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The impact of the amount of social evaluation on psychobiological responses to a body image threat

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ABSTRACT

The present study examined the impact of amount of social-evaluative body image threat on psychobiological responses. Women ($N = 123$) were randomized into an individual-threat, group-threat or no-threat condition. Participants completed a measure of state body shame and provided a sample of saliva (to assess cortisol) at baseline and following their condition. Both threat conditions had higher baseline-adjusted body shame following the threat compared to the no-threat condition; however, no difference on baseline-adjusted body shame between the threat conditions was found. The same pattern of results was found for cortisol – both threat conditions had higher baseline-adjusted response cortisol than the no-threat condition, with no significant differences between the threat groups. Findings suggest that the magnitude of psychobiological responses to a social-evaluative body image threat does not differ with the amount of social-evaluative threat (individual- versus group-threat). These findings provide insight into the context of body image threats of women.

Introduction

Humans are driven to monitor their social environments for threats to their social acceptance or standing. This drive is associated with our inherent need to belong and be accepted by others (Baumeister & Leary, 1995). According to social self-preservation theory (Dickerson, Gruenewald, & Kemeny, 2004; Kemeny, Gruenewald, & Dickerson, 2004), when an individual encounters a threat to his/her social acceptance (i.e., a social-evaluative threat), a psychobiological response is elicited. This response is characterized by the activation of both negative self-conscious emotions (e.g., shame) and the stress hormone cortisol (thought to indicate hypothalamic-pituitary axis activation).

This psychobiological response acts as a signal to the individual that his/her social acceptance is at risk and is thought to initiate strategies (e.g., disengagement, withdrawal) designed to protect one's self from further loss of social acceptance or standing. Understanding such responses to a social-evaluative threat is of interest because efficient compared to uncoordinated reactions are considered adaptive in nature. Uncoordinated responses (i.e., exaggerated responses or those that do not shut off when the threat is no longer present) may expose individuals to elevated levels of cortisol and chronic shame states, outcomes that are associated with negative physical and psychological health consequences (i.e., depression, low self-esteem, poor bone health and cardiovascular disease; McEwen, 1998). Given that repeated or prolonged exposure to cortisol can have negative health consequences (McEwen, 1998), it is important to determine specific factors of a social-evaluative threat that are associated with a negative psychobiological response.

Evidence Supporting Social Self-Preservation Theory

The majority of studies examining psychobiological responses to social-evaluative threats have been conducted in a laboratory setting using performance-based tasks (e.g., Trier Social Stress Test in which participants are asked to prepare and deliver a speech in front of an evaluative audience; Kirschbaum, Pirke, & Hellhammer, 1993). Generally, these studies have shown that social-evaluative threats consistently elicit negative psychological outcomes (e.g., shame) compared to situations without a social-evaluative threat component (e.g., giving a speech alone; Dickerson, Mycek, & Zaldivar, 2008; Gruenewald, Kemeny, Aziz, & Fahey, 2004). Studies have also demonstrated that cortisol is elicited in response to social-evaluative threat. For example, Dickerson et al. (2008) had participants perform a speech in front of an evaluative audience, in the presence of others who were not evaluating the participant (i.e., mere social presence), or alone. Their findings showed that

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participants who performed the speech in front of an evaluative audience had significantly elevated levels of cortisol, whereas the participants who performed the speech alone or in the mere presence of an audience (non-evaluative) showed no change in cortisol levels. These findings are consistent with a meta-analysis (Dickerson & Kemeny, 2004) which showed that tasks with the potential for social evaluation were associated with significantly greater cortisol responses compared to tasks without a social-evaluative component. Researchers have also extended these findings to social-evaluative threats other than public speaking (i.e., ballroom dancing, writing about an experience characterized by self-blame; Dickerson, Kemeny, Aziz, Kim, & Fahey, 2004; Rohleder, Beilen, Chen, Wolf, & Kirschbaum, 2007). Taken together, there is strong support demonstrating that social-evaluative threats elicit negative psychological outcomes (e.g., shame) and cortisol increases.

Social Self-Preservation Theory and Body Image

Recently, social self-preservation theory has been applied to a body image context (Bailey, Lamarche, & Gammage, 2014; Lamarche, Gammage, Kerr, Faulkner, & Klentrou, 2014; Lamarche, Kerr, Faulkner, Gammage, & Klentrou, 2012; Martin Ginis, Strong, Arent, & Bray, 2012). To our knowledge, there are currently four studies providing preliminary evidence of the applicability of social self-preservation theory to a body image context. A qualitative study explored the applicability of social self-preservation theory by having female university students identify and describe uncomfortable body-related situations, the thoughts and feelings that occur in those situations, and the coping strategies used to manage those uncomfortable situations (Lamarche et al., 2012). Findings showed that the context of the uncomfortable body-related situations (e.g., described as involving the presence of other people), responses (e.g., concerns over others' evaluations) and coping mechanisms (e.g., disengagement, avoidance) described by participants were consistent with the theory. A second qualitative study compared coping responses to a high- versus low-social-evaluative body image threat using scenarios (modeling a swimsuit in front of friends versus trying on a swimsuit alone, respectively; Bailey et al., 2014). These authors found that coping responses were generally consistent with social self-preservation theory and existing body image coping literature. Specifically, behavioral avoidance was the most frequently reported coping strategy under high social-evaluative threat.

