

Emotional Information Processing and Disrupted Parental Bonding: Cognitive Specificity and Avoidance

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Although studies have assessed the association between affective dysfunction and parental bonding, little research has assessed the information processing characteristics of individuals with disrupted parental bonding. The current study investigated differences in attentional processing between individuals with relatively poor versus secure parental bonding, and also assessed this processing in conjunction with a mood priming procedure that has been used in previous vulnerability research. Using a Stroop procedure, results indicated that poorly bonded individuals were less distracted by depressive information than were individuals reporting a secure bonding history. Results also suggested that avoidance of anxious information in the poorly bonded group was uniquely associated with maternal overprotection. These results suggest that poorly bonded individuals may cope with their increased vulnerability by avoiding some types of affectively linked information, and that some of this avoidance may be linked to perceptions of a mother who is overly intrusive.

Researchers have identified a number of variables that may be linked to the experience of depressive symptoms (Ingram, Miranda, & Segal, 1998). Among these variables are attachment and parental bonding. Attachment focuses on the processes that shape the capacity of individuals to form emotional bonds with significant others throughout their lives (Bowlby, 1969, 1973, 1980). Attachment patterns are at least partially determined by bonding, which is shaped by the quantity and the quality of contact with parents or other caretakers (Ainsworth, Blehar, Waters, & Wall, 1978).

Although some investigators argue that it is important to distinguish between attachment and bonding (Parker, 1994), these distinctions are subtle enough that bonding with parents/caretakers can be seen as a process that is closely related to attachment (Ingram et al., 1998). Bonding also reflects a multidimensional construct. For instance, Parker (1983a) suggests that care and protection are two crucial dimensions of parental bonding. Parental care is defined as nurturance and affection while protection refers to creating an appropriate sense of safety and security. Parker (1983a) argues that these dimensions capture not only the core characteristics of most parental behaviors, but also form the basis of subsequent interpersonal interaction patterns. In this regard, parental bonding can be viewed as providing the necessary psychological foundation for healthy functioning.

Conversely, a variety of difficulties may develop when normal bonding is disrupted in some fashion. Parker suggests that disruptions may occur when parental care is replaced by overt rejection and criticism, or when parents become overprotective and demonstrate high levels of anxiety and inappropriate intrusiveness into children's lives. In some cases, both care and overprotection can be disrupted, a process referred to as "affectionless control" (Parker, 1983b). Moreover, data suggest that dysfunctional bonding may be associated with both childhood and adulthood disorders (Bemporad & Romano, 1992; Blatt & Homann, 1992; Cole & Zahn-Waxler, 1992; Cummings & Cicchetti, 1990; Gerlsma, Emmelkamp, & Arrindell, 1990; Hammen et al., 1995; Parker, 1979, 1983b, 1984, 1994; Pearson, Cohn, Cowan, & Cowan, 1994; Wilson & Costanzo, 1996).

The risk that appears to originate from bonding disruptions may stem at least in part from cognitive variables. Theoretical discussions of bonding and attachment have emphasized the importance of schemas that reflect the cognitive representation of relationships that have been generalized through early interactions with parental figures (e.g., Bowlby, 1980). A number of theorists have proposed that once developed, such schemas guide the processing of information about the self and others throughout the lifespan (Main, Kaplan, & Cassidy, 1985). Correspondingly, if disruptions in child-parent relations lead to bonding patterns that are not secure, this insecurity will be reflected in the dysfunctional organization and functioning of the individual's schemas (Ingram et al., 1998; Roberts, Gotlib, & Kassel, 1996). These schemas may thus initiate information processing biases that lead to problematic social and psychological functioning (Westin, 1991).

A consistent focus of much of the empirical work on parental bonding and psychological problems is in the area of depressive symptomatology. In this vein, reviews by Blatt and Homann (1992) and Gerlsma and colleagues (1990) have shown that parental bonding is reliably correlated with depression. Only a limited amount of research, however, has examined the *cognitive* factors that are proposed to underlie the relationship between bonding and affective problems. In this regard, Ingram, Overbey, and Fortier (2001) found that individuals with disrupted parental bonding evidenced more dysfunctional self-statement patterns than normally bonded individuals, even in the absence of concurrent depressive symptoms or negative mood. Other studies have assessed attachment, which, as noted, reflects a process that is conceptually quite close to bonding. For instance, Roberts, and colleagues (1996) found that various aspects of current romantic attachment were correlated with depressive symptoms through their effects on dysfunctional attitudes and self-esteem. Similar findings have been reported by Whisman and McGarvey (1995) and Whisman and Kwon (1992). Hence, some research has begun to explore the relationship between cognitive factors, depressive symptoms, and variables suggesting problematic early experiences.

