Behaviour Research and Therapy 93 (2017) 104–115

Contents lists available at ScienceDirect

Behaviour Research and Therapy

journal homepage: www.elsevier.com/locate/brat

Attentional focus during exposure in spider phobia: The effect of valence and schematicity of a partial distractor

Vincent Dethier*, Pierre Philippot

Laboratory for Experimental Psychopathology, Psychological Science Research Institute, Université catholique de Louvain, 10 Place du Cardinal Mercier, B-1348, Louvain-la-Neuve, Belgium

ARTICLE INFO

Article history:
Received 23 June 2016
Received in revised form
21 March 2017
Accepted 27 March 2017
Available online 28 March 2017

Keywords:
Distraction
Attentional focus
Exposure therapy
Spider phobia
Schematicity
Valence

ABSTRACT

This study examines the impact of partial distractor valence and schematicity (i.e., their relation to fear representation) on exposure efficacy. One hundred forty-one spider phobics were exposed to spider pictures and asked, in a between-subjects experimental design, to form mental images of words that were fear related (to spiders) and negative (schematic negative), fear unrelated and negative (non-schematic negative) or fear unrelated and positive (non-schematic positive). Multilevel measures of anxiety were performed at pre-exposure, post-exposure and 6 days' follow-up. Results show that both of the negative condition groups displayed similar results on all outcome variables and systematically differed from the positive condition group. While the latter group displayed a stronger decline in distress during exposure itself, the other groups showed greater exposure benefits: a stronger decline in emotional and avoidance responses and skin conductance responses from pre- to post-exposure and more approach behaviours when confronted with a real spider. The critical feature of distraction thus seems not to be the fact of being distracted from the phobic stimulus, but rather the fact of performing emotional avoidance by distracting oneself from negative affect. The results highlight that the acceptance of aversive emotional states is a critical active process in successful exposure.

1. Introduction

Exposure therapy consists of repeated confrontation with a feared stimulus. Despite the well-recognized and demonstrated efficacy of this therapy in the treatment of anxiety disorders (Barlow, 2002; Wolitzky-Taylor, Horowitz, Powers, & Telch, 2008), uncertainty still abounds regarding the optimization of its clinical implementation. More particularly, the role of attentional focus during exposure remains unsettled, the beneficial effect of partial distraction being under debate (Podină, Koster, Philippot, Dethier, & David, 2013). Indeed, previous studies investigating this question have yielded contradictory results: Some favour partial distraction (Johnstone & Page, 2004; Oliver & Page, 2003, 2008; Penfold & Page, 1999), some are against distraction (Grayson, Foa, & Steketee, 1982; Haw & Dickerson, 1998; Kamphuis & Telch, 2000; Mohlman & Zinbarg, 2000; Raes, De Raedt, Verschuere, & De Houwer, 2009) and others show no evidence of any significant impact of distraction (Antony, McCabe, Leeuw, Sano, & Swinson, 2001; Rose & Dudley McGlynn, 1997; Telch et al., 2004). These inconsistent results might be related to the current lack of precise conceptualization of distraction during exposure and of its underlying processes. It is thus crucial to examine which dimensions of distraction are posed as determinant by theoretical models and what their predictions are regarding exposure efficacy.

According to the emotional processing theory (Foa & Kozak, 1986), emotional processing, considered as a central mechanism for exposure efficacy, requires attention to be focused on threat elements during exposure. More particularly, it requires the activation of the fear schema, i.e., a memory network that includes information about (a) stimuli defining a feared situation, (b) responses in that situation and (c) the meaning of these stimuli. The fear schema is aroused by the activation of some of its elements, this activation then spreading towards other elements of the schema. In regard to distraction, emotional processing theory states

Abbreviations: BAT, Behavioural Avoidance Task; CS, conditioned stimulus; FSQ, Fear of Spiders Questionnaire; HR, heart rate; nSch−, non-schematic negative condition; nSch+, non-schematic positive condition; Sch−, schematic negative condition; SC, skin conductance; SCRs, skin conductance responses; SES, Self-Efficacy Scale; STAI-T, State-Trait Anxiety Inventory; SUD, subjective units of distress; US, unconditioned stimulus; VVIQ, Visual Vividness Imagery Questionnaire.

* Corresponding author.
E-mail address: vincent.dethier@uclouvain.be (V. Dethier).

http://dx.doi.org/10.1016/j.brat.2017.03.013
0005-7967/

that paying attention to elements that are not part of the fear schema regardless of their valence impedes emotional processing and, consequently, reduces exposure efficacy. Attention should be focused only on information related to the fear schema. The emotional processing theory is thus clearly against distraction during exposure. In the same vein, the inhibitory learning approach (Craske, Treanor, Conway, Zbozinek, & Vervliet, 2014; Craske et al., 2008) considers distraction to be detrimental to exposure. This approach states that successful exposure is not the result of the removal of the original association between the conditioned stimulus (CS) and the unconditioned stimulus (US). Rather, it is best explained by inhibitory learning (Bouton, 1993), that is, the creation of a secondary association that competes with the original association (the CS no longer predicts the US). By reducing the awareness of the relationship between the CS and the absence of US, distraction may hinder expectancy violation and therefore inhibitory learning.

