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Attachment priming and avoidant personality features as predictors of social-evaluation biases

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Running head: PRIMING AND AVOIDANT PERSONALITY FEATURES

Attachment Priming and Avoidant Personality Features

as Predictors of Social-Evaluation Biases

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Abstract

Personality research has shown that negativity in social situations (e.g., negative evaluations of others) can be reduced by the activation of participants' sense of attachment security. Individuals with avoidant personality disorder (APD), however, are theoretically less responsive to context or situational cues because of the inflexible nature of their personality disposition. This idea of individual differences in context-responsiveness was tested in a sample of 169 undergraduates who were assessed for APD features and assigned to positive, negative or neutral attachment priming conditions. More pronounced APD features were associated with more negative responses to vignettes describing potentially distressing social situations. A significant interaction showed that participants with more avoidant features consistently appraised the vignettes relatively more negatively, regardless of priming condition. Those withoutAPD features, by contrast, did not exhibit negative appraisals/evaluations unless negatively primed (curvilinear effect). This effect could not be explained by depression, current mood, or attachment insecurity, all of which related to negative evaluative biases, but none of which related to situation inflexibility. These findings provide empirical support for the notion that negative information-processing is unusually inflexible and context-unresponsive among individuals with more pronounced features of APD.

Attachment Priming and Avoidant Personality Features

as Predictors of Social-Evaluation Biases

Some of the most intriguing research in personality psychology over the past ten

years has demonstrated that contextual cues can covertly activate thoughts and feelings that

then influence behavior despite the person's subjective sense of acting autonomously. For

example, most people do not think of themselves as racist; yet, when subliminally exposed

to images of African-American faces, participants in one study later exhibited greater

hostility in their interactions with a confederate (Bargh, Chen, & Burrows, 1996). As a

more positive example, Mikulincer, Gillath et al. (2001) showed that priming can increase

empathy: When participants were presented with an image of a mother and her baby—

priming to activate their attachment security—they subsequently showed more empathic

behavior. Furthermore, Ferguson, Bargh, and Nayak (2005) found that subliminal priming

could affect whether participants subsequently evaluated certain famous people in a

positive or negative light. What this research shows is that motivation and behavior is

normally responsive to context, even though it is not always accessible to (or governed by)

conscious awareness (Bargh & Ferguson, 2000).

In maladjusted variants of personality, however, responsiveness to context may be

fundamentally impaired. Indeed, an essential feature of the DSM-IV definition of

personality disorders is *inflexibility* in maladaptive cognitive, affective, and behavioral

patterns (APA, 1994). In avoidant personality disorder (APD), socially dysfunctional

cognitive-affective-behavioral patterns include chronic feelings of low self-worth,

expectations of rejection or humiliation from others, social withdrawal, and shy behavior

(APA, 1994; Millon & Davis, 1996). Inflexibility in these dysfunctional patterns means

that in relatively benign, or even positive situations, individuals with APD may feel

threatened, act suspiciously and adopt behaviors aimed at reducing the perceived threat.

Indeed there is emerging empirical evidence for increased levels of suspicion, rejection expectancies, and other negative biases in social cognition among individuals with more pronounced APD features (e.g., Dreessen, Arntz, Hendriks, Keune & van den Hout, 1999; Meyer, Pilkonis & Beevers, 2004; Meyer, Ajchenbrenner & Bowles, 2005). Thus far, however, it remains unclear whether these biases are present regardless of the situational context, as the DSM suggests, or if they might attenuate in more positive contexts. To investigate context-contingent processing in APD we used priming methods designed to create either a positive, nurturing context (sense of attachment security), or a more negative, personally threatening context (sense of attachment insecurity). By pre-activating a sense of security or insecurity, we were able to ask whether context differentiates cognitive-affective responses to ambiguous interpersonal interactions by those with more or fewer APD features. That is: would a lack of context-responsiveness distinguish between those with stronger or weaker avoidant personality tendencies?

Context-responsiveness is central to current definitions of normal personality. In Mischel and Shoda's (1995; Shoda & Mischel, 1998) *Cognitive-Affective Personality System* (CAPS), personality is understood in terms of a context-responsive system of interacting networks of cognitive-affective units. The interacting sets of cognitive-affective units are variously activated according to situation, resulting in highly complex *if…then…*relationships between situation and behavior (Mischel & Shoda; Shoda & Mischel). Individual differences can be captured in terms of unique, relatively stable behavioral "signatures", resulting from the interaction of context and the chronic accessibility and organization of the individual's cognitive-affective units (Mischel & Shoda; Shoda & Mischel). In turn, the chronic accessibility and organization of these units are likely to have been shaped by repeated contextual exposure; for example, attachment experiences.