Even as research has begun to empirically suggest a link between troubled early experiences, cognitive variables, and psychological problems, a number of questions have yet to be addressed. First, most of the previous research has focused on adult attachment. Although adult attachment is clearly an important variable, considerably less research has focused

explicitly on parental bonding, a related but nevertheless different construct (Parker, 1984, 1994; Pearson, Cohn, Cowan, & Cowan, 1994). Second, because disruptions in parental bonding are hypothesized to serve as a risk factor for psychological disturbances, research is needed to assess cognitive factors that are associated with parental bonding in individuals who are not currently experiencing significant depressive symptoms. Third, it is possible that dysfunctional cognition in individuals with disrupted bonding may need to be accessed, or primed, before such processing becomes empirically discernible (Segal & Ingram, 1994). Therefore, following the logic of diathesis-stress paradigms (e.g., Ingram, et al., 1998), it is important to examine whether negative experiences are necessary to elicit cognitive processes that are otherwise dormant. Fourth, it is unclear if the cognitive processing that may be associated with disrupted bonding is specific to certain kinds of affect. That is, cognition may be diffuse, or alternatively, are some kinds of emotional information processed differently than others?

Finally, virtually all of the studies that have examined the relationship between cognitive variables and early experiences have done so using self-reports of cognition. Research is therefore needed to examine the information processing characteristics of individuals who are poorly bonded. A number of types or levels of information processing have been described (Kendall & Ingram, 1989). Among these, attentional functioning is a schema-driven process (Neisser, 1967, 1976) that has been shown to play a role in a variety of problematic psychological conditions (Ingram, 1990), and may thus be an appropriate processes to assess in conjunction with bonding difficulties. Emotionally modified Stroop tasks in particular have proven useful for assessing attentional processes in a variety of psychological problems (Williams, Mathews, & MacLeod, 1996) including depression (Segal & Gemar, 1997), anxiety (Kaspi, McNally, & Amir, 1995), and eating disorders (Ben-Tovim, Walker, Fok, & Yap, 1989). In an emotionally modified Stroop task, reaction times to name the color in which a word is presented are assessed, but emotional content words are substituted for the typical color content words. More interference in color naming results in longer reaction times, which are presumed to result when individuals have difficulty inhibiting the semantic content of the word.

Given the lack of previous research assessing bonding and information processing, it is unclear how currently nondepressed individuals with disrupted bonding will perform on an emotionally modified Stroop task. One possibility is that individuals with poor bonding may selectively process negatively valenced information, therefore being more distracted and evidencing slower reaction times. Findings such as this in other areas have been reported by several investigators. For instance, among combat veterans with PTSD, Kaspi and colleagues (1995) found significantly longer reaction times for combat-related words than for noncombat-related words. This finding is consistent with the cognitive intrusions that are seen in psychological disorders such as PTSD. An alternative possibility, though, is that in the absence of current psychological problems, poorly bonded individuals may avoid information that is emotionally charged (Ingram et al., 1998). In this regard, Amir, McNally, Riemann, and Burns (1996) have found that some individuals are able to suppress the interference that is normally seen in the emotional Stroop task. Previous data therefore do not provide a basis for making specific predictions regarding the information-processing tendencies of poorly bonded individuals who are not experiencing any disorder.

Given these questions, the purpose of the present study was to employ a diathesis-stress approach to investigate the relationship between information processing and disrupted parental bonding. Assessment of attentional processes within the context of diathesis-stress assumptions requires that laboratory procedures attempt to prime emotionally laden cognitive structures. Exposure to a negative mood stimulus has frequently been used in this regard (Segal & Ingram, 1994). Hence, in the current study, participants were selected on the basis

of either relatively poor or secure parental bonding, and half of each group was administered a mood induction. Participants were also studied only if they were not currently experiencing depressive symptoms, thus allowing for a test of bonding and cognition that was unconfounded with the current experience of affect. Following the mood induction, an emotionally modified Stroop task was administered to assess attentional functioning. Because poorly bonded individuals have been shown to be at risk for affective problems (Blatt & Homann, 1992, Gerlsma et al., 1990; Parker, 1994), the task included depressive and anxious words.

