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Adult attachment orientation and automatic processing of emotional information on a semantic level: A masked affective priming study

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ABSTRACT

Early adverse social experiences leading to attachment insecurity could cause heightened sensitivity to emotional information. Automatic processing of emotional stimuli conveys information about positive–negative differentiation and the so-called *possessor* vs. *other-relevance* of valence. The aim of the present study was to examine automatic processing of emotional and relevance type information on a semantic level as a function of adult attachment avoidance and anxiety. A masked affective priming task, varying valence and relevance of prime and target adjectives, was presented to a sample of 153 healthy adults. *The Experiences in Close Relationships* scale was administered to assess attachment orientation. Significant priming effects for valence and relevance were observed. Attachment avoidance, but not attachment anxiety, was significantly related to affective priming independently of trait anxiety and depression. Specifically, attachment avoidance was found to be related to affective priming effects based on other-relevant words. It can be concluded that automatic processing of emotional adjectives used to characterize safe or risky social environments is heightened in avoidant individuals. The avoidantly attached processing style has similarities with repressive coping, which is characterized by an enhanced early response to emotion stimuli followed by avoidant biases at a controlled processing level.

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1. Introduction

According to attachment theory, human beings are born with an innate psychobiological system, the *attachment behavioral system*, which motivates them to seek proximity to significant others in times of danger, stress, and novelty (Bowlby, 1969). Proximity seeking is the primary attachment strategy to achieve security. There exist important individual differences in attachment system functioning depending on the availability, responsiveness, and supportiveness of attachment figures (Shaver and Mikulincer, 2007). A series of negative experiences with caregivers can force children to adopt secondary attachment strategies – hyperactivation and/ or deactivation (Mikulincer and Shaver, 2007). Hyperactivating strategies include efforts to attain proximity, distress exacerbation, rumination on negative thoughts and high sensitivity to signs of rejection. Deactivating strategies comprise distancing of attachment and threat contexts, suppression of negative emotions, and striving for personal strength (Shaver and Mikulincer, 2002). It is assumed that infants form very early internal working models of the self and others mainly through emotional interactions with primary caregivers (Pietromonaco and Barrett, 2000). The resulting internal working models are not necessarily accessible to consciousness as they become habitual and work automatically (Bretherton and Munholland, 1999).

Individual differences in attachment orientation can be measured along two rather orthogonal dimensions: attachment-related anxiety and avoidance (Mikulincer and Shaver, 2007). Hyperactivating and deactivating strategies are thought to underlie the two major attachment-style dimensions (Mikulincer and Shaver, 2003). Attachment anxiety includes a strong desire for safety and closeness and intense worries about availability and responsiveness of partners (Fraley and Shaver, 2000). Individuals high on attachment anxiety seem to activate their attachment behavioral system easily, which is associated with a tendency for high emotional reactivity (Pietromonaco et al., 2006). Chronic reliance on hyperactivating strategies places anxiously-attached individuals at risk for affective problems and adjustment problems (Mikulincer and Shaver, 2007).

Attachment-related avoidance corresponds to tendencies to use avoidant or dismissing strategies to regulate attachment-related behaviors and thoughts. Individuals high on avoidant attachment withdraw from close relationships and are unwilling to trust or rely on others, whereas individuals low on avoidant attachment are comfortable opening up to others and relying on

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others as a secure base. Individuals high on attachment avoidance seem to deactivate their attachment behavioral system, which is associated with a down-regulation of emotions and a low intensity of emotionality at a controlled processing level (Pietromonaco et al., 2006). Securely attached adults have unambiguously positive models of others, enjoy intimate relationships, and seek out social support (Bartholomew and Shaver, 1998).

Recent findings indicate that perceptual vigilance for pictorial emotional stimuli seems to characterize anxious as well as avoidant individuals. Using movies of faces with emotional expressions, Niedenthal et al. (2002) found that both anxiously attached and avoidant individuals, as assessed by self-report, exhibit a vigilant perceptual style, whereas Fraley et al. (2006) reported evidence indicating heightened vigilance for the onset and offset of facial emotions only in anxiously attached individuals. Maier et al. (2005) administered an experimental task in which perceptual thresholds to different types of pictures were assessed and observed that affectively laden facial expressions, social interactions and animals were processed more quickly by individuals with an avoidant attachment orientation. In this study, anxious attachment was also related to vigilance to socio-emotional stimuli but to a lesser degree compared to avoidant attachment. Findings supporting vigilance for affective stimuli appear compatible with the idea that anxiously attached persons are characterized by hyperactivation of the attachment system involving excitatory circuits that increase vigilance to negative or threat-related cues (Fraley and Shaver, 2000).

