Attentive processing of threat and adult attachment: A dot-probe study

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Abstract

We examined selective attention to threat stimuli as a function of individual differences in adult attachment. Participants completed a dot-probe task in which a general threat word, attachment-related threat word, general positive or attachment-related positive word was presented together with a neutral word. Results showed that attachment anxiety and avoidance were associated with an attentional bias away from attachment threat words. This attentional avoidance effect was best predicted by the interaction between attachment anxiety and avoidance and not by their unique main effects. The findings are discussed in terms of attachment theory and its relation to attentional biases observed in psychopathology.

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Introduction

Attachment processes in childhood are crucial for successful interpersonal functioning and negative experiences early in life have been linked to the development of emotional disorders (e.g. Besser & Priel, 2003; Carnelley, Pietromonaco, & Jaffe, 1994; Gross & Hen, 2004; Roberts, Gotlib, & Kassel, 1996). Unfortunately, it is not well understood how emotional disorders develop out of adverse attachment experiences in infancy. Although attachment theory may provide an important theoretical framework in this regard, it has been developed in relative isolation from theories on emotional disorders. Yet, many fundamental processes underlying the attachment behavioural system show similarities with the mechanisms assumed to underlie emotional disorders. An important assumption in attachment theory is that early attachment experiences translate into internal working models of self and other, which have been related to many essential intra- and interpersonal processes (see Pietromonaco & Feldman Barrett, 2000). These working models can be regarded as cognitive schemata that are developed in response to past experiences with primary caregivers and are thought to influence the individual’s thoughts, feelings and behaviour throughout the lifespan. Recent developments in attachment research have pointed to the crucial role of attachment in affect regulation and cognitive functioning through the selective processing of attachment-relevant information (Mikulincer &
In the present study, we investigate the impact of mental representations of attachment on the process of selective attention to threatening information because the latter is considered of importance in the development of emotional disorders (Mogg & Bradley, 1998). We start by presenting the main assumptions on the role of attention in attachment theory.

**Attachment Theory**

In his seminal work on attachment, Bowlby (1973, 1980, 1982) proposed that both children and adults have an innate attachment behavioural system that is manifested in seeking proximity to attachment figures in times of need. He postulated that threatening stimuli are highly potent cues in the activation of the attachment system and that the internal working models of attachment filter incoming, potentially threatening information by directing attention towards schema-congruent material (Mikulincer & Shaver, 2003). In addition to the selection of incoming information, attentional factors have also been linked to the regulation of the attachment system (Main, 1990). That is, by actively orienting to or avoiding attachment-relevant information one can magnify or reduce emotional experiences.

Beyond describing universal aspects of the attachment system, Bowlby (1973) also delineated individual differences in the functioning of the system, which can be traced back to early attachment processes. When faced with threat, one seeks for protection and support from someone who should function as a secure base. If these bids for care and protection are successfully met, a sense of security and safety is attained, allowing an open mind-set to explore the environment. This is part of the primary attachment strategy and is characteristic of securely attached individuals. However, when the attachment figure is perceived as being unavailable or unresponsive to one’s needs, no distress alleviation will be experienced and one will seek for alternative strategies to deal with feelings of distress. This will result in so-called hyperactivation or deactivation of the attachment system (Main, 1990) which corresponds with attachment anxiety and avoidance respectively (Brennan, Clark, & Shaver, 1998). Hyperactivating strategies are characterized by an excessive desire for closeness, preoccupation with cues of attachment figure’s unavailability, and amplification of threat appraisals, causing chronic activation of the attachment system. These strategies are a distinctive feature of anxiously attached individuals. In contrast, deactivating strategies include denial and inhibition of attachment needs, which results in deactivation of the attachment system and excessive self-reliance in coping with distress. Because any thoughts about threat might re-activate the attachment system, threatening cues are chronically being avoided. These strategies involve suppressive and repressive mechanisms that lead to the dismissal of threat—and attachment-related cues and are supposed to be typical for avoidantly attached individuals (Fraley & Shaver, 2000; Mikulincer & Shaver, 2003).

From this perspective, attachment styles can be viewed as organizational rules that guide responses to distress. Hence, individual differences in attachment strategies should be related to the way in which threatening information is processed.

