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Too Close for Comfort: The Effects of Threatening Stereotypes on Perceptions of Proximity

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Abstract

Do stereotypes influence how we perceive physical stimuli in our social world? The current project addresses this question by examining whether people differentially perceive targets based on whether a stereotype-based threat accompanies the target. Previous research finds that people evaluate physically threatening stimuli (e.g., spiders, aggressive people) as closer than non-threatening stimuli (Cole Balceitis, & Dunning, 2012). However, less is known about the role of stereotypes in activating a threat response. It was predicted that participants who are made aware of the threatening status of a group will perceive a member of that group as standing physically closer. Overall, the results indicated that the feeling of threat influenced distance estimates only when participants felt they were in the real presence of an individual who met the stereotype of a possible disease carrier (e.g., stereotype consistent condition). This study adds to the growing literature on social factors that influence embodied cognition and provides further support for the ability of threat to influence distance perceptions.

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Abstract

Stereotypes play an active role in the evaluation of stimuli (e.g., persons), but we know much less about whether stereotypes influence the visual perception of physical stimuli. The current project examined whether people differentially perceived the distance of physical targets based on whether the target was accompanied by stereotype-based threat. Previous research finds that people evaluate physically threatening stimuli (e.g., spiders, aggressive people) as physically closer than non-threatening stimuli (Cole, Balcetis, & Dunning, 2012). The current study sought to examine the role stereotypes play in the activation of a threat response. Specifically, would participants perceive a confederate to be physically closer when that person matched the stereotype of someone who likely has an ostensibly dangerous (and fictitious) disease? It was predicted that participants who were led to believe that the person completing the study with them was likely to be a carrier of the disease, based on fitting the stereotype of someone likely to carry the disease, would perceive that person as physically closer than when the participant was not led to believe that the person completing the study with them was likely a carrier of the disease based on the presented stereotypical information. The results indicated that, for participants who believed they were in the presence of a person who fit the stereotype of someone likely to have the fictitious disease, the more participants felt threatened by this person, the closer they perceived the person to be sitting to them. These findings extend previous research and illuminate stereotypes as influential in eliciting threat and ultimately distorting perceptions of our physical world.

Keywords: stereotypes, distance, threat, perception

Too Close for Comfort: The Effects of Threatening Stereotypes of Perceptions of

Proximity

Stereotypes are a pervasive tool used to navigate our social world. A stereotype is a belief about the personal attributes of a group of people (Myers & Twenge, 2014). These beliefs, however, are often an oversimplified understanding of the characteristics of a group and they often do not represent the majority of the group's members. Stereotypes are functional in that they can help us understand what to expect and aid in the avoidance of danger in order to survive. However, stereotypes can be destructive in that they can be egregiously misapplied and can have the potential to create the perception of danger—or exaggerate the degree to which one is in danger—where none exists. The purpose of this study was to examine the role that stereotypes play in the formation of threatening perceptions, and to examine how that threat influences visual spatial perception. Stereotypes are known to play an active role in how people interact with those around them, and therefore are a significant area of study to the field of social psychology.

Stereotypes offer a number of positive and negative elements. Stereotypes can be beneficial in that they give insight into how to best react to novel stimuli. Using stereotypes to assess unfamiliar individuals, environments, and events can be helpful in saving cognitive energy (Neil, Milne, & Bodenhausen, 1994). Stereotypes also allow people to quickly process new information about novel individuals, environments, and events by applying preexisting stereotype-consistent information (Sherman, 1996). Processing new information quickly and efficiently is essential in unfamiliar situations as it gives an indication as to how to best respond to novel stimuli. While there are obvious

beneficial qualities to stereotypes, a major disadvantage is that they can potentially lead to biases, and such biases may influence how we perceive our social world.