According to theory (e.g., Beck & Freeman, 1990; Millon & Davis, 1996), and emerging in empirical studies (e.g., Meyer & Carver, 2000; Stravynski, Elie, & Franche, 1989), certain forms of chronic contextual exposure such as harsh, uncaring, parenting may give rise to the development of APD. The chronic accessibility and organization of cognitive-affective unit networks in adults with APD may reflect overlearned responses to negative interpersonal experience, and underlie rigidly inflexible, negative biases in social information processing. Thus, those with higher levels of APD features may persistently process social information as though interpersonal situations will lead to the experience of unpleasant emotions ("I will feel let down/rejected/humiliated").

Several studies have noted that biased social information-processing can be considered a risk factor for personality disorder maintenance (e.g., Arntz & Veen, 2001; Wagner & Linehan, 1999), and for APD in particular (Dreessen et al., 1999; Meyer, et al., 2005; Meyer et al., 2004). In recent studies we found that APD features were associated with negative appraisals of neutral faces (Meyer et al., 2004), and with tendencies to interpret ambiguous social situations with a negative, rejection-implying bias, comprising strong negative expectancies, anxious affective responses, and avoidance tendencies (Meyer et al., 2005). Dreessen et al. (1999) found that avoidant beliefs, though not APD per se, were associated with negative biases on a pragmatic inference task. More specifically, participants with avoidant beliefs tended to infer motivated rejection from ambiguous actions of others. Dreessen et al. also introduced a priming procedure, in which participants rated whether APD describing adjectives were self-relevant. This procedure was introduced in accordance with cognitive theory, which suggests that relevant schema activation is necessary for PD-related cognitive processing to occur (Beck, et al., 1990; Safran, Segal, Hill, & Whiffen, 1990). However, all participants were primed, and were

primed in the same way, so priming effects on the pragmatic inference task could not be measured.

Social cognitive biases have also been documented in relation to individual differences in attachment orientation (e.g., Niedenthal, Brauer, Robin, & Innes-Ker, 2002), a theoretical construct increasingly recognized as a framework for understanding personality disorders (e.g., Bartholomew, Kwong, & Hart, 2001; Brennan & Shaver, 1998. See Meyer & Pilkonis, 2005, for a review). Additionally, in contrast with the personality disorder literature, attempts have been made in the adult attachment literature to investigate the context-contingency of social cognitive biases. A series of studies by Mikulincer and colleagues has demonstrated how priming methods designed to activate a sense of attachment security can affect attitudes and empathic responses towards others. For example, Mikulincer, Gillath, et al. (2001) found that attachment priming led to increases in empathy. In this study, attachment security was primed by exposing participants to a picture of an adult being comforted by an opposite-sex adult. Compared to being primed with a positive affect (attachment-unrelated) picture, participants exposed to the secure attachment prime were more empathic towards the problems encountered by a severely disabled person depicted in a story (Mikulincer, Gillath et al.). Similarly, Mikulincer, Hirschberger, Nachmias and Gillath (2001) showed that priming attachment security by exposing participants to a picture of a mother interacting with her baby elicited more positive appraisals of neutral pictorial stimuli than did other positive priming pictures.

Priming of the sense of attachment security has also been shown to alleviate negatively biased views towards "out-group" members. For example, Mikulincer and Shaver (2001) found that Israeli Jewish students rated an essay that was critical of their worldview more negatively if they were led to believe it was written by an Israeli Arab, than if written by a fellow Israeli Jew, but this bias was attenuated by secure base priming.

Participants were also more willing to interact with people described as having religious ideologies that contrasted with their own (out-group members) when primed with attachment security. Interestingly, anxiously attached participants viewed out-group members more negatively even when securely primed.

These patterns are compatible with the *if…then…* situation-behavior patterns described in the CAPS model: *if* individuals are primed with a sense of security *then* they are typically accepting of others, regardless of social group; however, *if* individuals are not contextually primed in this way, *then* they are more negative towards people from other social groups. In terms of individual differences, anxiously attached individuals regard others more negatively than avoidant and securely attached individuals *in either context*.

Despite APD being one of the more prevalent of the DSM-IV personality disorders in both clinical settings and in the general population (Ekselius, Tillfors, Furmark, & Fredrikson, 2001), there is a dearth of empirical inquiry into the factors that may contribute to its development and maintenance (see Alden, Laposa, Taylor, & Ryder, 2002, for a review). In this study, we aimed to extend previous studies, in which APD was shown to be associated with negatively biased social evaluations (e.g., Dreessen et al. 1999, Meyer et al. 2004; Meyer et al. 2005), by investigating the context-contingency of such negative appraisal biases. To do this, we exposed participants in experimental (priming) conditions to one of three pictures depicting scenes we hypothesized to activate either attachment security schemas, or schemas related to attachment insecurity, and then asked these participants, plus a non-primed control group, to read and answer questions about five short stories of potentially awkward or unpleasant interpersonal situations. We expected that APD features would correspond with generally more negative, catastrophic cognitive-affective responses to the vignettes. We also expected that negative response biases would be associated with anxious attachment, with depression, and with current low or anxious

mood. These variables were introduced as control measures, in accordance with the finding that current mood moderates social cognition (Niedenthal, Brauer, Halberstadt, & Innes-Ker, 2001). Principally, however, we expected that context-responsiveness would be uniquely impaired in participants with relatively more pronounced APD features.

