



Fear and disgust processing during repeated exposure to threat-relevant stimuli in spider phobia

Bunmi O. Olatunji^{a,*}, Kate B. Wolitzky-Taylor^b, Bethany G. Ciesielski^a, Tom Armstrong^a, Erin N. Etzel^a, Bieke David^a

^a Vanderbilt University, United States

^b University of Texas-Austin, United States

ARTICLE INFO

Article history:

Received 18 August 2008

Received in revised form

27 January 2009

Accepted 30 April 2009

Keywords:

Spider phobia

Fear

Disgust

Exposure

Habituation

Emotion

ABSTRACT

Although disgust plays a significant role in the etiology of spider phobia, there remains a paucity of research examining the role of disgust in the treatment of spider phobia. Spider fearful participants ($N = 46$) were randomly assigned to a disgust (view vomit images) or neutral activation (view inanimate objects) condition. They were then repeatedly exposed to a videotaped tarantula, during which time their fear, disgust, and physiological levels were assessed repeatedly. Growth curve analyses indicated that repeated exposure led to significant declines in fear and disgust with no statistically significant differences between the two conditions. However, there was marginal evidence for decreased physiological arousal during repeated exposure among spider fearful participants in the disgust activation condition compared to those in the neutral condition. Reduction in disgust during exposure in the disgust activation condition remained significant after controlling for change in fear, whereas change in fear was no longer significant after controlling for change in disgust. However, the opposite pattern of relations between change in fear and disgust was observed in the neutral activation condition. Higher fear and disgust activation during exposure was also associated with higher fear and disgust responding on a subsequent behavioral task and higher spider fear and disgust at 3-month follow-up. Baseline trait disgust propensity also predicted fear and disgust parameters during repeated exposure. The implications of these findings for the role of disgust in the treatment of spider phobia are discussed.

© 2009 Elsevier Ltd. All rights reserved.

Fear and disgust are discrete emotional states characterized by differential patterns of physiological reactivity and behavioral tendencies (Ekman, 1992; Izard, 1977) that have been implicated in the etiology and maintenance of spider phobia (Olatunji & Sawchuk, 2005; Woody & Teachman, 2000). Empirical evidence implicating both emotions consists largely of studies showing that phobic individuals report feelings of fear and disgust when exposed to spiders (Sawchuk, Lohr, Tolin, Lee, & Kleinknecht, 2000; Tolin, Lohr, Sawchuk, & Lee, 1997). The emphasis on fear in spider phobia is partially based on a predator-defense model (e.g., Öhman, Dimberg, & Öst, 1985) that draws on the observation that phobic individuals often present with the expectation that harm-related consequences will follow exposure to threat-relevant stimuli (Arntz, Lavy, van den Berg, & van Rijsoort, 1993). Others have

posited that the role of disgust in spider phobia may be understood in the context of a disease-avoidance model (Olatunji, 2006) that suggests that aversive, but nonpredatory, animals elicit avoidance due to concerns of contamination (disgust mediated) rather than concerns of physical harm (fear mediated).

Experimental studies have attempted to determine the predominant emotional response in spider phobia. For example, Tolin et al. (1997) found that 78% of the spider phobics in their sample may be classified as “primarily fearful” rather than “primarily disgusted” based on a direct comparison of subjective fear and disgust ratings to images of spiders. Subsequent research has replicated the finding that although spider phobics respond with fear and disgust to threat-relevant stimuli, fear tends to be the dominant emotional response (Sawchuk, Lohr, Westendorf, Meunier, & Tolin, 2002). However, these findings do not address the different functions that fear and disgust may serve in spider phobia. Recently, Woody, McLean, and Klassen (2005) found that disgust was a stronger predictor than anxiety of avoidance of spiders. It has also been recently shown that expectancy bias towards disgust consequences, rather than fear-relevant consequences, was the

* Correspondence to: Bunmi O. Olatunji, Department of Psychology, Vanderbilt University, 301 Wilson Hall, 111 21st Avenue South, Nashville, TN 37203, United States.

E-mail address: olubunmi.o.olatunji@vanderbilt.edu (B.O. Olatunji).

single best predictor of spider fear (van Overveld, de Jong, & Peters, 2006). A recent study also found that expectancy bias for disgust-relevant consequences, not fear-relevant consequences, predicts avoidance of spiders (Olatunji, Cisler, Meunier, Connolly, & Lohr, 2008). These findings clearly indicate that fear and disgust may play different roles in spider phobia; fear may be more related to overall distress about spiders, whereas disgust is more predictive of avoidance of spiders (Olatunji & Deacon, 2008).

Although fear responding in spider phobia is typically specific to threat-relevant stimuli, elevated disgust responses in spider phobia are more generalized (Olatunji, 2006). For example, several studies have demonstrated that spider phobics report higher disgust levels than nonphobics in response to a wide range of aversive stimuli unrelated to phobic concerns, such as rotting foods, bodily products, and revolting odors (de Jong & Merckelbach, 1998; Olatunji, 2006; Sawchuk et al., 2000). This trait propensity to respond with disgust in various contexts has been described as a specific risk factor for the development of spider phobia (de Jong & Merckelbach, 1998; Muris, 2006). Individuals high in disgust propensity may be especially vigilant for and sensitive to the disgust-evoking properties of spiders (Vermon & Berenbaum, 2002). In one study, approximately 75% of spider phobics refused to eat a cookie compared to only 30% of a matched sample of nonphobics after it had come into contact with a spider (Mulken, de Jong, & Merckelbach, 1996). The disease-avoidance model would predict that such concerns are highly associated with the fear of contamination (Huijding & de Jong, 2007). Indeed, there is evidence demonstrating that spider phobics score higher than do nonphobics on self-report obsessive-compulsive inventories assessing contamination fears and washing compulsions (Olatunji & Deacon, 2008; Sawchuk et al., 2000).