METHOD

Research Participants

Research participants were 61 students who participated to partially fulfill requirements for their introductory psychology course at a large west coast university. Participants were selected from a mass testing procedure of 600 students where, among other measures, they completed the Beck Depression Inventory, the Beck Anxiety Inventory, and the Parental Bonding Instrument. Participants for this experiment were chosen on the basis of reported parental bonding. Additionally, participants were selected only if they were not currently reporting depressive symptomatology. Because of the additional selection criterion of no depression, cutoffs of 45% were used to ensure an adequate sample size in the selection of poor and secure bonders and to ensure no overlap among the groups on any variable. Secure bonding was defined by high levels of parental care (those in the highest 45% of mass testing participants) combined with low levels of parental overprotectiveness (those also in the lowest 45% of mass testing participants). Poor bonding was defined as a combination of low levels of parental care (those in the lowest 45%) and high levels of parental overprotectiveness (those also in the highest 45%). Each participant was randomly assigned to either the mood condition or the control condition. Table 1 presents means for the final sample.

Measures

Parental Bonding. The Parental Bonding Instrument (PBI; Parker, Tupling, & Brown, 1979) is a self-report questionnaire that measures parenting attitudes and behaviors (i.e., caring and overprotection) as respondents remember them from the first 16 years of life. Participants rate each parent on a caring subscale (comprising 12 items) and on an overprotection subscale (comprising 13 items). Each of the 50 items is rated on a 0 (very unlike) to 3 (very like) scale.

Numerous factor-analytic and psychometric studies have established that the PBI possesses adequate reliability and validity (Parker, 1979, 1989, 1990). For example, data show that the reliability of the PBI over a 10 year period is quite good (Parker, 1990; Wilhelm & Parker, 1990) and that PBI scores relate to actual parental behavior (Parker, 1984). Research has also indicated that PBI scores correspond to reports of parents' own perceptions and those of siblings' ratings of parents (Parker, 1981; Parker et al., 1979). Data further show that PBI scores reflect a risk factor for depression (Parker, 1983b), are consistently related to depression (Gerlsma et al., 1990; Parker, 1979, 1993, 1994), remain stable after depression remits (Gotlib, Mount, Cordy, & Whiffen, 1988), and predict the onset of depression (Gotlib, Whiffen, Wallace, & Mount, 1991).

Depressive and Anxious Symptomatology. The Beck Depression Inventory (BDI; Beck, 1967) was used to assess current depressive symptomatology. The BDI is a widely used, 21-item self-report measure of a range of depressive symptoms. Each item is answered on a 0 to 3 scale with total scores ranging from 0 to 63. Reliability and validity data for the BDI are satisfactory (Beck, 1967; Beck, Steer, & Garbin, 1988).

TABLE 1. SAMPLE SIZE, GENDER, AND PBI MEANS FOR POSITIVE AND POOR BONDING GROUPS

	Entire Sample	Secure Bonding	Poor Bonding
Measure			
N	590	25	36
Gender*			
Men	231	10	18
Women	330	15	18
PBI Overprotection			
Maternal			
M	13.95	4.08	18.89
SD	7.88	2.80	6.71
Paternal			
M	12.12	3.88	16.14
SD	7.92	3.31	6.41
PBI Care			
Maternal			
M	27.29	35.20	24.56
SD	7.94	1.76	7.11
Paternal			
M	23.24	33.16	19.83
SD	9.22	2.75	8.58

Note. PBI = Parental Bonding Instrument.

*indicates that 29 individuals failed to report their gender.

The Beck Anxiety Inventory (BAI; Beck, Epstein, Brown, & Steer, 1988) was used to assess the degree of anxious symptoms experienced by the research participants. The BAI contains 21 items reflective of anxiety symptoms, and asks participants to rate each symptom on a 0 to 3 scale. Also, like the BDI, reliability and validity data for the BAI are quite satisfactory (Steer & Beck, 1997).