As seen in previous research, people's perceptions of their environment are not always as accurate as they believe them to be. In fact, a large body of research in embodied cognition and motivated perception explores the role that non-cognitive factors play in cognitive processes. This research focuses on the role of social psychological factors, such as motivation and emotion, in cognitive processing and perception. For example, Proffitt, Bhalla, Gossweiler, and Midgett (1995) conducted a study in which they looked at people's judgments of hill inclinations. After seeing people consistently either overestimate or underestimate the graphical slant, Proffit et al. (1995) concluded that people's perceptions were influenced by their emotional state. Those who rated themselves as being physically tired often perceived the hill to be steeper than it was in reality. Perceptions of reality can also be heavily influenced by personal motivational states. For example, people tend to interpret ambiguous stimuli in ways in which the outcomes are preferential to them (Balcetis & Dunning, 2006). In another study, Dunning and Balcetis (2013) looked at the ability of emotion to influence perceptions of physical distances. They concluded that desirable objects often appear physically closer than undesirable objects. Research has also revealed that anticipation can play a role in altering reality. Tabor, Catley, Gandevia, Thacker, Spence, and Moseley (2015) found that the anticipation of pain altered perceptions of distance. That is, pain-evoking stimuli are perceived as closer to the body than otherwise identical pain-relieving stimuli. These findings and other research have illustrated that perceptions of physical stimuli can be distorted by emotional states.

Such biases in visual perceptions can be particularly strong when an individual feels threatened. Research finds that people evaluate physically threatening stimuli (e.g., spiders, aggressive people) as physically closer than non-threatening stimuli (Cole, Balcetis, & Dunning, 2012). That is, people with an existing fear of spiders estimated that a tarantula was physically closer than people who did not have a fear of spiders. Similarly, people who viewed a person who behaved aggressively on a video estimated the person to be physically closer than participants who viewed a video in which the same individual did not behave aggressively (Cole, Balcetis, & Dunning, 2012). This research, however, explored the role of threat on perceived proximity when a person had an existing fear of the target object prior to the study (e.g., the tarantula) or directly observed a reason to be threatened by the target (e.g., aggressive behavior in video). The study sought to replicate and extend the findings of Cole, Balcetis, and Dunning (2012) by examining the extent to which the perception of threat can be created by stereotypes and how threat created through stereotypes influences the perceptions of physical distances.

In order to examine the extent to which stereotypes influence perceived threat, or whether people can evaluate a target as threatening strictly based on stereotypic information, it is important to put participants in a scenario that provides them with novel stereotypic information. Given that stereotypes are stable and typically formed over an extended period of time, it is unlikely that existing stereotypes could be changed in a brief experiment. Therefore, the present study employed a fictitious disease paradigm in which participants were provided with information about a fictitious disease and who is likely to have and carry this disease based solely on stereotypes, and then presented with

a person who either matched or did not match the stereotype of a person likely to be infected with the disease. It was predicted that participants would perceive an individual as more threatening when they matched the stereotype, and therefore perceive that individual as physically closer compared to a nonthreatening individual (i.e., a person who does not match the stereotype of someone with or carrying the disease).

<div align="center">Methods</div>

Participants

In exchange for credit in an introductory psychology course, 74 female students participated in the study. This study was limited to female participants as previous studies have indicated the females tend to be more attuned to evaluating stimuli and nonverbal cues (Hall, 1978) and thus were anticipated to be more sensitive to potential threats. Participants were randomly assigned to experimental conditions. Data from 4 participants were excluded based on previous knowledge or relationship with the confederate. From those remaining, outliers for distance estimates were excluded, making the effective sample of 65 participants.

Experimental Design

The hypothesis was tested using an one-way design in which participants were asked to evaluate the total distance they believed separated them from a confederate (i.e., a person who poses as a participant but is working with the experimenter) who either matched or did not match the stereotype associated with persons most likely to carry the ostensibly dangerous (fictitious) disease.

Procedure

Upon arrival, the participant were seated in a room and told that the study would commence upon the arrival of the other participant. The other participant, however, was a confederate who was given a script about how to behave based on the condition of the experiment. When the confederate, posing as the other participant arrived, they were seated across from the participant, approximately 132 inches away. After providing consent, participants were given a brief overview of the study. Participants were led to believe that this study was being done in collaboration with the University Health Department with the goal of evaluating student knowledge on recent and ostensibly dangerous diseases in order to determine how best to inform students about these diseases. The disease that the participant read about was completely fictitious; the name of the disease and the information was created for the purpose of this study and are not based on any real disease information.

Next, participants were led to believe they were each reading article about different diseases. After the allotted reading time, participants were asked to take a disease post-test on the information provided in the reading. The post-test included questions to test the participant's knowledge of the symptoms, causes, possibly carriers, and possible cures for the disease. This served as a check that participants understood the disease and who is likely to get it based on the stereotypes presented in the article.