The available evidence clearly indicates that disgust, as a basic emotional response to spiders and as a general personality trait, is associated with the development and maintenance of spider phobia (Muris, 2006). This evidence would suggest that targeting disgust in the context of exposure-based treatment for spider phobia could potentially yield better outcomes. It is possible that certain phobias involve a 'disgust structure' akin to the 'fear structure' posited by emotional processing theory (EPT; Foa & Kozak, 1986). According to EPT, the degree to which exposure therapy results in reductions in phobic avoidance is proportionate to the amount of information presented to the individual during exposure that is incompatible with the 'fear structure', once that fear structure is activated. The fear structure consists of stimulus propositions, response propositions, meaning propositions, and interrelations between these propositional networks. Fear reduction occurs because of the weakening of the relations between the propositional networks. The notion that treatment change may occur through the acquisition of new information is also consistent with cognitive approaches (e.g., Teachman & Woody, 2003). Current evidence would suggest that the propositional networks that motivate phobic avoidance of spiders also consist of disgust-specific information (Olatunji, 2006).

It is unclear if studies that have examined the impact of exposure-based treatment on fear and disgust responding in spider phobia have targeted propositional networks unique to disgust. A prior study found that exposure to a spider combined with a disgust intervention component (counter conditioning strategy focused on the affective valence of the spider as well as its disgust properties) was no more effective than exposure alone in reducing both spider-specific disgust and fear (de Jong, Vorage, & van den Hout, 2000). Although this intervention study targeted the disgusting elements of spiders, activation of a broader 'disgust structure' that extends beyond that associated with spiders may be necessary before exposure. The absence of such activation may explain why no significant changes in trait disgust propensity are observed in some studies. For example, de Jong, Andrea, and Muris (1997) found a decline of spider fear and spiders'

disgust-evoking status as a result of exposure-based treatment. However, no significant changes in trait disgust were observed after treatment. Failure to activate the disgust structure may also explain why a slower rate of disgust habituation, relative to fear, is observed in other studies. For example, Smits, Telch, and Randall (2002) found that the decay slope for fear was significantly greater than that for disgust during 30 min of self-directed in vivo exposure to a tarantula among participants displaying marked spider fear. Including specific procedures that directly activate an extensive disgust structure among spider phobics may accelerate disgust habituation, and reduce trait disgust, thereby improving treatment outcome.

According to EPT, activation of the phobic structure is necessary for habituation to occur (Foa & Kozak, 1986). Such activation occurs when an individual produces responses that are represented in the phobic structure and therefore are associated with danger meaning (Foa, Huppert, & Cahill, 2006). Furthermore, the greater the match between the threat-relevant experience and the individual's phobic structure, the greater the activation. Contemporary models contend that the 'phobic structure' of spider fear consist of appraisals of threat-relevant stimuli as uncontrollable, unpredictable, dangerous and disgusting (e.g., Armfield, 2006). Consistent with the basic tenants of EPT, 'priming' the experience of disgust among spider phobic individuals may facilitate access to the phobic structure resulting in greater activation. More efficient activation of the phobic structure may be expected to also yield faster habituation during exposure therapy for spider phobia.

The present study sought to examine the impact of activating disgust-related affect on the decline in fear, disgust, and physiological arousal during repeated exposure to threat-relevant stimuli among spider fearful individuals through individual growth curve analyses of exposure process data. The present study also examined the impact of disgust activation on the relationship between fear and disgust during repeated exposure to threat-relevant stimuli. Lastly, we examined the relationship between fear and disgust activation and reduction during repeated exposure to threat-relevant stimuli and post-exposure spider behavioral avoidance responding and spider fear and disgust at 3-month follow-up. Four specific questions were addressed:

1. Is there a difference between spider fearful participants in the disgust activation condition and those in the neutral activation condition in the slope of the decline in fear, disgust, and physiological arousal?
2. Is there a difference between spider fearful participants in the disgust activation condition and those in the neutral activation condition in the extent to which decline in fear across trials remains significant after controlling for the change in disgust; and conversely, the extent to which decline in disgust across trials remains significant after controlling for the change in fear?
3. Does level of fear and disgust activation and level of fear and disgust decline during repeated exposure to threat-relevant stimuli predict post-exposure responding to a behavioral task and responding at 3-month follow-up?
4. Does trait disgust predict level of fear and disgust activation and level of fear and disgust decline during repeated exposure to threat-relevant stimuli independent of trait anxiety/negative affect?

Method

Participants

Spider fearful participants ($N = 46$) scoring at least 1 SD above their respective gender means on the *Spider Phobia Questionnaire* (SPQ; Klorman, Hastings, Weerts, Melamed, & Lang, 1974) were

متن کامل مقاله

دریافت فوری ←

ISIArticles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات