Differential aversive outcome expectancies for high- and low-predation fear-relevant animals

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Abstract

There is now considerable evidence that phobic responding is associated with a bias towards expecting aversive or traumatic outcomes following encounters with the phobic stimulus (e.g. Behavioural Brain Sci. 18 (1995) 289–325; Phobias: A Handbook of Theory, Research and Treatment. Wiley, Chichester, 1997). In terms of conditioning contingencies, this can be described as a bias towards expecting an aversive unconditioned stimulus (UCS) following a phobic conditioned stimulus (CS). The disease-avoidance model of animal fears (Anxiety Res. 4 (1992a) 314; Matchett and Davey, 1991) suggests that common animal fears may be mediated by at least two kinds of selective associations: (1) a bias towards expecting physically harmful consequences associated with predatory animals, and (2) a bias towards expecting disgust or disease-relevant consequences associated with animals that are fear-relevant (FR) but normally physically harmless. The present study investigated this model of selective associations by comparing the UCS expectations elicited by high-predation FR, low-predation FR and safe (fear-irrelevant) animals. The results indicate that high-predation animals are selectively associated with a pain relevant UCS, whilst low-predation animals are selectively associated with a disgust-relevant UCS. Safe animals were not strongly associated with either class of UCS. These findings provide evidence for a possible associative mechanism by which changes in nonspecific levels of disgust sensitivity may directly affect levels of fear to low-predation FR animals.

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1. Introduction

There is now considerable evidence that phobic responding is associated with a bias towards expecting aversive or traumatic outcomes following encounters with the phobic stimulus (e.g. Davey, 1995, 1997), and this can be described in conditioning terms as a bias towards expecting an aversive unconditioned stimulus (UCS) following a phobic conditioned stimulus (CS) (i.e. a UCS expectancy bias).

Selective associations between fear-relevant (FR) stimuli and aversive consequences are seen in laboratory-based conditioning studies using general population samples. In these studies, nonselected participants report a greater expectancy of an aversive UCS following presentations of FR stimuli than following fear-irrelevant (FI) stimuli (Davey, 1992a; Davey & Dixon, 1996; Honeybourne, Matchett, & Davey, 1993). These UCS expectancy biases are further exaggerated in individuals with prior fear of the stimulus both in laboratory-based studies of UCS expectancy judgements (e.g. Diamond, Matchett, & Davey, 1995; Cavanagh & Davey, 2000; McNally & Heatherton, 1993), and in the articulated and endorsed beliefs about the aversive consequences of encounters with feared stimuli in clinical samples (e.g. McNally & Steketee, 1985; Mizes, Landolf-Fritsche, & Grossman-McKee, 1987; Thorpe & Salkovskis, 1995). Contemporary conditioning accounts of specific phobias (e.g. Davey, 1995, 1997) conceptualise these selective associations as a UCS expectancy bias, and hypothesise that this kind of overestimation may underpin the development and maintenance of specific fears and phobias.

Of the specific phobias, animal phobias are among the most common and persistent of all phobias. In the Epidemiological Catchment Area (ECA) Study (Robins & Regier, 1991), “bugs, mice, snakes or bats” was the most frequently cited fear category, and comprised 46% of the total group of individuals who reported any simple phobic fears. In other surveys of phobic symptoms, fear of animals has been one of the most common categories, including such common fears as spider phobia, snake phobia, dog phobia and insect phobia (Agras, Sylvester, & Oliveau, 1969; Kirkpatrick, 1984). While fear of some animals appears logical (such as fear of those animals that might attack and harm humans, e.g. sharks), fear of some others appears to be less overtly rational. For example, many European countries do not possess lethally venomous spiders, yet spider phobia is particularly common. Fears of some invertebrate animals such as moths, slugs, snails and crane flies do not appear to have any obvious or compelling adaptive benefit, and low-predation FR animals such as cockroaches, rats and spiders have been consistently found to be some of the most feared animals in Western cultures (Bennett-Levy & Marteau, 1984; Merckelbach, Van den Hout, & Van der Molen, 1987; Davey, 1994b).

One potential solution to this adaptive paradox that has been proposed is that many common animal fears may be better understood in terms of a disease-avoidance model¹ (Davey, 1992a; Matchett & Davey, 1991). Davey (1992a) and Matchett and Davey (1991) have argued that, in the case of common animal fears,

¹The disease-avoidance model has also been referred to in the literature as the “mediational hypothesis” (e.g. Arrindell, Mulkens, Kok, & Vollenbroek, 1999).
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