Method

Participants and Procedure

One hundred and sixty-nine undergraduate students (mean age = 23.23, SD = 6.40, range = 18 – 47) at a University in South West London participated as a voluntary exercise in one of their psychology courses. Women comprised 90.5% of the participants, and in terms of ethnicity, 60% endorsed White-British or European as their ethnicity, while 20% endorsed Asian, 17% Black, 2% mixed and 1% "Other". The majority (75%) endorsed being single, 20% married or partnered, and 4% divorced or separated. In terms of mental health history 9.5% reported having been diagnosed with a psychiatric disorder (all but 2 of whom reported some form of depression diagnosis), while only 4% reported that they were currently taking medication.

After signing an informed consent form approved by the university's ethics review board, the participants completed a demographic background questionnaire and several other questionnaires described below. Participants then took a break, which involved leaving the room for ten minutes, before continuing with the vignette appraisal task. The aim of this break was to minimize any priming effect of questionnaire completion, thus reducing the need for counterbalancing the order in which the measures were completed. Those in the experimental (priming) conditions then viewed and described one of three pictures of people (see below). They then read five vignettes (see below) and answered 12 items about each vignette, and finally completed a short current mood questionnaire.

Materials and Measures

Participants were given a document folder containing a picture on the inside cover (no picture in the control condition), and on the right hand side, eight pages of questionnaires and instructions (see below). The layout was designed so that the picture would remain visible throughout. They were also given a questionnaire battery that consisted of the demographics questionnaire, the BDI short form depression inventory, and the SCID-II and ADP-IV PD screening questionnaires (see below).

Picture priming task. On opening the folder, participants in experimental conditions were faced with a picture of either, (a) an angry man apparently shouting and holding his hands aggressively towards the camera; (b) a sad-looking young boy, alone with his arm in a bandage and seemingly in a hospital at Christmas time; or (c) a mother and her baby gazing lovingly and happily at one another. The control group did not take part in the picture-priming task. These pictures were hypothesized to activate feelings of attachment insecurity (threat: picture a, and abandonment: picture b) and attachment security [picture c]), and were based closely on stimuli and procedures shown by Mikulincer and colleagues (e.g., Mikulincer, Gillath, et al., 2001; Mikulincer, Hirschberger, et al., 2001) to activate the attachment system.. The instructions for the picture task were as follows: "For this part of the study, we would like you to look carefully at the picture you have been given and write, for four minutes, about what you see. On the lines below, please describe the emotions displayed and how the person(s) might be feeling, and what might have happened in their lives before the photo was taken." Below the instructions was a lined space for the participants to write freely about the picture. Pilot testing had suggested that four minutes allowed the participants to think and write about the picture without feeling rushed, yet without excess time in which they may lose concentration before starting the next (vignette) task.

Vignettes ratings task. Five short stories (approximately 150 words each) were created that captured themes hypothesized to be relevant to attachment insecurity andAPD. These themes were: romantic deception and rejection; peer and parental rejection and ostracism; inappropriate, potentially sexual/romantic approach, and unfair parental harshness. Instructions for the vignette appraisal task were presented on the page following the picture questionnaire and were as follows: "Please read the stories on the following five pages. Try to really place yourself in the role described. Then, respond to the 12 questions below each story. Remember there are no right or wrong answers; simply indicate what you personally believe. Don't think too long about each question; simply indicate what seems true to you at the moment." The next five pages contained the vignettes, one to a page, with 12 questions about the vignette and the response scale directly below.

Appraisal ratings. Participants were asked to rate the persons and situations described in each of the five vignettes according to 12 statements that they were to agree or disagree with on a 7-point Likert scale (1 = disagree extremely, 7 = agree extremely). The statements relating to the vignettes were hypothesized to capture seven different aspects of social appraisal/evaluation: (1) Affective: catastrophic, dejected, anxious responses (e.g., This story is just awful and makes me feel bad), (2) Cognitive: negative attitudes (e.g., I hate this sort of person), (3) Cognitive: extreme attitudes (e.g., I think the way this person acts is completely unacceptable), (4) Cognitive: malicious inference (e.g., These workers have rejected and humiliated me on purpose just to make me feel small), (5) Cognitive: negative expectancies (e.g., These two children will have a lot of problems as they grow up), (6) Motivational: punishment ideation (e.g., I would like to somehow humiliate or expose this person), (7) Confusion (e.g., The whole story doesn't make sense to me). Nine items were reverse-scored (e.g., In this story my parents are lovely). All 60 responses (5 stories x 12

items) were collapsed to produce an overall negative vignette response scale with good internal consistency (Cronbach's alpha = .88).

