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Pathways towards the proliferation of avoidance in anxiety and implications for treatment



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ABSTRACT

Avoidance is a key symptom of anxiety disorders. Maladaptive avoidance impairs general functioning acutely and maintains chronic anxiety. A better understanding of the mechanisms that elicit and maintain excessive avoidance might provide opportunities to improve treatment. Here, we discuss pathways through which avoidance might get amplified in the context of anxiety disorders: 1) increased threat appraisal; 2) enhanced threat avoidance tendencies; 3) impaired regulation of avoidance; 4) habitual avoidance; and 5) attempts at increasing psychological distance. Novel strategies for reducing avoidance are considered. These include memory reconsolidation interference, retraining of avoidance tendencies, mindfulness training and habit disruption approaches. Throughout the paper, we highlight a number of suggestions for future research on avoidance and how to achieve lasting behavior change.

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Anxiety and related disorders (e.g., post-traumatic stress) affect a large percentage of the population (Kessler, Chiu, Demler, Merikangas, & Walters, 2005). A variety of protocols are available for their treatment, but even the most researched treatment, cognitive-behavioral therapy, shows unacceptably low response rates (Loerinc et al., 2015). Thus, it is crucial to improve outcomes. A better understanding of avoidance, a prominent feature of anxiety disorders (American Psychiatric Association, 2013), may lead to the development of more effective treatments.

Avoidance impairs general functioning (for a detailed discussion, see Salters-Pedneault, Tull, & Roemer, 2004). This impairment may be an important impetus for treatment seeking (Dymond & Roche, 2009), because avoidance often interferes with important life goals. For example, an individual who avoids public speaking might fail to achieve a much-aspired promotion because of not being noticed in meetings. Experimental studies have indeed shown that individuals with anxiety disorders will exhibit avoidance behaviors even if they are associated with significant costs or loss of gains (Pittig, Alpers, Niles, & Craske, 2015; Pittig, Brand, Pawlikowski, & Alpers, 2014). In addition, avoidance can inhibit

the learning of more adaptive behaviors (Hayes & Wilson, 1994) and render individuals more susceptible to further anxiety (Craske, Miller, Rotunda, & Barlow, 1990). To alleviate the burden associated with anxiety, it is therefore important that treatments reduce maladaptive avoidance.

The extent to which certain behaviors represent maladaptive avoidance rather than adaptive coping (Thwaites & Freeston, 2005) is unclear. However, even subtle avoidance behaviors may have a detrimental effect on treatment outcome, by preventing new learning that the fear for a given object or situation is unwarranted (e.g., that one will not be laughed at after a presentation or embarrass oneself in a social situation) (e.g., Engelhard, van den Hout, Kindt, Arntz, & Schouten, 2003; Lovibond, Mitchell, Minard, Brady, & Menzies, 2009). Therefore, even in treatments where individuals are allowed to engage in some avoidance, they are encouraged to decrease its use over time and ultimately eliminate avoidance behaviors altogether (for review, see Piccirillo, Taylor Dryman, & Heimberg, 2015). Considering the importance of avoidance, its increased understanding should help improve treatment outcomes.

In the present paper, we first provide a comprehensive definition of avoidance that encompasses the different types of avoidance behaviors observed in anxiety and specify what would categorize avoidance as maladaptive. We then propose several pathways that

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may be involved in the development of avoidance in anxiety, based on recent empirical evidence. In closing, we discuss possible strategies for diminishing excessive avoidance specifically. The goal of this review is thus to present an integrated overview of recent empirical findings about avoidance, initiate new ways of theorizing about the phenomenon and instigate new lines of research.

1. Definition of avoidance

The term *avoidance* is widely used, often without a clear definition (Lang & Bradley, 2013; Lovibond, 2006). Avoidance in anxiety can take many forms, with varying levels of subtlety. For example, an individual with agoraphobia might remain inside most of the time, or promptly return to a "safe" room after greeting someone at the front door. These behaviors clearly maintain or increase the *temporal or physical* distance between the feared situation and the individual. Another individual might leave the house only when accompanied by a friend or when carrying anti-anxiety medication. The latter behaviors can be called *safety behaviors*, or actions that increase perceptions of safety (Thwaites & Freeston, 2005) by increasing *psychological* distance between the individual and the feared consequence. We propose that it is precisely the regulation of distance, physical as well as psychological, that is the crucial element of avoidance.

Similarly, in literature on animal defensive responding, the physical or psychological distance from threat (termed *predatory* [*threat*] *imminence*) is regarded as the most important factor for the selection of the appropriate form of defense (Fanselow & Lester, 1988). In the threat imminence model, physical distance is determined by the temporal and geographic position of the predator, relative to the prey, and psychological distance is determined by the type of predator and the direction of its movement.