Affect. The Multiple Affect Adjective Checklist (MAACL; Zuckerman & Lubin, 1965) was used to assess affect within the experimental session. The MAACL contains 66 adjectives consisting of depression (21 words), anxiety (10 words), and positive (35 words) subscales. Participants were instructed to check each adjective that most closely described their feelings and mood at the moment. Because the purpose of the current experiment was to measure effects of an induced sad mood, the depression subscale was of primary interest. Participants received a point for each adjective they endorsed on the depression scale and a point for each adjective they did not endorse on the positive subscale. Extensive reliability and validity data for the MAACL have been reported by Lubin, Zuckerman, and Woodward (1985).

Attention. To assess information processing pertaining to attentional processes, participants completed an emotionally modified Stroop task. The task was administered on a computer and included four positive, four depressive, four anxious, and four neutral words displayed in a single solid color in the center of the screen. These words were taken from research reported by Ingram, Kendall, Smith, Donnell, and Ronan (1987), who examined cognitive specificity in depression and anxiety. Each word was displayed three times in three of the four different colors (i.e., green, red, blue, or white). The order and presentation of the words were random. Participants were instructed to ignore the meaning of the word while naming the color of the word as quickly as possible. A microphone connected to the computer recorded each participant's response which allowed reaction times between the stimulus onset and the participant's vocal response to be recorded in milliseconds. Following a practice session of 6 trials, 48 trials

were assessed on 12 trials for each color. Periodically, a set of lines presented in either a horizontal or vertical direction was displayed in the center of the screen randomly 10 times during the task. Participants were instructed to name the direction in which the lines were oriented. This component of the Stroop task was added to ensure that participants attended to the center of the screen where they would more likely be exposed to the words in their entirety rather than attending to only a fraction of the words to enhance performance (e.g., the last letter).

Procedure

Following the mass testing procedure, participants were individually scheduled to take part in the experiment if they met the inclusion criteria. Upon arrival for the experiment, participants signed a consent form and then listened to taped instructions via headphones. Participants were informed that the purpose of the experiment was to help understand the effects of various personality variables and environmental stimuli on performance of information processing tasks. Those who had been assigned to the mood induction then participated in the mood induction task (described in the next section). In the control condition, participants listened to 2 different tones recorded in a random manner for a total of 6 minutes. Participants were instructed to count the number of times one of the tones was heard and were told that they would later be asked to recall this number. Immediately following the control tape, and with two minutes of music remaining on the mood induction tape, participants were administered the MAACL. Following the completion of the MAACL, all participants completed the Stroop task and then the BDI and PBI in a random order. The BDI was readministered to ensure that participants continued to be nondepressed, while the readministration of the PBI was intended to assess the stability of this measure.

Mood Induction. The mood induction consisted of a method similar to that employed by Ingram, Bernet, and McLaughlin (1994) and Ingram and Ritter (2000) and found to be effective in inducing a transient sad mood. Specifically, participants were asked to listen to sad music and to think about a sad event in their lives. Participants were told they would later be asked to write about this event. The music consisted of two selections from the soundtrack for the movie "Field of Dreams." This music continued for approximately 8 minutes.

RESULTS

PBI Stability

Because some participants were tested up to 8 weeks after they were initially screened, it was important to determine the stability of PBI scores. Correlations for screening PBI scores and scores at the time of experimental testing for each of the four scales ranged from .89 to .73. These correlations are comparable to the test-retest reliability data for many measures and therefore suggest a reasonable level of stability at the time of testing.

Pre-Existing Depressive and Anxious Symptomatology

Participants were selected only if they fell into the nondepressed range on the BDI at the time of the mass testing. Nevertheless, it is still possible that some differences existed between bonding groups in the number of depressive symptoms reported. A 2 (bonding group) by 2 (priming group) analysis of variance (ANOVA) on BDI scores found a main effect for bonding group, $F(1, 57) = 3.96, p = .05$, such that poor bonders reported significantly higher BDI scores ($M = 4.00$) than did participants with secure bonding ($M = 3.12$). Even though these means were significantly different, the magnitude of the differences was quite small. No other differences were significant.

Although anxiety was not a selection criterion, in order to ensure that no differences on this variable existed, the BAI was also administered. An ANOVA on BAI scores indicated no significant differences.

