

論文題目     Differentiating the emotion of horror from awe, fear, and moral disgust  
                  based on psychological appraisals  
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### 学位論文の要約

**Introduction:** Although the emotion of “real horror” (i.e., feeling horrified by *real-life* events; Solomon, 2004) is recognized as a discrete emotion by English-speakers (Cowen & Keltner, 2017; Shaver et al., 1987) and has been a topic of theoretical discussion in philosophy, it has not been empirically investigated by psychological science. One reason for this gap in the literature may be that the uncommon extremity of harm required to elicit real horror makes the emotion too rare to seem a valid target of inquiry. However, due to digital technology and the internet – which make capturing, communicating and consuming graphic images of extreme events easy – horror has become an increasingly common emotion, and thus, one that needs to be investigated.

To begin empirical research on the unstudied emotion of horror, the current research had two primary goals. Our first goal was to clarify what qualities of real events elicit horror. Our second goal was to identify how horror differs from the similar emotions of fear, moral disgust and awe, which have been conflated with horror by past researchers.

**Methods:** Because horror is a more salient emotional category in the US than in Japan, we conducted our studies online using samples from the general population of the US.

To investigate the affective components of horror and compare them against those of similar emotions, we began with hypothesis-driven situation sampling studies. In these studies, the target emotions were elicited by having participants write about personal experiences of horror, awe, fear and/or moral disgust. Following this, they rated the experience they wrote about using self-report scales. These scales measured the target emotion’s elicitor qualia, phenomenological experience, co-occurring emotions and action tendencies.

Following these studies, we conducted experimental manipulations of elicitor qualities to test the causal effects of elicitor qualities on emotion categorization.

**Results:** The results indicated that horror is empirically differentiable from awe, fear and moral disgust:

**Horror and awe** are both elicited by schema incongruence (i.e., things that are unimaginable or impossible, given one’s existing conceptual framework). However, they showed significant differences that indicated that they are different emotions. Firstly, they showed different patterns of cognitive appraisals. Relative to horror, awe involved a greater sense of pleasantness, personal agency (i.e., efficacy), certainty, attention and situational legitimacy. Relative to awe, horror showed greater external human agency (i.e., blaming), goal-path obstacles and anticipated effort. Second, although both awe and horror were elicited by schema-incongruence, they were elicited by distinctly different types of schema incongruence. Awe was elicited by *entities* (places, people,

objects) that exhibited *spiritual vastness* (e.g., nature, art). However, horror was elicited by *events* that involved *extreme harm* (e.g., harm that was abnormal in manner or magnitude). Further, although it has been theorized that awe motivates a “need for cognitive accommodation” (wherein one senses one’s cognitive schemata should be radically altered to understand the eliciting situation; (Keltner & Haidt, 2003), our measures detected little of this in awe, but a considerable amount in horror.

**Horror and fear** are both felt towards danger, but differ significantly in various domains. Firstly, fear is elicited by entities that are *congruent* with threat schemata, whereas horror is elicited by events that are *incongruent* with schemata. Second, fear and horror differ in elicitation thresholds. Fear, being a quick, schema-congruent subcortical response that often arises prior to cognitive awareness of the threat (LeDoux, 2015), was most frequently triggered by *risk without harm* or in response to mild harm. However, horror, being a response to schema-incongruent harm, requires a stimulus strong enough to subvert default cognitive biases that protect schemata from significant alteration. Thus, horror is specifically elicited by *extreme harm*. These differences in elicitation threshold indicate a third difference: adaptive function. Whereas fear serves a defensive pre-harm function that motivates actions that prevent physical harm (Öhman, 2008), horror serves a peri/post-harm reaction that may facilitate cognitive accommodation of the anomalous event or drastically changed circumstances. A fourth difference between horror and fear is attentional bias. Fear involved an attentional focus on oneself, but horror showed a greater focus on other people, as indexed by levels of empathic perspective-taking, motivations to help others, co-occurrence with other-focused moral emotions (sympathy, compassion, pity, empathy). As such, fear is often amoral, but horror often has a moral component. Fifth, fear and horror showed differences in co-occurring emotions. Although they had similar levels of impotence, horror involved greater hostility (likely reflecting its elicitation by harm and its focus on others), as well as sadness-related despair and social support-seeking action tendencies (likely because horror is a response to real and significant loss).

**Horror and moral disgust** were more similar than horror was to either fear or awe, but they still differed enough to suggest differentiability. Firstly, although (unlike fear and awe) both horror and moral disgust were most often elicited by actual harm, the types of eliciting harm differed. Moral disgust was specifically elicited by *harm done by blameworthy human agents*, but horror was elicited by extreme harm, regardless of whether or not it was intentional or accidental. Second, similar to the elicitation threshold differences between fear and horror, moral disgust was most frequently elicited by mild harm (e.g., lying, cheating), but horror required extreme harm to be salient. Again, this may indicate a difference in adaptive functionality between the two emotions: moral disgust functions to protect us from interacting with people likely to cause harm (Hutcherson & Gross, 2011), whereas horror motivates us to engage in difficult schematic accommodation. Third, because moral disgust is more sensitive to human behaviors that violate one’s values or moral codes, moral disgust showed a greater focus on perpetrators of harm than horror, although they showed roughly equivalent concern for victims. Fourth, because moral disgust is focused on perpetrators, it also involved greater feelings of hostility and motivations to act aggressively (e.g., to punish someone) than horror did. Fifth, despite horror and moral disgust being equally focused on other people (e.g., empathy, desire to help), relative to

moral disgust, horror exhibited greater impotence, despair and self-defense motivations, as well as less hostility and motivation to act aggressively. This may indicate that horror involves a more global (over)generalizing the eliciting harm so that it is perceived as affecting oneself, even if one was not the direct victim. Sixth, whereas moral disgust primarily motivated aggressive actions, horror motivated social support-seeking behaviors.

**Discussion:** These studies indicated that horror is a distinct emotion that is empirically differentiable from awe, fear and moral disgust. Its function appears to be reactive and may be adaptive in helping people change their concepts to accommodate harsh truths. It may also motivate one to seek social support in an attempt to reassert meaning following inexplicable instances of extreme harm.

As the first empirical studies on the emotion of real horror, the data presented here open the way for future research on the cognitive and behavioral effects of horror in important fields, such as media, attitudes and ethics. For example given that emotions affect public attitudes, well-being and behavior (Chuang, 2007; Fredrickson, et., 2003; LeBlanc et al., 2014), horrific news events may have larger downstream social and personal effects. Additionally, because emotional granularity is effective in emotional regulation, research should be conducted to investigate if fostering granularity for “horror” can be helpful in trauma interventions.