**Attachment and Attention**

Evidence on the influence of attachment representations on attention allocation stems primarily from research into child attachment. Although attachment theory predicts vigilance to threat in anxious persons and avoidance of threat in avoidant persons, studies have demonstrated that in a distressing separation context, anxiously as well as avoidantly attached children, as measured by the strange situation procedure (Ainsworth, Blehar, Waters, & Wall, 1978), looked away from attachment-related pictures (Main, Kaplan, & Cassidy, 1985). Interestingly, when attachment-related positive, neutral, and threatening pictures were presented, only avoidant children were inclined to avoid positive as well as negative pictures (Kirsh & Cassidy, 1997). No significant attentional effects were found in the other attachment groups. A second study of Kirsh and Cassidy (1997) focused on selective attentional processing by showing two simultaneously presented drawings that denoted attachment-relevant positive information and attachment-irrelevant neutral information. Note that this study specifically focused on attachment versus non-attachment information instead of varying the valence of the stimuli. The results of this study indicated that both anxiously and avoidantly attached children avoid looking at attachment-related information. In general, the studies discussed here
reveal that insecurely attached children seem to process threatening information differently from secure children. However, no evidence was found for differential attentional processing in function of the specific type of attachment insecurity (i.e., anxious versus avoidant).

In the context of adult attachment, one study directly investigated the relation between attachment and anxiety on the one hand and attention allocation to threatening, positive, and neutral stimuli on the other hand (Zeijlmans Van Emmichoven, Van Ijzendoorn, de Ruiter, & Brosschot, 2003). Attentional bias was measured by an emotional Stroop task that was administered in a sample of anxiety disordered patients and a nonclinical sample. In brief, it was found that securely attached anxiety disordered patients showed a larger Stroop interference effect on threat words than insecure (anxious as well as avoidant) patients. This led the authors to conclude that secure individuals are more inclined to process threatening information than insecure patients who seem to ignore or avoid the threatening nature of the word stimuli. In the nonclinical group, insecure participants showed slower response latencies than secure ones, but none of the two attachment groups showed specific interference effects. As in child research, the results on attention in adults did not confirm the hypotheses derived from attachment theory, but indicated a general effect of attachment security versus insecurity on attentional processing.

One important reason for the absence of specific Stroop effects in the nonclinical group might be that the stimuli used in the research of Zeijlmans Van Emmichoven and colleagues (2003) did not specifically concern attachment-related information, but rather general threat words. In Beck’s view on cognitive processing (Beck, 1976; Beck, Emery, & Greenberg, 1985), attention allocation is related to the specific content of the stimuli, implying that people preferentially process personally relevant and schema-congruent information. A second remark on the aforementioned study concerns the use of the emotional Stroop task as a measure of attention allocation. Researchers have noted several interpretive difficulties with the Stroop task (summarized by Mogg et al., 2000). Most importantly, the Stroop effect might reflect an interruption effect or other task-irrelevant processes rather than attentional processing (de Ruiter & Brosschot, 1994). Moreover, it has been suggested that interference occurs at the level of response generation rather than attention allocation (Rosenfeld & Skogsberg, 2006). As such, interference in the Stroop task might indicate either vigilance towards threat or avoidance of threat, a distinction that could be crucial in investigating attentional biases as a function of secure versus insecure attachment. Therefore, it might be interesting to look at other paradigms that provide a less ambiguous measure of attentional processing such as for example the dot-probe task (see Bar-Haim, Lamy, Pergamin, Bakermans-Kranenburg, & Van Ijzendoorn, in press, for a review of differences between Stroop and dot probe). A final remark on the study of Zeijlmans Van Emmichoven and colleagues concerns their categorical approach to measure individual differences in attachment. By classifying participants into attachment categories, this study has only investigated the unique effects of the distinct attachment types on attention allocation, which opposes the dimensional approach on attachment (see Brennan et al., 1998). As such, the study can provide only a partial view on attentional processing in the context of attachment because the use of categories does not allow to test for interaction effects between anxiety and avoidance. In addition, Zeijlmans Van Emmichoven and colleagues adopted a developmental approach to attachment research by using the Adult Attachment Interview (AAI; George, Kaplan, & Main, 1985) to assess individual differences in attachment styles. The AAI focuses on attachment representations, defensive strategies and discourse properties and has been designed to measure working models of early child–parent relationships, not adult close relationships. As a result, this narrative approach clearly differs from self-report measures of attachment in both the conceptual and empirical sense (Shaver & Mikulincer, 2002). To our knowledge, no study to date has investigated attentional processing of threat stimuli in function of attachment styles as measured by a self-report questionnaire.