Personality disorder features. Features of avoidant personality disorder were measured by the Structured Clinical Interview for DSM-IV Axis II screening questionnaire (SCID-II-SQ; First, Gibbon, Spitzer, Williams, & Benjamin, 1997) and the ADP-IV questionnaire (English version, Schotte et al., 2004). The SCID-II questionnaire is designed to be used in conjunction with a corresponding interview, which was not administered in this study due to feasibility constraints—a procedure also used in similar studies (e.g., Dreessen et al., 1999; Meyer et al., 2004). Response options on the SCID-II questionnaire were slightly elaborated: instead of using the original "Yes/No" response options, this study employed a 4-point response scale (0 = Never or not at all; 1= Sometimes or a little; 2 = Often or moderately; 3 = Very often or extreme). The 7-item avoidant scale was internally consistent (α = .78). The ADP-IV response options are on a Likert scale ranging from 1 (totally disagree) to 7 (fully agree). The ADP-IV questionnaire contains an extra 3-point scale per item designed to capture more clinical elements of PD, but these were omitted, as they may have been problematic for the size and nature of this non-clinical sample. This 7-itemAPD scale also demonstrated good internal consistency (α = .83). This study demonstrates hitherto unpublished convergent validity of the ADP scales for APD. The ADP-IV scale correlated strongly with the SCID-II equivalent, as might be expected (r = .76, p <.001), but not to the degree of redundancy. As the response scales on the two APD measures differed, they were centered before the scores were combined, yielding an overall 14-item scale for APD, for which internal consistency was good (α = .88).

Attachment orientation. The two attachment dimensions, anxiety and avoidance, were assessed using the 36-item Experiences in Close Relationships Questionnaire (ECR; Brennan, Clark, & Shaver, 1998). This is a self-report questionnaire on which participants

endorse the extent to which items are representative of them on a 7-point Likert scale ranging from Disagree strongly (1) to Agree strongly (7). A sample item designed to tap attachment avoidance would be "I prefer not to show a partner how I feel deep down" and for attachment anxiety, "I worry about being abandoned". Internal consistency was again excellent (αs = .93 and .92 for avoidance and anxiety respectively) and discriminant validity was evident as the two scales barely correlated ($r = .13$, $p > .05$).

Depression. In order to control for mood disorder, the 13-item Beck Depression Inventory short form was administered (*BDI*, Beck & Beck, 1972). This questionnaire asks the participants to respond according to how they have felt over the past week according to groups of 4 statements of increasing symptom severity. The first group, for example, is as follows: (1) I do not feel sad; (2) I feel sad or blue; (3) I am blue or sad all the time and I can't snap out of it; (4) I am so sad or unhappy that I can't stand it. The reliability for this measure was good ($\alpha = .82$).

Mood state: A short, 8-item, mood state questionnaire was included that measured self-reported mood across four dimensions (happiness, anger, anxiety and sadness). The reliability for this scale was good ($\alpha = .82$). Although there might be reasons for recording mood state information at several points throughout the study, it was considered that the additional participant burden might adversely affect the utility of so doing. Therefore, it was measured once only, at the end of the experiment as in previous studies of this nature (e.g., Niedenthal et al., 2002).

<div align="center">Results</div>

Descriptive statistics and correlations are presented in Table 1. In line with current theory, both the anxious and avoidant attachment dimensions correlated with avoidant personality features. Also consistent with theory, the avoidant and anxious attachment scales were not correlated with each other. In terms of associations with the vignette appraisals, a moderate

positive correlation was found between the vignette appraisals and anxious attachment, suggesting that anxiously attached individuals were more inclined to make negative, catastrophic evaluations of the characters and situations depicted in the vignettes. This association was maintained when controlling for depression (partial r = .35, p<.01). There was no correlation between avoidant attachment and vignette appraisals (but see patterns according to priming condition, below). As expected, APD features were correlated with negative vignette appraisals, and this effect was maintained after controlling for depression (partial r = .28, p =.01). Although the vignettes varied according to content, the magnitude of the correlation coefficients did not differ significantly between them (.31> rs >.11, Z = 1.90). Predictably, however, the correlations were strongest in those vignettes containing social situations with potential for humiliation and rejection (most APD relevant). (In the interest of parsimonious reporting, the details are not included in this article, but full details are available from the first author upon request.)

Picture Priming and Attachment Style

The correlations between negative vignette responses and PD features and attachment styles across the different priming conditions are shown in Table 2, and partial correlations, controlling for depression, are shown in Table 3. Participants with more anxious attachment, compared to those scoring lower on anxious attachment, responded more negatively to the vignettes, regardless of priming condition. The link between anxious attachment and negative appraisals was weaker (and not significant), however, for participants whose sense of attachment security was activated. This slightly lower correlation in the secure attachment condition did not differ significantly from those in the other priming conditions, consistent with the main pattern that anxious attachment was uniformly associated with negative, catastrophic vignette evaluations.

