. 150 lbs.
   b. half a person's weight
   c. one's own weight
   d. twice a person's weight

28. The kind of screwdriver that fits screws with hexagonal heads is called a(n)
   a. Allen wrench
   b. crescent wrench
   c. Phillips screwdriver
   d. standard screwdriver

29. Which tool actually clamps onto an object and will stay clamped without having to be held in place?
   a. channel locks
   b. vice grips
   c. needle-nosed grips
   d. clamp holds

30. How many yards wide is a football field?
   a. 50
   b. 60
   c. 70
   d. None of the above

31. Where does the beer Heineken come from?
   a. Holland
   b. Belgium
   c. Germany
   d. USA

32. What currency does England use?
   a. Euro
   b. Sterling Pound
   c. American Dollar
   d. Rupee

33. Who won 74 games on Jeopardy?
   a. Nancy Zerg
   b. Ken Jennings
   c. Brad Rutter
   d. Alex Trebek

34. How many continents end with the letter they start with?
   a. Two
   b. Four
   c. Five
   d. Seven
35. Which president is on the dime?
   a. Thomas Jefferson
   b. Abraham Lincoln
   c. Franklin D. Roosevelt
   d. John Garner
Appendix E

Figure 3. Power transformer dial used to capture self-injurious behavior
Appendix F

Brunswick-Shaffer Intensity Rating Scale

0  slightly noticeable
10  slight tingle
20  annoying twitch
30  moderate
40  noticeable jolt
50  intense
60  extreme
70  very painful