The Present Study

Taking into account the remarks mentioned above, we investigated selective attention for general as well as attachment-related threat words as a function of attachment style using the dot-probe task. We also included positive words in order to examine whether an attentional bias for threat would be specific to negative stimuli or would operate for emotional stimuli (i.e., positive and negative) in general. Attention for these words was examined using the dot-probe paradigm (MacLeod, Mathews, & Tata, 1986). On each trial, we presented two
words (one relevant, one neutral) simultaneously at two different spatial locations on a screen. Immediately after removing the words from the screen, a dot probe appeared at the location of one of the words. Participants were asked to respond as fast as possible to the location of the probe. Responding on trials where a probe was presented at the same location as a relevant (i.e., non-neutral) word (“congruent” trial) was compared with responding on trials were a probe was presented at the opposite location of a relevant word (“incongruent” trial). If individuals selectively attend to words of a particular category, responses will be faster when the probe follows at the location previously occupied by words from this category.

The Experiences in Close Relationships Scale revised (ECR-revised; Fraley, Waller, & Brennan, 2000) was used to measure the two dimensions assumed to underlie individual differences in attachment, that is, attachment anxiety and avoidance. This questionnaire evolved from the dimensional view on attachment and provides for each participant a score on both attachment dimensions, which enables to test the joint effect of attachment anxiety and avoidance on attention allocation. That is, it might be possible that the attentional avoidance effect that was found in insecurely attached children and adults is primarily an interactive function of both attachment anxiety and avoidance. No study to date has found the predicted vigilance-effect in anxiously attached individuals, but instead it has been found that anxious people show the same attentional pattern as avoidant people. Drawing on the latter findings, we consider that attentional avoidance to threat might be qualified by an interaction effect between attachment anxiety and avoidance. In previous studies on attachment and attention (e.g. Kirsh & Cassidy, 1997; Zeijlmans Van Emmichoven et al., 2003), this hypothesis could not be examined because participants were classified into one of three or four mutually exclusive attachment categories. We argue that in order to have a clear understanding on the dynamic functioning of the attachment system, it is necessary to investigate how the two attachment strategies of anxiety and avoidance operate in interaction with each other.

**Hypotheses**

Hypotheses from attachment theory are relatively straightforward: Anxious individuals will demonstrate an attentional bias towards (general as well as attachment-related) threatening information and avoidant individuals will direct attention away from threat. Previous research, however, indicates that both anxious and avoidant attachment are related to attentional avoidance of threat. In this study, we examined this differential prediction. In addition, we explored whether attentional bias to threat is an interactive function of both attachment anxiety and avoidance.

**Method**

**Participants**

Thirty-nine first year psychology students (32 women, 7 men) participated in the experiment as a part of their course requirements.

**Materials and Procedure**

The stimulus material for the dot-probe task comprised of 5 categories of words: 8 general threat words (e.g. death, dangerous, painful), 8 attachment-related threat words (e.g. separation, rejected, ignored), 8 general positive words (e.g. health, happy, satisfied), 8 attachment-related positive words (proximity, security, supporting) and 32 neutral words (e.g. furniture, universe, balanced). These words were drawn from attachment literature and previous research into anxiety-related attentional biases (e.g. Fox, 1993; Mogg, Bradley, Mathews, & Williams, 1993; Mogg, Bradley, & Williams, 1995). Each word was paired with a neutral word that was matched for both length and frequency (Hermans & De Houwer, 1994), to create 32 critical word pairs. Another set of 64 neutral words were paired to create 32 filler trials. The stimuli were presented in black uppercase letters in an Arial font with font size 38. The probe detection task was programmed and presented using the INQUISIT Milliseconds software package (INQUISIT 2.01, 2005) on a Pentium II
computer with a 15 inch colour monitor. Participants responded by pressing the q or m key on a standard AZERTY keyboard.