Participants were told that they had to give a short presentation on the information they just learned to the other person. The participant was led to believe that the order of presentations would be randomly determined, however the order was manipulated so that the participant appeared to be chosen at random to present first. Participants were

directed to cover certain information in their presentation, such as a basic description of the disease, a list of symptoms, and a description of who is most likely to be infected.

The stereotype manipulation occurred during the presentation phase of the study. As the participant presented the disease-related information, the confederate was instructed to respond to the presentation with information consistent with the condition to which the participant is randomly assigned. For participants in the stereotype consistent condition, the confederate responded to the participant with information that fit the stereotype of a person likely to get or have this disease (i.e. poor personal hygiene, crowded living arraignment, shared bathroom). Further, the confederate expressed concern about the disease, by pointing out how similar their lifestyle was to the article's description. For participants in the stereotype inconsistent condition, the confederate expressed characteristics that did not fit the stereotypical description well (i.e. great personal hygiene, two person living arraignment, personal bathroom). Further, they expressed little concern about contracting or carrying the disease.

After the scripted discussion, participants completed a set of questionnaires that included demographic (age, race, and school year) and perception-related questions. Participants reported how "threatened", "frightened", and "disgusted" they felt using a Likert scale ranging from 1 (*not at all*) to 7 (*very much*). Finally, participants were asked to estimate, in inches, how much distance they believed separated them from the participant across the table.

<div align="center">Results</div>

Preliminary Analyses

Threat and Stereotype Consistency. Because perceived threat of a target has been shown to influence distance estimates (e.g., Cole, Balcetis, & Dunning, 2013), it was predicted that perceived threat of a target would be higher in the stereotype consistent condition than in the stereotype inconsistent condition. To test this, a one-way ANOVA was conducted, predicting threat from condition. Consistent with predictions, perceived threat of the target was higher in the stereotype consistent condition (M = 5.33; SD = 0.98) than in the stereotype inconsistent condition (M = 3.71; SD = 1.43), $F(1, 66) = 29.25$, $p < .0001$.

Threat and Distance Estimates. To test whether perceived threat of a target is associated with perceived distance between participant and the target, a zero-order correlation was conducted between perceived threat and distance estimate. The distance estimates were highly skewed, and therefore the data was transformed using a natural log-likelihood transformation.

Given that perceived threat was higher among participants in the stereotype consistent condition, separate correlations were run for each condition. Perceived threat was negatively associated with distance estimates for participants in the stereotype consistent condition, $r(30) = -0.34$, $p = 0.517$, such that as the more threatened the participant felt, the closer they perceived the stereotype consistent target. Perceived threat was unassociated with distance estimates, however, for participants in the stereotype inconsistent condition, $r(33) = 0.11$, $p = 0.5373$.

Primary Analysis

A more formal test of the association between perceived threat, experimental condition, and distance estimates required an analysis where the transformed distance

estimates were regressed on to condition, threat (mean-centered), and the interaction term. The main effect for condition was not significant, $F(1, 64)= 0.12$, $p= .7323$, indicating that there was no significant difference between distance estimates across the stereotype consistent condition and the stereotype inconsistent condition. The main effect for perceived threat was also not significant, $F(1,64)= 2.24$, $p=.1392$, indicating that there was no significant association between perceived threat and distance estimates.