Depressive Symptomatology at the Time of the Experiment

Given the nature of parental bonding as a risk factor for depressive symptoms, and the fact that poor bonders had slightly higher BDI scores at the mass testing, it might be expected that BDI scores would be somewhat higher for poor bonders at the time of experimental assessment. To assess this possibility, a 2×2 ANOVA was conducted on BDI scores that were obtained at the time of testing. This analysis revealed only a significant effect for group status, specifically that poor bonders had significantly higher BDI scores ($M = 5.33$) than did secure bonders ($M = 2.40$), $F(1, 57) = 9.93, p = .003$. The difference was thus again small but statistically significant. In addition, BDI scores for both groups fell clearly into the nondepressed range. Nevertheless, to ensure that these differences at the time of the experiment did not confound results, all subsequent analyses covaried out these scores.

Mood Induction

A 2×2 ANCOVA on MAACL depression scale scores showed only a significant effect for mood induction, $F(1, 56) = 6.19, p = .02$. Neither of the other effects approached significance (e.g., interaction $p = .71$). As expected, participants who received the mood induction reported higher depression scores ($M = 29.32$) than did those who did not receive the mood induction ($M = 23.26$). Although the focus of the mood induction was on depressive affect, each of the other MAACL subscales were also analyzed, with no significant effects.

Attentional Interference

A 2×2 multivariate analysis of covariance (MANCOVA) on Stroop reaction times indicated only a significant main effect for bonding status, $F(4, 53) = 3.67, p = .01$. No other effects approached significant ($p > .21$). Univariate analyses were then conducted on each of the Stroop stimulus sets. No significant effects were found for either positive stimuli or neutral stimuli. For anxious stimuli, a significant effect for bonding status was found, $F(1, 56) = 5.39, p = .03$, which indicated that poorly bonding individuals had significantly faster reaction times ($M = 617.00, SD = 84.82$) than did individuals with secure bonding experiences ($M = 669.52, SD = 93.84$). No other effects were significant. For depressive stimuli, a significant bonding group main effect was also found, $F(1, 56) = 10.52, p = .002$, again indicating that poor bonders had significantly faster reaction times ($M = 606.74, SD = 73.35$) than did secure bonders ($M = 672.54, SD = 103.19$). These results are illustrated in Figure 1. Because Stroop reaction times tend to be correlated, ANCOVAs for anxious and depressive reaction times were conducted, which respectively removed the variance from the other variable. When depressive stimuli reaction times were covaried, the bonding condition main effect for anxiety reaction times no longer approached significance ($p = .88$). Conversely, when anxious reaction times were removed, the bonding effect for depressive stimuli remained significant, $F(1, 55) = 4.46, p = .04$. Faster reaction times for poorly bonded individuals thus appeared to be more specific to depressive stimuli.

Gender. ANCOVAs on reaction times were also conducted to control for gender differences among the groups. No effects were found for gender, and no differences were altered when gender was examined in any analysis.

Correlational Analyses

To determine how bonding scores might be related to affective Stroop performance within the poorly bonded group, correlational analyses were conducted which examined the association between the anxious and depressive Stroop stimulus categories and each of the parenting dimensions assessed by the PBI at the time of the experiment.¹ Furthermore, to examine specificity, these analyses partialled out each of the remaining Stroop stimulus categories. Partial correlation coefficients are presented in Table 2. As can be seen from this table, the only significant correlation was between maternal overprotection and anxious stimuli, which accounted for 30% of the variance in these reaction times. No other correlations approached significance ($p > .30$).

DISCUSSION

The goal of this study was to investigate the relationship between information processing and disrupted parental bonding within the context of a diathesis-stress paradigm. Although results suggested that the mood induction was equally effective for both bonding groups, no evidence was found to indicate that mood affected information processing. Additionally, even though positive and neutral words were interspersed with depressive and anxious words throughout the Stroop task, no significant differences were found for these more emotionally benign stimuli. There was thus no evidence to indicate that poorly bonded individuals who are not experiencing distress simply responded more quickly to any kind of stimulus. Rather, two main effects emerged, which showed that poorly bonded individuals responded significantly faster to both depressive and anxious information. Subsequent analyses, however, showed that these faster reaction times were independently related to depressive stimuli.