Attachment style was measured using the ECR-revised (Fraley et al., 2000). This questionnaire contains 36 relationship-related statements that refer to attachment anxiety and avoidance. Two attachment scores were computed by averaging the items on the two subscales. This questionnaire has proven to be internally consistent and adequate in terms of construct validity (Brennan et al., 1998). In the current sample, Cronbach alphas were high for the Anxiety subscale (α = .92) as well as for the Avoidance subscale (α = .89). As recommended, we asked our participants to fill in the questionnaire while holding their attachment figure in mind.

**Procedure.** After signing an informed consent form, participants were seated behind the computer at a distance of approximately 60 cm from the screen. Instructions on the computer screen informed them that they would perform a dot detection task. The task began with 10 practice trial, followed by 192 test trials. Each trial started with a fixation cross that was presented for 1000 ms in the middle of the screen. Then, a word pair appeared that remained visible for 500 ms. Words in each pair were presented one above the other at a distance of 5 cm above and below the centre of the screen. As the word pairs disappeared, a small dot-probe (5 mm diameter) replaced one of the two words and remained on the screen until participants responded. Participants had to indicate the probe location by pressing one of two buttons as quickly and accurately as possible on an AZERTY keyboard: the q key with the left index finger when the probe was presented at the upper location and the m key with the right index finger when the probe was presented at the lower location. Word pairs were presented in fully randomized order across trials and participants. The words as well as the dot probe were presented equally often at the top or bottom position of the screen and the dot-probe was equally likely to replace either a relevant or a neutral word. Each trial type was presented for 4 times and the inter-trial interval was set to 500 ms. The self-report questionnaires were administered after the dot-probe task.

**Results**

Latencies from trials with errors were removed (less than 3% in each condition) as well as reaction times (RTs) shorter than 200 ms or longer than 2000 ms, which were considered as outliers. Additionally, probe detection latencies that were three standard deviations above or below the individual mean were also excluded from statistical analyses (also see Koster, Crombez, Verschuere, & De Houwer, 2004).

Mean response latencies for each trial-type are presented in Table 1. A 4 (valence: general threat, attachment threat, general positive and attachment positive) × 2 (congruency: congruent, incongruent) repeated measures ANOVA did not reveal any significant effects (all F's < 1), suggesting that, overall, participants did not preferentially allocate attention towards certain stimulus categories.

Next, we investigated the correlations between anxious and avoidant attachment and the four attentional bias scores (general threat, attachment threat, general positive and attachment positive). These attentional bias scores were calculated by subtracting the average detection time on congruent trials from the average detection time on incongruent trials (see Bradley, Mogg, & Millar, 2000). Table 2 shows that attachment anxiety as well as attachment avoidance correlated significantly and negatively with the attentional bias score for attachment.

<table>
<thead>
<tr>
<th>Trial-type</th>
<th>Congruency</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>General threat</td>
<td>Congruent</td>
<td>365</td>
<td>49</td>
</tr>
<tr>
<td></td>
<td>Incongruent</td>
<td>363</td>
<td>42</td>
</tr>
<tr>
<td>Attachment-related threat</td>
<td>Congruent</td>
<td>368</td>
<td>47</td>
</tr>
<tr>
<td></td>
<td>Incongruent</td>
<td>363</td>
<td>44</td>
</tr>
<tr>
<td>General positive</td>
<td>Congruent</td>
<td>364</td>
<td>44</td>
</tr>
<tr>
<td></td>
<td>Incongruent</td>
<td>367</td>
<td>46</td>
</tr>
<tr>
<td>Attachment positive</td>
<td>Congruent</td>
<td>363</td>
<td>48</td>
</tr>
<tr>
<td></td>
<td>Incongruent</td>
<td>365</td>
<td>45</td>
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threat. Furthermore, the correlation between attachment anxiety and general threat almost reached significance. None of the other correlations were significant (all \( p' s > .10 \)).