Martin Ginis et al. (2012) provided the first experimental evidence of a cortisol response to the anticipation of a social-evaluative body image threat through two experiments. In their first experiment, cortisol responses were examined in response to anticipating a social-evaluative body image threat. The participants in the high social-evaluative condition were told they would perform strength-training exercise in a fitness facility with mirrors wearing clothing that would be provided to them in their size (a sports halter top and spandex shorts). They were also told that the session would be videotaped by a man. By contrast, participants in the control low social-evaluative threat condition were informed they would be exercising in a private room with no mirrors. They were also told they would be wearing a tracksuit and would not be videotaped. The results of the first experiment showed that women who thought they would be exercising in a high social-evaluative setting had higher baseline-adjusted post-condition cortisol than women in the control condition. In their second experiment, women in the social-evaluative threat group were told they would try on an exercise outfit and then be videotaped in the clothing by a male researcher so that a panel of judges could evaluate the fit of the clothing at a later date. By contrast, women randomly assigned into the non-social-evaluative threat group tried on the clothing alone in private (i.e., no videotaping occurred) and were told no one else would see them in the clothing. The results indicated that women in the social-evaluative threat group had a small post-condition rise in cortisol levels while women in the non-social-evaluative group had a moderate post-condition decline in cortisol levels.

Finally, Lamarche et al. (2014) applied social self-preservation theory to the examination of shame and cortisol responses to an anticipatory body image threat. Women were randomly assigned to either a control or social-evaluative threat group. The participants in the control group were asked to sit quietly, while the participants in the social-evaluative threat group were told they would be undergoing a percent body fat assessment while wearing clothes provided to them (spandex shorts and a jog bra). The results of this study found that women who anticipated a social-evaluative body image threat reported more negative psychological outcomes (particularly those self-conscious in nature such as body shame and social physique anxiety) compared to the control group. Additionally, these authors found that cortisol did not increase in response to anticipating a social-evaluative threat. The findings of these studies provide preliminary evidence of the applicability of social self-preservation theory to a body image context.

Amount of Social-Evaluative Threat

In addition to examining psychobiological responses to a social-evaluative versus non-social-evaluative threat, social self-preservation theorists have also investigated the influence of the amount of social-evaluative threat on psychobiological responses. The way in which the amount of social-evaluative threat has been manipulated is quite varied in the literature. For example, studies have manipulated the amount of social-evaluative threat by including different social-evaluative elements hypothesized to elicit a greater response to the threat (i.e., uncontrollability or forced failure, the presence of negative social comparison, capturing the evaluation on a permanent record such as videotape; Dickerson & Kemeny, 2004). Dickerson and Kemeny (2004) found that a social-evaluative threat comprised of more than one social-evaluative element produced a larger effect on cortisol when compared to a threat with just one element. For example, performance-based tasks containing both uncontrollable and social-evaluative elements were found to elicit the largest cortisol response (Dickerson & Kemeny, 2004).

Another example of manipulating the amount of social-evaluative threat that has received some attention in the literature is manipulating the number of evaluators present during the evaluation. Bosch et al. (2009) examined the impact of the amount of social evaluation (by changing the audience size) on psychological and a number of physiological responses in female university students. Specifically, participants performed a speech in the presence of one evaluator, four evaluators or alone (no audience). The results indicated that levels of shame/embarrassment, heart rate, sympathetic and parasympathetic activation, in addition to cortisol, were higher in the evaluative (one-evaluator and four-evaluator group) than the non-evaluative conditions (no audience). Upon comparing the two evaluative conditions (one versus four evaluators), no differences in psychological responses were found. However, changes in heart rate and pre-ejection period were significantly larger in the presence of a four- versus one-evaluator audience. Further, a significant difference in cortisol was found between the evaluative conditions – significantly higher cortisol was observed in the four-evaluator audience than the one-evaluator audience, with no differences in cortisol between the one-evaluator and no audience conditions.

Andrews, Wadiwalla, Juster, Lord, Lupien, and Pruessner (2007) examined the impact of audience size on physiological responses to