Avoidant attachment, by contrast, did not correlate consistently with vignette responses (Tables 2 & 3), with one exception: in the angry-insecure priming condition only, more avoidantly attached participants, compared to those scoring lower on avoidant attachment, responded *less* negatively to the vignettes. Or rather, those low on avoidant attachment were prompted by the threatening prime picture to respond to the vignettes more negatively, whereas the responses of those high on avoidance were seemingly unaffected. In other words, when a sense of anger-insecurity is conveyed by the priming stimulus, those with relatively more avoidant attachment somewhat ironically evaluated the emotionally ambiguous situations in a more benign way than those with less avoidant attachment—consistent with the idea that avoidantly attached individuals defensively minimize or suppress attachment-related distress under conditions of threat.

Picture Priming and APD Features

One of the most interesting patterns of correlations was observed with regard to the APD scale (see Tables 2 & 3), which seem to suggest that (a) participants with more APD features tended to appraise the emotionally ambiguous vignettes more negatively, and (b) these negative evaluative biases were most clearly evident in the no-priming and—especially strongly—in the secure priming condition. There are two plausible reasons for these bias patterns. Either (a) individuals with relatively stronger APD features appeared to have the somewhat ironic tendency to evaluate situations negatively when their sense of attachment security was invoked via the priming, or (b) individuals without APD features only appraise situations in a negative way when feeling some form of attachment insecurity, whilst those with relatively more APD features appraise situations as if always in this insecure state. We conducted regression analyses to explore these two possibilities.

Regression Analyses

A hierarchical multiple regression analysis was conducted for APD features, avoidant and anxious attachment, and the control variables of four dimensions of current mood with negative vignette appraisals as the dependent variable[1]. The APD continuous independent variable was centered prior to constructing interaction and quadratic terms, consistent with recommendations (Aiken & West, 1991). For the picture prime categorical variable we first collapsed the four conditions into two levels, according to the patterns shown by the correlations (Table 2). A dummy variable was then constructed in which an overall negative priming condition was compared to the other conditions (positive and neutral). In the first step, the dummy priming variable was entered, along with the current mood control variables. Avoidant and anxious attachment were entered in the next step to test for main effects of attachment style. The primary predictor, APD, and a quadratic APD term were entered in the third step, followed in the fourth step by the linear and quadratic interaction terms between APD and the picture prime dummy variable. This final step tested whether participants with more pronounced APD features would consistently appraise the vignettes negatively, whereas those with less pronounced APD features would do so only if negatively primed.

The results of this analysis are summarized in Table 5, which shows that the effects of anxious attachment and APD were significant, as expected. Indeed, in the final model, APD (linear term) was the greatest unique predictor of negative vignette appraisals (largest beta). Priming did not exert a main effect, but there were significant interaction effects between the priming variable and both the linear and quadratic APD variables.

To further understand the nature of the quadratic interaction, we plotted the association between APD features and vignette appraisals in both of the collapsed priming conditions (no prime/secure prime versus insecure prime; see Figure 1). Analyses of simple

effects revealed that there was a quadratic association between APD features and negative vignette appraisals for participants in the collapsed secure prime/no prime condition. This quadratic effect of APD accounted for 26% of the variance in negative appraisals, $p < .01$. As shown in the graph, when participants with few or no APD features did not receive any sort of negative prime they appraised the vignettes quite positively. However, all others— including those who were negatively primed and those who had more pronounced APD features—tended to appraise the vignettes negatively. There was no significant association between appraisals and APD features when participants were primed with insecurity-related pictures, $r^2 = .03$, $p = .20$ (see Figure 1).

In sum, a curvilinear hierarchical regression reveals that rather than APD individuals becoming more negative in neutral and positive priming conditions, they are failing to reap the benefit of positive priming and, moreover, simply not having been *negatively* primed. Thus, individuals with relatively more APD features consistently (i.e. regardless of priming condition) formed the negatively valenced impressions of ambiguous interpersonal situations that only emerge in non-avoidant individuals when they have been negatively primed.

Current mood was measured at the end of the procedure and the associations with attachment orientation, PD features and vignette responses are shown in Table 4 below. These ratings were used (a) to control for the effect of current mood on the associations between PD/attachment dimensions and vignette evaluations (see above), and (b) to investigate the possibility of an effect of the priming procedure on current mood.

The pattern of correlations is entirely consistent with theory, with negative moods being positively associated, and positive mood being negatively associated with insecure attachment and PD features. Current mood also appears to affect evaluations of others in a similar pattern. The effect of controlling for current mood on attachment and PD

associations with the vignette evaluations is reported above. The effect of priming condition on any current mood state was not significant (all Fs < 1.70, ps > .15).

Discussion

The purpose of this study was to investigate biases in social appraisals among individuals with pronounced APD features. Moreover, we wished to examine whether such evaluative biases would be responsive to context. The context was defined here as attachment-related priming condition, in which participants saw and wrote about a scene relating to either attachment insecurity or attachment security, plus a no-prime control condition. Similar attachment priming stimuli have been used in previous studies that did not focus on PD features (Mikulincer, Hirschberger et al., 2001).