In order to retain the full range of scores on the ECR, the effects of individual differences on attention were examined further using a regression approach. Multiple hierarchical regressions were performed on attentional bias scores for the four word types with the two attachment dimensions (anxiety and avoidance) as well as their interaction term entered as predictor variables. In the first step, attachment anxiety and attachment avoidance were introduced as predictors and their unique main effects were examined. In the second step, the multiplicative product of attachment anxiety and avoidance was introduced to assess the effect of their interaction while controlling for their main effects. Because the anxiety and avoidance subscales of the ECR were significantly correlated (\( r = .42, \, p < .01 \)), the predictor variables were centred to reduce possible problems of multicollinearity (see Aiken & West, 1991). Only the regressions conducted on the attachment bias for attachment threat words revealed significant effects, \( F(3, 38) = 5.63; \, p < .01 \). Specifically, the interaction term between attachment anxiety and attachment avoidance significantly predicted selective avoidance of attachment-related threat words, \( \beta = -.32, \, t(38) = -2.22, \, p < .05 \).\(^1\) Although the model with the two attachment dimensions as unique predictors was also significant overall, \( F(2, 38) = 5.39, \, p < .01 \), the main effects of attachment anxiety (\( \beta = -.29; \, p = .08 \)) and avoidance (\( \beta = -.28; \, p = .09 \)) were only marginally significant predictors of selective avoidance of attachment threat. In a post hoc probing procedure, the statistically significant interaction was interpreted by plotting regression lines for high and low values on both attachment dimensions (Aiken & West, 1991; Holmbeck, 2002). That is, we tested if the association between attachment anxiety and attentional avoidance of attachment threat words would be conditional on the values of avoidance and vice versa, which corresponds to conducting a moderation analysis (see Baron & Kenny, 1986). First, we plotted regression lines for high (+1 SD above the mean) and low (−1 SD above the mean) values of attachment anxiety (see Fig. 1). Significance test for slopes indicated that only the simple slope for the High avoidance regression line (\( \beta = -.65, \, p < .01 \)) was significant. The simple slope for the Low avoidance regression line (\( \beta = .08, \, p > .10 \)) was not significant, suggesting that attachment anxiety is significantly associated with attentional avoidance of attachment threat, only in interaction with high scores on attachment avoidance. As we already reported above, the interaction term between the predictor (i.e. attachment anxiety) and the moderator (i.e. attachment avoidance) was statistically significant, indicating that the two simple slopes for low and high values of attachment avoidance were significantly different from one another. We repeated these analyses, but this time with attachment anxiety as the moderator variable (see Fig. 2). Significance test for slopes indicated that only the simple slope for the High anxiety regression line (\( \beta = -.57, \, p < .01 \)) was significant. The simple slope for the Low anxiety regression line (\( \beta = .16, \, p > .10 \)) was not significant, suggesting that attachment avoidance is significantly associated with attentional avoidance of attachment threat, only in interaction with high scores on attachment anxiety. Again, because the interaction term between the predictor (i.e. attachment avoidance) and the moderator (i.e. attachment anxiety) was statistically significant, one can conclude that the two simple slopes for low and high values of attachment anxiety were significantly different from one another.

\(^1\)We also tested for the specificity of these effects by repeating the regression analyses on the attentional bias scores and adding trait anxiety—as measured by the STAI (Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983)—as an extra predictor beyond attachment anxiety, avoidance and their interaction term. This analysis revealed that trait anxiety was no significant predictor for selective attention to attachment threat, \( \beta = .08; \, p > .10 \), suggesting that trait anxiety cannot account for the obtained effects.

### Table 2

<table>
<thead>
<tr>
<th>Correlations between attentional bias and attachment dimensions as a function of trial type</th>
<th>Attachment anxiety</th>
<th>Attachment avoidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>General threat</td>
<td>−.31*</td>
<td>−.16</td>
</tr>
<tr>
<td>Attachment threat</td>
<td>−.41**</td>
<td>−.40**</td>
</tr>
<tr>
<td>General positive</td>
<td>.24</td>
<td>.10</td>
</tr>
<tr>
<td>Attachment positive</td>
<td>.25</td>
<td>.19</td>
</tr>
</tbody>
</table>

*\( p < .10 \), **\( p < .01 \)
The regressions with attentional bias for general threat stimuli as a dependent variable revealed no significant unique or interactive effects of attachment anxiety and avoidance, \( F(2, 38) = 1.90; p > .10 \) and \( F(3, 38) = 1.80; p > .10 \) respectively. Similarly, no significant unique or interactive effects of attachment anxiety and avoidance were found for the attentional bias for general positive and attachment positive words as a dependent variable (all \( F's < 1.5 \)).