One of the questions posed by the current study was whether poorly bonded individuals would selectively process negatively valenced information (and thus show slower reaction times), or conversely, whether poor bonding might be associated with the avoidance of emotionally charged information (as evidenced by faster reaction times). To the extent that faster reaction times suggest that stimuli are less extensively processed, the current data are consistent with the latter possibility. Such cognitive avoidance, however, was not characteristic of all emotional information. Rather, poorly bonded individuals were more likely to selectively avoid information with depressive parameters. Individuals with a history of poor parental bonding seem to be sensitized to information with negative characteristics, but in ways that lead to cognitive avoidance rather than to selective attention, and in ways that seem to be specific to depressive information. It was also the case that, even though differences between groups for anxious stimuli did not hold up when variance associated with depressive stimuli was removed, greater degrees of maternal overprotection were associated with the specific avoidance of anxiety information within the poorly bonded group. This

TABLE 2. PARTIAL CORRELATIONS BETWEEN DEPRESSIVE AND ANXIOUS STROOP REACTION TIMES AND MATERNAL AND PATERNAL CARE AND OVERPROTECTION

	Maternal		Paternal	
	Care	Overprotection	Care	Overprotection
<i>Stroop Stimuli</i>				
Depressive	-.15	.11	.14	-.06
Anxious	-.10	-.55*	.17	-.19

* $p < .01$.

result suggests an additional level of specificity in that some bonding dimensions may be related to the avoidance of anxious stimuli. Moreover, because the Stroop task was specifically constructed to inhibit conscious performance strategies, the avoidance of affective information appears to be an overlearned and automatic response rather than a deliberate attempt to not process the content of some kinds of stimuli.

The current data are interesting in light of previous research by Ingram et al. (2001), who found that nondepressed but poorly bonded individuals evidenced fewer positive and more negative self-statements than did nondepressed individuals with secure bonding histories. Combined with the present research, it appears that although poorly bonded individuals might experience higher "ambient" levels of dysfunctional self-statements, their cognitive processing occurs in ways that seem to avoid depressive emotional information. These results raise the obvious question as to the function of this information-processing avoidance. One possibility in this regard is that it represents an overlearned cognitive *coping* effort. Specifically, individuals with a painful past, who are at risk for distress, and who tend to think negatively about themselves, may preattentively endeavor to regulate their risk by managing information in ways that lead to the minimization of negative external data.

Just as Amir and colleagues (1996) found that some individuals are able to suppress emotional Stroop task interference, attentional regulation in the current study is reminiscent of data reported by Moretti, Segal, McCann, and Shaw (1996), who found that depressed individuals attended equally to both positive and negative information, but that nondepressed individuals attended less to negative information. Similarly, Gotlib, McLachlan and Katz (1988) also found that nondepressed individuals demonstrated less attention to depressive stimuli than they did to positive stimuli, while dysphoric individuals attended equally to all stimuli. Gotlib, McLachlan, and colleagues (1988) suggested a zoom lens model of attention (Eriksen & Yeh, 1985) to interpret these results to mean that nondepressed individuals may deploy attention that is more constricted, which allows the semantic qualities of information to receive less attention. Along the lines of this model, cognitive theorists such