As hypothesized, in a non-clinical sample we found that adults who reported more pronounced APD features made social evaluations that were more negative, catastrophic, and fatalistic than those made by adults with less pronounced APD features. This is consistent with previous research (e.g., Dreessen et al, 1999; Meyer et al., 2004; Meyer et al., 2005). Additionally, individuals with relatively more APD features appraised ambiguous social situations quite negatively, regardless of whether they were positively or negatively primed. By contrast, those with less pronounced APD features appraised such situations similarly negatively only after shifting into a negative attachment state-of-mind (i.e., after having been negatively priming). The appraisals were more negative in terms of rejection expectancies, affectively catastrophic responses, and negative outcome expectancies.

Our interpretation is that people with APD features process social information as though in a perpetual state of attachment insecurity. In fact, what appears to be a state among non-APD individuals appears to function trait-like among those with more pronounced APD features. Given the cross sectional nature of this study, this conclusion

must be regarded cautiously, though, and longitudinal research will be needed to further examine this possibility. However, these initial findings appear to be consistent with Mischel and Shoda's (1995; Shoda & Mischel, 1998) CAPS theory, in that individuals differ in their patterns of situation-specific cognitive-affective responses. CAPS theory suggests that situations differentially activate networks of cognitive-affective units that lead to situation-specific behavior signatures. The chronic accessibility of these networks are likely to reflect overlearned cognitive and affective responses to developmental (e.g., attachment) experiences. In this study, relatively more APD features were associated with reduced variability in response patterns, and these patterns tended to consist of catastrophic affect and negative cognitions (expectations, attitudes, motivations). Such rigid negativity clearly is consistent with the DSM (APA, 1994) criterion that maladaptive patterns of thought and feeling in personality disordered individuals are inflexible and pervasive.

These findings provide the first attempt (to our knowledge) to investigate the inflexibility of such negative social information processing among people with PD features. Additionally, these findings contribute to the (rather limited) literature on social information processing in APD, most (or all) of which has thus far been conducted on non-clinical samples (Dreessen et al., 1999; Meyer et al., 2004, 2005; see Alden et al, 2002 for a review). Negative biases in social information processing have been found in each, using a variety of techniques: In a study that involved a priming procedure, Dreessen and colleagues found that APD was indirectly (via avoidant beliefs) related to an inclination to infer malicious motivations in a pragmatic inference task. In this study, Dreessen and colleagues primed all participants with APD-related self-descriptions before they completed the pragmatic inference task. Conceivably, in the light of the current findings, the decision to prime all participants in the same way may have contributed to the lack of direct relationship between APD and biases on the task (see below).

Other studies documenting social cognitive biases in APD have not included priming procedures. Meyer et al. (2004) demonstrated an association between APD and negatively biased evaluations of emotionally neutral facial expressions, viewing them as unattractive, dull, and unfriendly. Using more complex stimuli (vignettes), similar to the present study, we found APD related to a bias towards interpreting ambiguous social situations more negatively, in terms of rejection and humiliation expectancies, and catastrophic affective responses (Meyer et al., 2005). Each of the above studies captures certain aspects of social cognitive bias; for example, perceived malicious motivation, rejection expectancies, and catastrophic affective responses. In the current study, negative biases were captured on all these dimensions, suggesting there is a wide range of social-cognitive dysfunction that underlies and maintains avoidant personality maladjustment.

Personality disorders are complex phenomena for which no one theoretical perspective is entirely satisfactory. Cognitive theory (Beck & Freeman, 1990; Safran et al., 1990) suggests that relevant schemas need to be activated for PD relevant processing to be evident. In line with this theory, Dreessen et al., (1999) primed (non-clinical) participants with an APD schema self-reference task before they completed a pragmatic inference task. Contrary to expectations, there was no direct link found between more pronounced APD features and negative social information processing on the task (see above). An extrapolation of the findings of the current study may tentatively shed light on those null findings: As all participants underwent the same priming procedure, it is possible that the priming led to more negative processing in low APD individuals, to a level similar to that demonstrated chronically by higher APD individuals. In other words, cognitive theory's insistence on schema activation in order to elicit PD-relevant social information processing biases may be superfluous in APD—those schemas may be chronically activated.

Attachment theory, in part because of its links to cognitive theory, is gathering momentum as a framework for understanding personality disorders. Beliefs such as "I am socially unacceptable", and "other people cannot be trusted" dominate in APD, and relate conceptually to anxious (negative self-representations) and avoidant (negative other-representations) attachment dimensions, respectively (Meyer & Pilkonis, 2005). In this study, APD was associated with both dimensions of attachment insecurity. Anxious attachment, like APD, was linked with a more negative tone in evaluation of the short stories, whereas avoidant attachment was not. This pattern is consistent with a previous study (Meyer et al., 2004).