**Discussion**

In the present study, we examined attention to threat stimuli in function of adult attachment. More specifically, we examined the main and interactive effects of attachment anxiety and avoidance on attention
towards positive and negative attachment-related and attachment-unrelated words. We found that (1) attachment anxiety and avoidance are associated with an attentional bias away from negative attachment-related words; (2) the best predictor of attentional avoidance was the interaction between attachment anxiety and avoidance; and (3) attentional avoidance effects were specific to attachment-related threat words. We will discuss each of these effects below.

Attachment theory predicts clear differentiated patterns of attentional bias for anxious versus avoidant individuals: High anxious individuals are assumed to be hypervigilant to threat, whereas avoidant individuals are assumed to avert their attention from threat (Mikulincer & Shaver, 2003). However, studies on attachment and attention in children and adults have largely failed to support these predictions (Kirsh & Cassidy, 1997; Main et al., 1985; Zeijlmans Van Emmichoven et al., 2003). In line with these previous studies, our data showed that attachment anxiety and avoidance yield similar response patterns in attentional processing, namely attentional avoidance of attachment threat. Hence, these data disconfirm the predicted response patterns in attentional processing of attachment-related threat.

Instead, multiple regressions showed that attentional avoidance of attachment-related threat was best predicted by the interaction between anxiety and avoidance. Whereas previous studies looked only at the main effects of anxiety and avoidance and found that both anxious and avoidant individuals display attentional avoidance of threat, the present study provided new information on this issue. We adopted a dimensional approach, which enables to test the joint effect of the two attachment dimensions on attention. The results of our slope analyses revealed that specifically the combination of high attachment anxiety and high attachment avoidance is associated with an avoidant attentional style.

An explanation for this finding may be found in the work of Bartholomew (1990). She noticed that the avoidant pattern of attachment conflated two distinct forms of avoidance, that is, fearful-avoidance and dismissive avoidance. Fearful attached individuals are supposed to display an avoidant pattern of attachment together with high levels of anxiety. People scoring high on attachment anxiety and avoidance are assumed to avoid attachment-related situations, not because of attachment system deactivation and the pursuit of self-reliance as is the case in dismissive individuals, but out of fear for the negative consequences of attachment (e.g. rejection, hurt). Hence, averting attention away from attachment threat stimuli might be a strategic attempt to alleviate the anxious mood state elicited by the aversive stimuli and thereby protecting themselves from painful memories of past attachment experiences (Main & Hesse, 1990). The latter idea bears many similarities to the vigilance-avoidance hypothesis that has been proposed in studies on trait anxiety. This theory holds that early vigilance to threat is followed by strategic avoidance of threat (Mogg & Bradley, 1998).

It is noteworthy that no study to date has found evidence of anxiously attached individuals turning attention toward (general or attachment-related) threat. Provided that vigilance to threat is an important prediction of attachment theory, this null finding should be explored further. Drawing on the idea that attentional vigilance occurs in early, automatic aspects of processing (see Mogg & Bradley, 1998), it is possible that the expected attentional bias effect in anxiously attached individuals may only be apparent at shorter stimulus durations. This hypothesis could be tested by examining the time-course of attention to threat (see Koster, Verschuere, Crombez, & Van Damme, 2005; Mogg, Bradley, Miles, & Dixon, 2004).