An alternative account of exposure is based on the concept of self-efficacy (Bandura, 1988) or perceived control (Mineka & Thomas, 1999). The aim of exposure is to enhance the belief of phobics in their ability to overcome aversive situations. Learning an effective coping response would thus enhance exposure efficacy. From this perspective, distress during exposure should be maintained at a sustainable level—an aim that partial distraction helps to reach. Distraction during exposure, with neutral or positive material, would reduce distress, allowing participants to sustain the phobogenic situation and consequently to restore their sense of self-efficacy (Johnstone & Page, 2004; Oliver & Page, 2003, 2008; Penfold & Page, 1999). McNally (2007) suggested that the effect of distraction may vary as a function of the current level of fear. Distraction would be more beneficial if fear is above an optimal level, that is, by reducing fear to an intensity that the individual can tolerate and/or regulate. Those views are congruent with another claim that presenting the feared object simultaneously with positive stimuli may yield an affective valence change for the feared object (De Jong, Vorage & Van Den Hout, 2000).

At least two important dimensions of potential distractors emerge from these models: schematicity and valence. Schematicity refers to the extent to which a stimulus is related to the fear schema. For example, for a spider phobic, the word “bite” is strongly related to the fear schema (“schematic element”), whereas the word “bill” is relatively unrelated to the fear schema (“non-schematic element”). Regarding valence, in the emotion appraisal theory (Scherer, 2001), valence appraisal refers to the evaluation of whether a stimulus is likely to result in pleasure or pain. This evaluation leads to distinct emotions and action tendencies: approach when the stimuli is judged as positive and avoidance when the stimulus is judged as repulsive.

The importance of schematicity is supported by preliminary evidence. Dethier, Bruneau, and Philippot (2015) directly manipulated the schematicity of the concepts activated during exposure. Spider phobics were exposed to pictures of spiders and concurrently asked to form mental images of concepts associated or not with the fear schema (schematic and non-schematic elements, respectively). The results demonstrated that the activation of non-schematic concepts during exposure leads to a return of distress at follow-up, whereas the activation of schematic concepts during exposure leads to a decrease of emotional and avoidance responses at follow-up.

One limit of this study and of the other studies on distraction, however, is that valence was not controlled for. In Dethier et al.’s (2015) study, the words used in both sets (schematic vs. non-schematic) might have differed in terms of pleasantness. Schematic words such as “bite”, “fear” or “spider” lead to a more negative judgment than do non-schematic words such as “candle”, “pen” or “interest” and therefore induce different emotions and subsequent action tendencies (approach vs. avoidance) during exposure. In previous studies, distraction has been operationalized with considerable variations in regard to valence. In some studies, distraction was positive, i.e., playing games with the therapist (Grayson et al., 1982; Schmid-Leuz, Elsesser, Lohrmann, Jöhren, & Sartory, 2007) or listening to audio excerpts chosen for their intrinsic interest value (Craske, Street, Jayaraman, & Barlow, 1991). In a study by Rodriguez and Craske (1995), distraction involved both positive and negative slides projected on the wall in the high distraction condition and neutral slides in the low distraction condition. Telch et al. (2004) used neutral words and images. In other studies, the valence was not determined: the presentation of a printed word next to the picture (Haw & Dickerson, 1998) and listening to an audiotape about leadership and goal setting (Rose & Dudley McGlynn, 1997). Finally, in some studies, distraction was considered neutral but could potentially be positive: conversations about future plans, studies and leisure activities (Johnstone & Page, 2004; Oliver & Page, 2003, 2008; Penfold & Page, 1999). Therefore, we cannot exclude the possibility that mood induction was part of the effects attributed to distraction. To our knowledge, no study has directly manipulated the valence of the distractor by comparing negative and positive distraction during exposure.

Beyond the schematicity and valence of the distractors, an important caveat is the control of participants’ attentional focus during exposure. Indeed, most studies used partial distraction (i.e., divided attention between the phobic object and the distractor), but none controlled attention allocation towards the phobic object, assuming that it would automatically capture attention. This consideration is particularly important because the affective priming effect depends upon the explicit evaluation required by a task (Spruyt, De Houwer, & Hermans, 2009). In conclusion, studies investigating partial distraction during exposure should check whether explicitly identifying the phobic stimulus matters or not.

In view of these unexplored issues, in the present study, we examined the respective impact of partial distractor valence and schematicity on exposure efficacy while controlling for explicit processing of the phobic stimuli. Two sessions of exposure were given to spider phobics 6 days apart. During exposure, the nature of the partial distractor was manipulated in terms of schematicity and valence. There were three conditions: schematic negative (Sch−), non-schematic negative (nSch−) and non-schematic positive (nSch+). In order to check whether it matters that phobic stimuli are processed explicitly, we also manipulated the explicit versus implicit nature of the processing: Some participants performed the task while explicitly identifying the phobic stimuli (i.e., pressing a key only when a spider picture is presented) and others without explicitly identifying the phobic stimuli (i.e., pressing a key at each stimulus presentation). No differences between these types of processing in their effect on exposure were expected if phobic stimuli are automatically processed. Multimodal measures of exposure were recorded at pre- and post-exposure. We hypothesized that, if schematicity is the determining factor, the Sch− group would differ from both the nSch− and the nSch + group in terms of efficacy. Conversely, if valence is the most relevant factor, both the Sch− and the nSch− group would differ from the nSch + group in terms of efficacy.

2. Method

2.1. Participants

Participants were recruited through announcements on posters, in electronic mail, in a popular magazine and on social networks. The volunteers who scored over 4 (out of 7) on the Fear of Spiders