



Investigation of implicit avoidance of displacement-related stimuli in offspring of trauma exposed, forcibly-displaced individuals



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ABSTRACT

There is an ongoing debate as to whether traumatization also affects the close relatives of trauma survivors who have symptoms of PTSD. Although many studies provide evidence favoring a transgenerational transmission, other studies have not found evidence to support this idea. The present study examined whether adult offspring of individuals exposed to trauma during forced displacement with ($n = 22$) and without PTSD ($n = 24$) exhibit an *implicit* avoidance of stimuli related to the parental trauma compared to children of non-trauma exposed control participants ($n = 23$) using an Approach-Avoidance task (AAT). Offspring participants were requested to push (i.e., avoidance) or pull (i.e., approach) displacement-related and neutral pictures, whereby response direction depended on a non-affective dimension (color of the pictures). Results suggest that the offspring of non-PTSD participants exhibit implicit avoidance of displacement-related stimuli. This rather unexpected finding might either indicate resilience amongst offspring of PTSD participants or that offspring of non-PTSD participants are particularly affected. If these results were to replicate, they suggest that implicit avoidance tendencies amongst the offspring of trauma exposed participants might partially contribute to their heightened PTSD vulnerability. Longitudinal studies are needed to elucidate whether implicit avoidance tendencies are associated with increased stress vulnerability.

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1. Introduction

Understanding whether parental posttraumatic stress disorder (PTSD) compromises mental health or even leads to psychological problems in the next generation is of great importance, as armed conflicts have led to the highest number of forcibly displaced people over the past few decades, and children (<18 years) constitute about 50% of those affected (United Nations High Commissioner for Refugees [UNHCR], 2015). Evidence for transgenerational transmission has been found in studies examining offspring of Holocaust survivors (e.g., Yehuda, Bell, Bierer, & Schmeidler, 2008; Yehuda, Halligan, & Bierer, 2001), Vietnam veterans (e.g., Dinshtein, Dekel, & Polliack, 2011; Galovski & Lyons, 2004), and refugees (e.g., Daud, Skoglund, & Rydelius, 2005). Data also suggest that parental PTSD is associated with an increased risk for mental disorders, especially PTSD and depressive symptoms, amongst offspring (e.g.,

Baider, Goldzweig, Ever-Hadani, & Peretz, 2006; Baider et al., 2000). In contrast, several well-designed, population-based studies did not find evidence for increased psychopathology in the second generation (Fridman, Bakermans-Kranenburg, Sagi-Schwartz, & Van Ijzendoorn, 2011; Levav, Levinson, Radomislensky, Shemesh, & Kohn, 2007; Van Ijzendoorn, Bakermans-Kranenburg, & Sagi-Schwartz, 2003). These inconsistent findings might, amongst other reasons, result from recruitment strategies (selected [e.g., recruitment through advertisement, personal contacts] vs. non-selected samples [e.g., recruitment through random sampling, population registry], Van Ijzendoorn et al., 2003), sampling biases (clinical vs. non-clinical samples, Van Ijzendoorn et al., 2003), “dose effects” (e.g., one vs. both parent(s) suffering from PTSD, Van Ijzendoorn et al., 2003), parental PTSD status (trauma exposure vs. PTSD, e.g., Motta, Joseph, Rose, Suozzi, & Leiderman, 1997; Wittekind, Jelinek, Kellner, Moritz, & Muhtz, 2010), parental gender (e.g., Yehuda et al., 2008), trauma population under investigation (offspring of Holocaust survivors, combat veterans, refugee populations), or psychopathology in offspring (posttraumatic stress symptoms vs. other problems, for further differences see Leen-Feldner et al., 2013).

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A further inconsistency, and one limitation of previous studies investigating transgenerational effects, is the reliance on self-report measures that commonly assess specific, consciously accessible PTSD criteria (i.e., intrusions, avoidance, negative alterations in cognitions and mood, hyperarousal; American Psychiatric Association [APA], 2013). However, PTSD is also associated with other cognitive changes including differences in information processing biases (e.g., Constans, 2005; McNally, 2006) that are ascribed an important role in its pathogenesis (e.g., Ehlers & Clark, 2000; Foa, Huppert, & Cahill, 2006). For example, there is ample evidence that trauma survivors with PTSD show attentional biases for trauma-related stimuli (e.g., Cisler et al., 2011; Constans, 2005). However, hardly any studies have assessed whether information processing biases are “transmitted” from parent(s) to child(ren), although there is reason to believe that these biases can be acquired by children (for review see Field & Lester, 2010).