Unlike APD, however, anxious attachment did not interact with priming condition. In other words, social appraisals vis-à-vis anxious attachment appear to respond to context. Moreover, of all the measures under investigation (APD, avoidant and anxious attachment), including controls (depression, and current mood), only APD features were linked with resistance to positive priming. Additionally, even though sad, angry, and anxious moods are common among individuals with APD (see Meyer, 2002) and might exacerbate interpersonal dysfunction, they did not explain the association between APD and negative social appraisals in this study, nor did they influence the relationship between context-unresponsiveness and APD features.

The findings appear to be theoretically consistent; however, caution is warranted until these patterns have been replicated. Additionally, several limitations should be noted. Firstly, we attempted to investigate clinical phenomena with a non-clinical sample of psychology undergraduates, using a self-report screening questionnaire without clinical interview. Nonetheless, such procedures are not unusual and have produced findings consistent with clinical constructs of APD (e.g., Dreessen et al., 1999; Meyer & Carver, 2000; Meyer et al., 2004). Secondly, we cannot know whether the priming methods used in

this study activated the attachment system, although we based our primes on those documented by Mikulincer, Hirschberger et al. (2001) to perform that function. On the same note it must be emphasized that the priming procedures had no main effect on vignette response valence, and it was only through interactions with personality measures that effects were apparent. Thirdly, the primes were supraliminal, which may have introduced biases in the vignette appraisal task (demand characteristics). Finally, it is not clear whether these findings might generalize to variants of personality dysfunction other than APD. Follow-up studies are, therefore, clearly warranted.

Nonetheless, this study adds to the literature in that it is perhaps the first to examine priming effects on associations between social cognitive biases and both PD severity and attachment insecurity simultaneously. The findings with respect to the priming/context contingency seem theoretically plausible in terms of individual differences in situation-specific behavioral signatures (see Mischel & Shoda, 1995; Shoda & Mischel, 1998), particularly with respect to inflexible patterns that fit diagnostic criteria of APD (APA, 1994; Millon & Davis, 1996). Based on these encouraging preliminary findings, and the relevance of insecure attachment orientation to all personality disorders (see Bartholomew et al. 2001; Meyer & Pilkonis, 2005), it seems reasonable to advocate attachment-related priming methods as useful tools for future studies of the pathogenesis and maintenance of the various personality disorders.

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Footnotes

[1]. Although depression was considered a control, it was not entered into the

regression analysis but is instead represented in partial correlations. This is because

depression data was collected in a separate session, and we lost 11 participants in the

process. The PD, attachment, and interaction effects remained essentially the same when

depression was entered (e.g., APD quadratic interaction with vignette response $\beta = .25$ vs.

$\beta = .26$), and there was no unique effect of depression ($\beta = .05$). Full details available upon

request from first author.

Table 1

Zero order correlations and descriptive statistics among Avoidant Personality Disorder

Features, Attachment Styles, and Vignette Response Scales (N = 169)

	1. Anxious attachment	2. Avoidant attachment	3. Avoidant PD		4. Vignette appraisals
1. Anxious attachment	--				
2. Avoidant attachment	.14	--			
3. Avoidant PD	.44**	.38**	--		
4. Vignette appraisals.	.39**	.04	.36**		
5. Depression (N = 158)	.34**	.36**	.49**		.23**
			SCID-II	ADP-IV	
Mean	3.66	3.03	1.19	2.87	3.37
SD	1.05	1.11	0.61	1.15	0.51
Items per scale	18	18	7	7	60
Possible range	1-7	1-7	0-3	1-7	1-7

**p<.01   *p<.05

Table 2

Correlations between PD Features, Attachment Styles, and Vignette Appraisals (N = 169)

	Avoidant PD	Avoidant attachment	Anxious attachment
No Priming (N = 45)	.46**	.16	.56**
Secure prime (N = 45)	.53*	.07	.28
Combined Insecure prime (N = 79)	.14	-.09	.35**
Angry-insecure prime (N = 42)	.13	-.24	.37*
Sad-insecure prime (N = 37)	.14	.05	.32

**$p<.01$, *$p<.05$

Table 3

Partial correlations after controlling for depression (BDI) (N = 158)

	Avoidant PD	Avoidant attachment	Anxious attachment
No Priming (N = 42)	.41**	.05	.53**
Secure prime (N = 40)	.39*	-.18	.20
Combined Insecure prime (N = 68)	.14	-.21	.34**
Angry-insecure prime (N = 35)	.04	-.33*	.33*
Sad-insecure prime (N = 29)	.12	-.03	.32

**p<.01, *p<.05

Table 4

Correlations among attachment orientation, Personality Disorder Features, and Current

Mood Ratings (N = 169)

	Avoidant PD	Anxious attachment	Avoidant attachment	Vignette response
Sad/miserable	.27**	.24**	.17*	.36**
Happy/content	-.32**	-.18*	-.30**	-.23**
Anxious/worried	.40**	.27**	.29**	.23**
Angry/irritated	.15*	.24**	.12	.32**

**p<.01   *p<.05

Table 5

Hierarchical multiple regression analysis of negative vignette appraisals (N = 169)