Against the background of the prevailing theoretical framework, it is more difficult to explain the above-mentioned results suggesting vigilance for affective stimuli in avoidant attachment. Avoidantly attached individuals are thought to use deactivating strategies that implicate inhibition of appraisal and monitoring of negative or threatening stimuli (Mikulincer and Shaver, 2003, 2007). However, Maier et al. (2005) have argued that vigilance for negative information is a precondition for its successful avoidance. The processing style shown in avoidant attachment has similarities with repressive coping. According to the vigilance-avoidance theory of Derakshan et al. (2007) repressors have an initially rapid vigilant response. This initial stage is thought to be followed by an avoidance stage involving avoidant biases in interpretation and memory. Avoidantly attached individuals seem to resemble repressors as they suppress emotion-related thoughts and memories, divert attention from emotion-related material, and inhibit the expression of emotions (Shaver and Mikulincer, 2007).

Previous studies on attachment orientation and automatic information processing using priming techniques has focused, on the one hand, on subliminal affective priming with representations of attachment security. In the experiments of Mikulincer et al. (2001), it was shown that subliminal priming with secure base representations caused more positive evaluations of neutral stimuli than did subliminal priming with neutral primes or no pictures. However, in most experiments, no associations between secure base priming and attachment style were found (Mikulincer et al., 2001; see also Banse (1999) for similar findings). Moreover, it was observed that subliminal security priming led to better creative problem solving, but variations in dispositional attachment style did not influence these effects (Mikulincer et al., 2011). On the other hand, past research using priming paradigms has examined the effect of unconscious threat processing on the accessibility of mental representations of attachment figures. It was found that subliminal priming with a stress word leads to increased accessibility of proximity themes, regardless of attachment style (Mikulincer et al., 2000). Furthermore, threats automatically activated cognitive representations of attachment figures, and this activation differed as a function of attachment style. Attachment anxiety was found to increase the accessibility of representations of attachment figures, whereas attachment avoidance lowered this accessibility in an attachment-related context (Mikulincer et al., 2002). All in all, research using threat-related or security priming has provided limited evidence for associations with attachment orientation.

Little is known about the association of attachment orientation and automatic processing of lexical emotional information in general. To our knowledge, a sequential priming paradigm developed by Fazio et al. (1986) based on affective, non-attachment-related words has never been applied in attachment research. Affective priming refers to the phenomenon that processing of an emotional word (e.g., *friend*) is facilitated, that is, proceeds faster, when it is preceded by a prime word of the same valence (e.g., *summer*) rather than a prime word of the opposite valence (e.g., *war*) (Klauer and Musch, 2003). Affective priming effects contrast congruent (positive–positive and negative–negative) and incongruent (positive–negative and negative–positive) prime–target pairs and represent a measure of automatic evaluative processing (Greenwald et al., 1989; Draine and Greenwald, 1998). In the evaluative decision task, target words have to be evaluated as positive or negative.

Interestingly, automatic processing of affective stimuli conveys information about not only the positive–negative differentiation but also the so-called *relevance* of the valence. Peeters (1983, 1992) proposed a typology of valenced trait adjectives: the evaluation of a given trait depends on the perspective of the evaluator – whether they evaluate the trait primarily from the perspective of the trait-holder him/herself or from the perspective of someone who has to interact with the trait-holder. This typology was termed possessor- vs. other-relevance (Wentura et al., 2000). For example, being aggressive is primarily bad for the social environment of the aggressive person but not necessarily for the aggressive person. In comparison, being depressed is primarily bad for the depressed individual but not necessarily for his/her social environment. The same distinction can be applied to positive adjectives. Adjectives such as *aggressive* are called other-relevant, whereas words such as *depressed* are called possessor-relevant.

Wentura et al. (2000) provided the first evidence that this typology is relevant for automatic evaluation. They found that other-relevant stimuli increased color-naming times in the Emotional Stroop task compared to possessor-relevant words. Based on a masked priming paradigm Wentura and Degner (2010) showed that affective priming effects were moderated by the relevance distinction introduced by Peeters (1983). The results of Wentura and Degner confirm the assumption that other-relevant vs. possessor-relevant information is encoded at a very basic level of representation and involuntarily activated upon (masked) word presentation. The above-mentioned research suggests that the distinction of possessor-relevant and other-relevant valence is a deeply built-in feature of our affective-cognitive system. Wentura et al. (2000) argued that it is always important to know whether those around us behave in a way that is bad or good *for us* so that we can adapt our actions accordingly.

Using a masked affective priming paradigm, the present study investigated for the first time the relationship between adult attachment style and automatic processing of emotional and relevance information on a semantic level in a sample of healthy adults. Word stimuli were taken from Wentura and Degner (2010, study 2). Findings of recent studies suggest that attachment avoidance and attachment anxiety could be related to enhanced perception of emotional information (Niedenthal et al., 2002; Maier et al., 2005). Against this background, we hypothesized that attachment avoidance and attachment anxiety should be positively associated with the extent of affective priming. That is, it was assumed that insecure attachment orientations are related to an enhanced automatic processing of emotional information on a

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