1.1. Acquisition and transmission of information-processing biases

Field and Lester (2010) summarized several studies investigating acquisition of biased information-processing and concluded that children can “learn” information processing biases, for example, by being provided with negative information or through vicarious learning. Field and Lester suggest that parents might act as a “trainer” inducing information processing in their children by “. . .the provision of cues to threat and feedback on their cognitions and behaviors that act in a manner similar to cognitive bias modification” (p. 260). For example, in one study (Field & Lawson, 2003) children were given either positive, negative, or no information about unknown animals. Not only did negative information about the animal lead to an increase in fear beliefs, but in addition children who were given negative information approached a box containing the respective animal more slowly. Furthermore, attentional biases towards an unknown animal were induced by providing negative verbal information about the respective animal (Field, 2006). Regarding vicarious learning, Askew and Field (2007) presented children pictures of animals that were either paired with a frightened, a happy, or no face. Children showed an increase in fear beliefs and slowed approach behavior when the animal was paired with a feared face.

To summarize, it is conceivable that children of trauma exposed parents acquire information processing biases by being exposed to, for example, negative or fearful reports about the traumatic event or trauma-related stimuli. So far, attentional biases towards trauma-related stimuli have been investigated in offspring of trauma exposed individuals using an emotional Stroop task with offspring of Vietnam veterans (Moradi, Neshat-Doost, Taghavi, & Dalgleish, 1999; Motta et al., 1997; Suozzi & Motta, 2004), as well as with offspring of early trauma exposed, displaced individuals (Wittekind et al., 2010). Evidence for attentional biases in children of trauma exposed individuals was found only in samples of Vietnam veterans (Moradi et al., 1999; Motta et al., 1997; Suozzi & Motta, 2004). Methodological differences and limitations (e.g., parental trauma vs. PTSD; no verification of parental trauma/PTSD; different trauma populations) constrain interpretability and generalizability of the findings. Furthermore, and to the best of our knowledge, no study has assessed whether other types of biases, for example, avoidance of stimuli related to the parental trauma, are also present in the offspring.

1.2. The present study

To extend previous studies on the transgenerational transmission of information processing biases, we used the Approach-Avoidance Task (AAT, Rinck & Becker, 2007) to assess whether

children of trauma exposed individuals due to displacement during or at the end of World War II (WWII) showed implicit avoidance of displacement-related stimuli. The AAT was developed to specifically assess behavioral tendencies implicitly (Rinck & Becker, 2007). It is based on the well-established finding that stimulus valence and immediate behavioral tendencies are associated such that positive stimuli activate behavioral approach and negative stimuli activate behavioral avoidance tendencies (e.g., Chen & Bargh, 1999; Neumann, Förster, & Strack, 2003). In the task, pictures or words of varying emotional valence are presented on a computer screen and participants are instructed to respond to the stimuli by pulling or pushing a joystick connected to the computer. Reaction times for the push and pull movements are used as the primary dependent variable (Rinck & Becker, 2007). Thereby, the AAT measures behavioral tendencies by means of arm movements with avoidance being characterized by faster pushing than pulling and approach by faster pulling than pushing (e.g., Chen & Bargh, 1999). Mostly, participants are instructed to respond to a non-affective dimension of the pictures (e.g., format or color), not the content. Although it remains arguable whether the affective valence of the stimuli is indeed processed non-consciously, the AAT is implicit in the sense that participants are not fully aware that reaction times of arm movements are influenced by the affective valence of the stimuli (Rotteveel & Phaf, 2004).

As fear information is one means by which fear can be acquired (Rachman, 1977), and it has been shown that negative information can lead to an increase in (implicit) avoidance (see 1.1), it is conceivable that children of trauma exposed individuals acquire negative fear beliefs and expectancies for stimuli that are related to the parental trauma due to negative reports about the event. For example, a parent who had experienced a violent assault might teach his/her child that other people are untrustworthy, which, in turn, might result in negative expectancies about and (implicit) avoidance of unknown people in the child. If the child was to experience a similar traumatic event him-/herself, the negative expectation might increase the conditioned fear response (e.g., Davey, 1997). As a consequence, avoidance might also be more pronounced and as avoidance of trauma-related stimuli constitutes a risk factor for the development of PTSD (Ehlers & Clark, 2000; Foa et al., 2006), the presence of implicit avoidance of trauma-related stimuli in children of trauma exposed individuals might constitute a risk factor when confronted with a similar traumatic event. In previous studies on attentional biases, group allocation was based on either parental trauma exposure or PTSD. In consequence, it remains unclear whether parental trauma exposure or PTSD represents the critical condition. To address this open question, we recruited offspring of trauma exposed individuals with and without PTSD, and compared them to offspring of non-trauma exposed healthy controls. We hypothesized that offspring of trauma exposed individuals would exhibit stronger implicit avoidance of displacement-related stimuli compared to offspring of non-displaced, non-trauma exposed healthy controls. We did not have a specific hypothesis as to whether the offspring of PTSD and non-PTSD participants would differ.

2. Method

2.1. Participants

A total of 50 individuals (born between 1932 and 1941) subjected to forced displacement from the former Eastern territories of Germany were recruited between 2010 and 2012. Our recruitment strategy aimed to reach a sample of those individuals personally affected by displacement after WWII, that is, the parental generations. These were recruited by means of a database built up in

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