Consistent with predictions, however, there was a significant perceived threat by condition interaction, $F(1,64)= 4.56$, $p=.0366$. To decompose this interaction, the simple effects of perceived threat were examined in levels of condition. For participants in the stereotype inconsistent condition, perceived threat was not associated with distance estimates, b = 0.041, $F(1,64)= 0.33$, $p=.5699$. For participants in the stereotype consistent information, perceived threat was negatively associated with distance estimates, b = -0.235, $F(1,64)= 4.79$, $p=.0322$. That is, for participants who believed they were in the presence of a person who fit the stereotype of someone likely to have the fictitious disease, the more they felt threatened by this person, the closer they perceived the person to be sitting to them. See Figure 1.
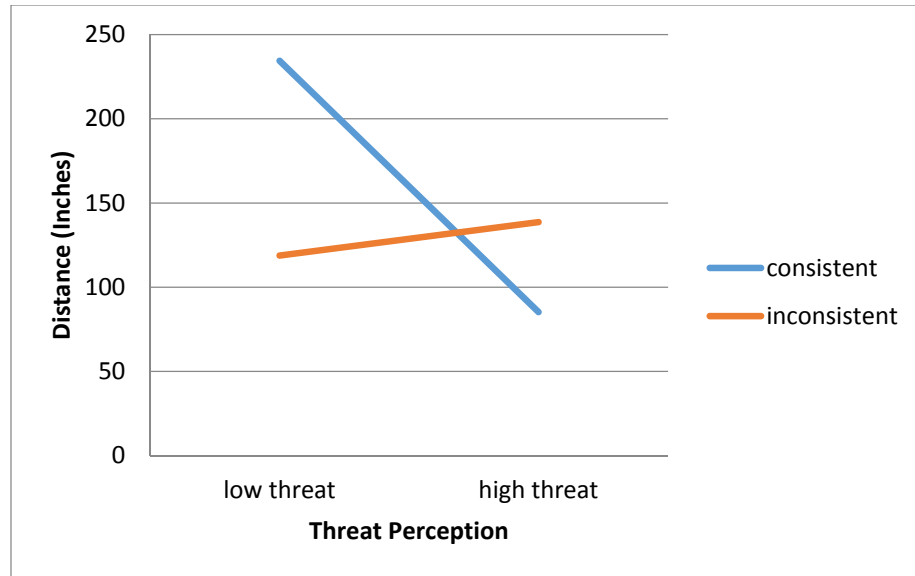
Figure 1. Mean distance estimates for participants who rated feelings of high threat and low threat in the stereotype consistent and stereotype inconsistent conditions.

Discussion

This current study sought to examine the role stereotypes play in the activation of a threat response by looking at the visual perception of distance when presented with threatening stimuli based on stereotypic information. Overall, feelings of threat influenced distance estimates only when participants felt they were in the real presence of an individual who met the stereotype of a possible disease carrier. This study adds to the growing literature on social factors that influence embodied cognition and provides further support for the ability of threat to influence distance perceptions.

The findings of this study compliment the findings of previous research. Similar to Cole, Balcetis, and Dunning (2014), this study found that threat, as opposed to disgust and fear, was the only reliable influence on perceptions of distance. Taken together, these studies strengthen the idea that threat, unlike other emotions, plays a special role in distance perception. A strength of the current study is that rather than relying on existing stereotypes, or beliefs that participants held prior to the study, participants were introduced to novel information about a fictitious disease and provided with the relevant stereotype.

One limitation of the present study is the variability of distances estimates among participants. When participants were asked to estimate, in inches, how much distance separated them from the participant across the table, they were never given a distance measurement for reference. The lack of an appropriate estimation tool could have played a role in the large variability received in distance estimate responses.

Results from this project hold an abundance of significance, both theoretically and practically. Theoretically, these results indicate the ability of stereotypes to influence

physical, and not just social, perceptions because they increase perceptions of threat. Practically, these findings shed light on the role that stereotypes play on interactions between different group members.

While these findings do add to the literature of social psychology's role in embodied cognition, further work is required to better understand the complex nature of stereotypes and their influences on physical reality. Future research could look at stereotypes surrounding different races and their ability to elicit threat responses. A study looking at perceptions of distance based on threats of this nature could be used to better understand race relations.

The increase in media coverage and public concern in issues of interracial interactions was a major inspiration for this study. Recently, the news has been filled with stories and trials of black males being killed by white males, particularly white officers of the law. Unfortunately, a number of strong and negative stereotypes that characterize black men as being aggressive and dangerous people exist. This study attempted to provide one way to understand why these interracial acts of violence are occurring. Given that the stereotypes about black men are widely applied and accepted, it is possible that these strong, negative attitudes (e.g., stereotypes) towards black men have led white officers to perceive black men as a bigger threat than members of their own group. The current results suggest that if a person's existing stereotypes about a group member make them feel more threatened when interacting, that group member may be perceived as physically closer and thus even more threatening. These findings offer a possible explanation for these real world situations, and therefore add an abundance of

information to what is already known about stereotypes and their ability to influence

interpersonal interactions.

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