A closer look at the regression slopes also revealed that the low anxiety and low avoidance regression lines were both non-significant with regard to selective attention for attachment threat. This seems to suggest that low anxious-low avoidant (i.e. secure) people do not preferentially allocate attention towards attachment threat, in contrast with high anxious and high avoidant people who show an avoidant pattern of attention. Subsequent analyses supported the notion that insecure people tend to defensively exclude threatening words during the attentional stage of information processing. That is, when dividing our sample in a secure-insecure group (based on a median split), an independent sample t-test on the attentional bias scores for attachment threat yielded a significant difference between secure and insecure participants for attachment threat, with insecure ones being avoidant of attachment threat. This is consistent with previous research that has demonstrated differential attentional processing in function of secure versus insecure attachment (Kirsh & Cassidy, 1997; Zeijlmans Van Emmichoven et al., 2003).

In the present study, attentional bias effects emerged only for attachment-related threat. No effects emerged for general threat words or positive information. These results are compatible with Beck’s content-specificity hypothesis (1976) which states that attentional biases are more likely to appear for stimuli that are consistent
with the cognitive schemata that occupy the individual’s mind. Hence, the inclusion of stimuli that specifically concern attachment-related information seems essential for investigating attachment-related selective information processing. An additional explanation for the absence of attentional bias for general threat words could be that the word stimuli used in the present study did not elicit sufficient distress and anxiety to reveal the hypothesized attentional bias to threat. In fact, it has been argued that words are less powerful in attracting attention than threatening pictures (Kindt & Brosschot, 1997). Yet, our primary interest in attachment-specific threat urged us to use word stimuli because it is difficult to find pictures that explicitly represent negative attachment experiences.

Another two remarks can be made on the present study. First, it is worth noting that the two attachment dimensions of anxiety and avoidance as measured by the ECR were significantly related, which opposes the strong theoretical prediction that these two dimensions are orthogonal constructs (Bartholomew & Horowitz, 1991; see also Shaver & Mikulincer, 2002). Accordingly, careful attention was paid to control for possible implications of this finding in relation to our results. A second remark concerns the fact that our sample is skewed in terms of gender which did not allow us to investigate possible gender differences in the relation between attachment and attention. However, because we have found no differences regarding attachment style and attentional bias between the men and women included in our sample and because attachment research has revealed no or only weak gender differences in attachment styles (Hazan & Shaver, 1987; Schmitt, Alcalay, Allensworth et al., 2003), we do not regard the unequal distribution of gender as truly problematic in the present study. Nevertheless, we think it is important that the issue of gender differences in attentional bias receives more careful attention in future research.

To our knowledge, the current study is among the first to examine selective attention in relation to adult attachment. Attentional bias effects have been extensively studied in the context of anxiety disorders. As such, this literature provides a broader framework for interpreting our results. In fact, it has already been argued that attachment theory and cognitive formulations of anxiety bear many similarities (e.g. Besser & Priel, 2003; Carnelley et al., 1994; Roberts et al., 1996). The present results support this theoretical link as they show parallels with the research on attention and anxiety. Specifically, the finding that the interaction between anxiety and avoidance determines attention to threat is largely compatible with Eysenck’s (1997) notion that cognitive processing of threat is a function of both anxiety and defensiveness. Furthermore, it has been demonstrated that the effects of anxiety and defensiveness are most evident for socially-relevant threat words (Fox, 1993), which corresponds with our finding that the attentional avoidance effect was specific to attachment-related threat words that are per definition interpersonally oriented. Provided these parallels between attachment theory and theories on anxiety and the important role of early (interpersonal) adverse experiences in the development of clinical anxiety, the study of selective attention in adult attachment adds to the existing knowledge on the link between attachment and psychopathology. Hence, more systematic research into the link between attachment representations and (clinical) anxiety might include clinical samples, which could provide interesting new insights on how emotional disorders interact with attachment representations.

In conclusion, the study that we presented in this paper represents an important preliminary investigation of selective attention in the research field of adult attachment. Our results suggest that high levels of attachment anxiety in combination with high levels of attachment avoidance inclines people to avoid attending to attachment-related threatening information. Drawing on the general literature on attentional biases, one might conclude that this avoidant attentional style could assist in mood regulation in insecure people by reducing anxious mood states in a self-regulatory way. Such cognitive processes may develop from early adverse attachment experiences and contribute to interpersonal as well as intrapersonal functioning. Hence, investigating attentional processing in the context of attachment could be extremely important for clarifying potential pathways through which internal psychological models of attachment relationships are linked to emotional experiences over the life course.

References