Independent variables entered	R^2-Δ	F-Δ	df	β
Step 1: Priming and current mood	.11	3.87	5,161	—
Insecure vs. other prime	—	—	—	-.07
Depressed mood	—	—	—	.18
Happy mood	—	—	—	-.04
Anxious mood	—	—	—	-.05
Angry mood	—	—	—	.06
Step 2: Attachment	.11	11.74**	2,165	—
Avoidant attachment	—	—	—	-.13
Anxious attachment	—	—	—	.24*
Step 3: APD main effects	.05	4.87**	2,163	—
Avoidant PD (combined SCID-II & ADP-IV)	—	—	—	.46**
Avoidant PD quadratic variable	—	—	—	-.22*
Step 4: Interaction variables	.06	6.50**	2,161	—
Linear interaction between primes and APD	—	—	—	-.29**
Quadratic interaction between Primes and APD	—	—	—	.25*

Note. Standardized regression coefficients (β) are shown for the model at step 4.
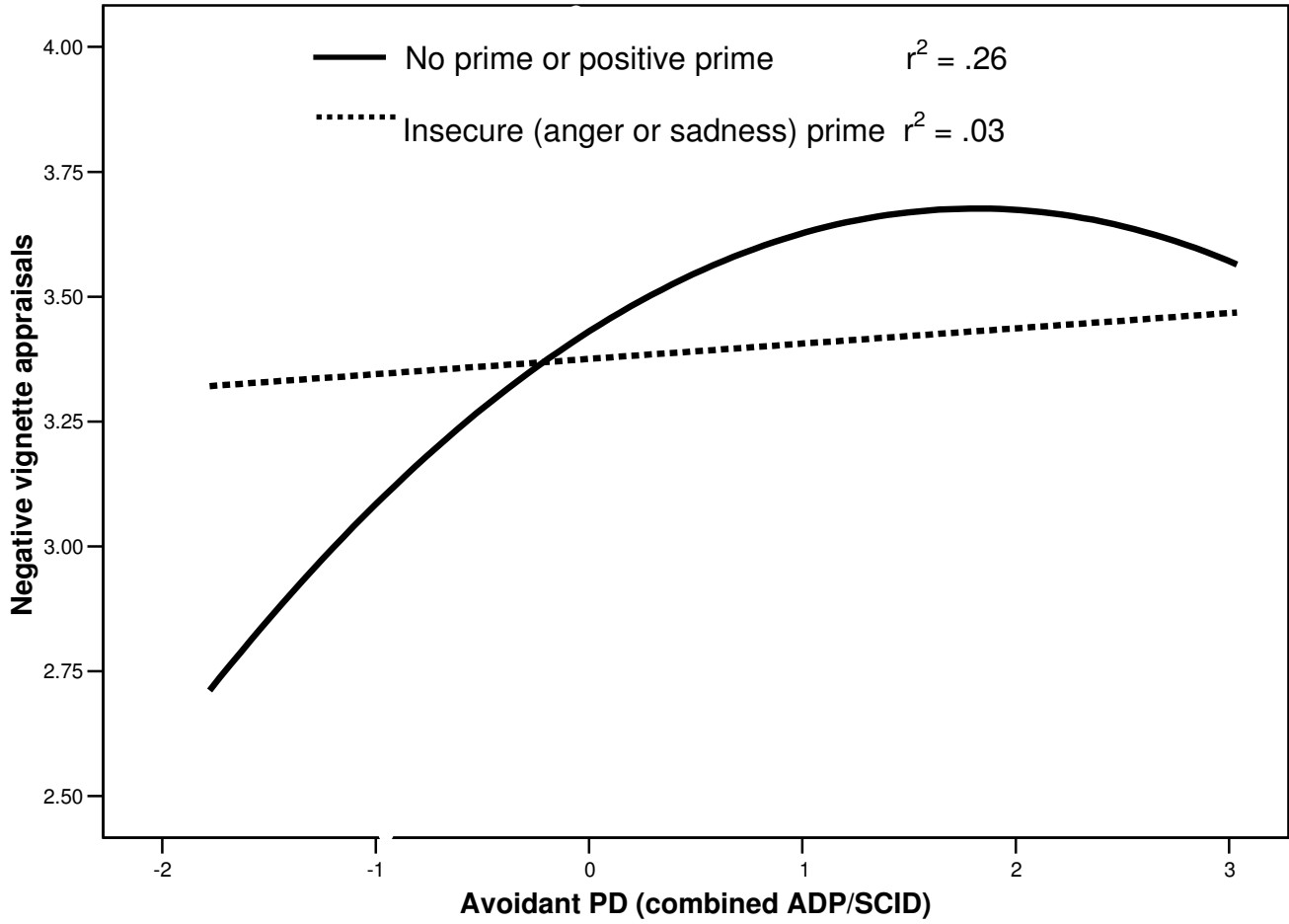
* $p < .05$ ** $p < .01$

Figure 1. Quadratic and linear effects of priming procedures on the relation between

APD features (combined scales) and negative appraisal of vignettes.