Diagnostic definitions of avoidance also emphasize the distance from threat and threat signals and define avoidance as: "the act of keeping away from stress-related circumstances: a tendency to circumvent cues, activities and situations that remind the individual of a stressful event experienced" (DSM-5; American Psychiatric Association, 2013). The DSM-5 diagnostic criterion of avoidance for most anxiety disorders further clarifies that if a threatening or stressful stimulus is not actively avoided, it is endured with significant distress (American Psychiatric Association, 2013). This endurance is usually accompanied by safety behaviors. Lastly, distance regulation is also prominent in some dictionary definitions of avoidance, that describe avoidance as "to stay away from someone or something, or not use something" ("Avoid", 2014), for instance.

Clearly, these definitions share the idea that avoidance serves to maintain or increase the distance of the agent from threats. Thus, we propose the following definition of avoidance: "any covert or overt action that functions to create, increase or maintain physical (spatial or temporal) or psychological distance between the agent and perceived or actual threat."

We define avoidance to include actions that increase psychological distance without affecting physical distance. Psychological distance for humans might include many more features than those proposed for animals (i.e. type of predator and direction of movement, Fanselow & Lester, 1988). Potentially relevant factors include predictability of the negative consequence (Davies & Craske, 2015) and the perceived cost of the outcome (Berenbaum, 2010). The various appraisal components outlined in Scherer's model of emotions (e.g., 2009) (e.g., outcome probability, discrepancy from expectations, urgency, agent and intentions, and control) might also be important in determining psychological distance. It is possible that the estimations of physical and psychological distance are positively correlated, but under certain circumstances this might not be the case. One tentative description of the relationship

between the two concepts can be found in the construal level theory of Trope and Liberman (Trope & Liberman, 2010; Trope, Liberman, & Wakslak, 2007), in which psychological distance includes both physical properties of the stimulus (e.g., time and space) and psychological concepts (social distance and hypotheticality).

Further, we operationalize *threat* as any object, person or event (internal or external) that might endanger one's physical health (e.g., a weapon that can inflict wounds) or psychological well-being (e.g., an event that can lead to financial losses and disappointment). We thus capture the various types of avoidance observed in clinical samples, such as staying away from feared objects in specific phobia, overly preparing for social interactions in social anxiety, avoiding reminders of trauma in post-traumatic stress disorder, engaging in worry in generalized anxiety and compulsive checking in obsessive-compulsive disorder, for example.

Unlike early analyses of avoidance (e.g., Miller, 1941; Mowrer, 1939), our definition does not refer to the reinforcement of the avoidance response. In earlier models, avoidance was regarded as a behavior that was reinforced by the termination of a warning signal (i.e., a conditional stimulus, CS, such as a neutral tone) that preceded the occurrence of an aversive event (e.g., Mowrer, 1939). The term escape referred specifically to an action that terminated an actual aversive event (an unconditional stimulus, US) following its onset (Lovibond, 2006; Mowrer, 1939). Thus, avoidance in early learning theory was defined as a response that serves to prevent an unpleasant event (i.e., an unconditional stimulus, US, such as an electric shock) from occurring in the future (Lovibond, 2006). However, subsequent animal research by Bolles (1970) showed that termination contingencies play but a minimal role in motivating defensive behavior, including avoidance, thus undermining the idea that instrumental learning (acquiring the knowledge that a specific action has a particular outcome) is crucial for the acquisition of avoidance (see Krypotos, Effting, Kindt, & Beckers, 2015 for related evidence in humans). Accordingly, we maintain that avoidance behaviors in clinical anxiety need not be instrumental in nature.

Even though avoidance is an evolutionary adaptive response to threats, avoidance in anxiety can become excessive and thus maladaptive. However, a clear definition of what constitutes maladaptive avoidance has not been provided so far. Such definition is required if one wants to make the distinction between a healthy coping mechanism and a potential symptom of an anxiety disorder. Thus, we propose the following definition of maladaptive avoidance: "execution of repetitive avoidance, which a) limits daily activities and impairs general functioning; b) can be provoked by stimuli, which do not pose any objective threat to the individual's health or well-being; c) is associated with a high level of distress." It is important to emphasize that according to our definition, avoidance can be deemed maladaptive, only if at least one of the conditions in the definition is met and when avoidance occurs on a regular rather than on a one-off basis.

2. Pathways of avoidance proliferation

After decades of a relative neglect, experimental psychopathology research has recently began paying increased attention to avoidance (Krypotos, Effting, et al., 2015; Servatius, 2016). Significant strides have been made towards better understanding the learning of avoidance (for a review, see Krypotos, Effting, et al., 2015) as well as the ways in which the avoidance behavior of individuals with clinical anxiety differs from that of healthy controls. In this section, we review recent scientific advances regarding the mechanisms underlying aberrant avoidance patterns in individuals with high levels of anxiety or a diagnosis of anxiety disorder. Based

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