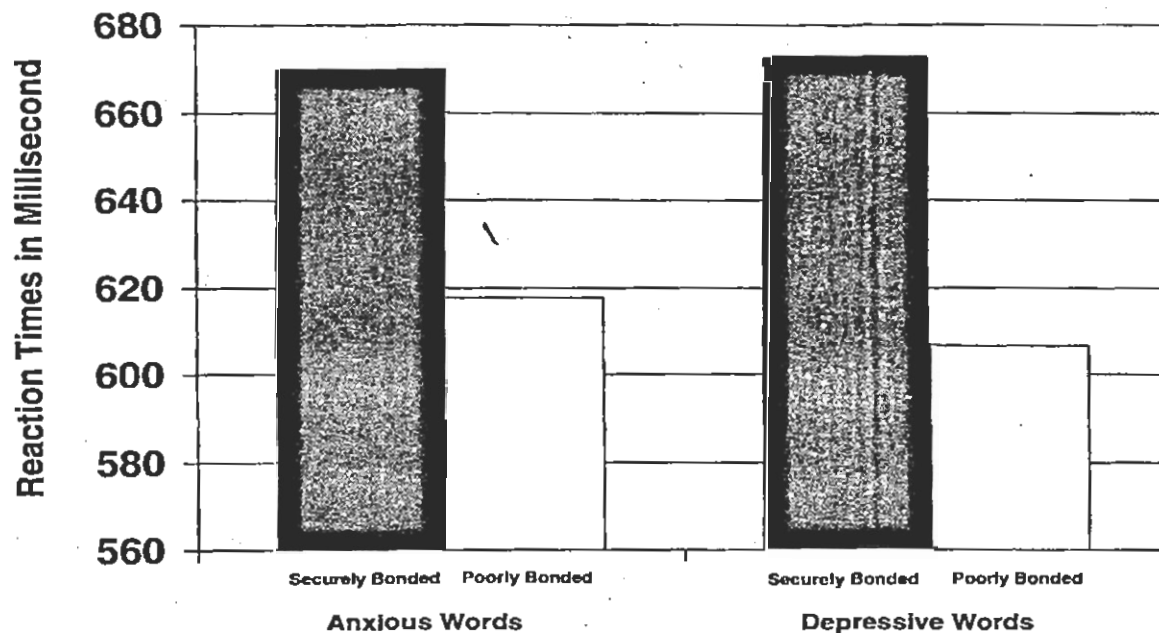


Figure 1. Mean reaction times for securely and poorly bonded participants for anxious and depressive stimuli.

as Neisser (1967) have long suggested that preattentive factors operate at the earliest stages of attention. These factors provide enough data about content to either devote more attention and higher levels of processing to this information, or constrict cognitive responses in a manner that reduces further processing of the stimuli. If such factors were reflected in the current data, preattentive operations in poorly bonded people who are vulnerable may constrict and narrow attention enough to deflect processing of threatening stimuli, such as depressive Stroop words.

Such a process is speculative, of course, but it is consistent with the automatic nature of the Stroop task and with similar self-protective cognitive strategies that have been recognized in the literature for some time. For example, Greenwald (1980) reviewed extensive data which suggest that people employ a number of cognitive processes that serve to psychologically protect themselves. In line with this idea, and in the absence of the emotional distress to which they are demonstrably vulnerable (Blatt & Homann, 1992; Gerlsma et al., 1990; Parker, 1994), poorly bonded people perhaps attempt to protect themselves by diverting attention from information that is emotionally charged in a negative fashion. If the avoidance of negative information is a protective or coping mechanism, however, the fact that these poorly bonded people are at heightened risk suggests that such mechanisms may not be particularly effective in the face of stressful life events of sufficient severity to precipitate significant emotional distress (see Monroe & Simons, 1991). Moreover, some models of psychopathology might suggest that emotional suppression in the short term may in fact have negative long-term consequences. Further research will need to determine the mechanisms that key the transition between such cognitive processes and dysfunction in poorly bonded individuals.

Little research has assessed the parental correlates of information processing. In the current study, correlational analyses indicated that not only was level of maternal overprotection singularly and uniquely related to attention to anxious stimuli, but also accounted for substantial variance in reaction times (30%). The fact that overprotective mothers are associated with anxiety is not surprising (Bowlby, 1969, 1973, 1980), but in this case it appears that maternal overprotection was associated with anxious information processing in ways linked to an overlearned avoidance response. It must be acknowledged in this regard, though, that the PBI was administered after the Stroop task, and it cannot be ruled out that Stroop performance affected subsequent PBI responses. However, if this were the case it would prove especially interesting because it would indicate that constricted attention subsequently biased poorly bonded people to report their mothers as overprotective. Moreover, this functioned in a way that uniquely affected reports of maternal overprotectiveness, but not maternal care or either paternal bonding dimension. If attentional processing did not affect subsequent PBI responses, then the alternative view indicates that one way to contend with the anxiety that is associated with an overprotective mother is to subsequently avoid sustained attention to anxious information.

Even though the current study failed to find an effect for mood, it would seem premature to conclude that mood is not linked to the activation of dysfunctional cognitive structures in individuals with poor bonding. There are several reasons for not accepting this null hypothesis. For example, attention is a multifaceted processes, and it may be that the "kind" of attention assessed by the Stroop task is not particularly reflective of the mood-related activation of cognitive structures. Alternatively, it may be that the avoidance responses seen in poorly bonded individuals who are not depressed were sufficient to prevent the activation of negative structures; to elicit such depressive information processing, a negative mood state may need to be stronger to overcome a tendency toward emotional avoidance. Mood-induction studies always walk a fine line between producing a mood that is strong enough to obtain effects, but not so strong as to raise ethical concerns (Ingram et al., 1998). Thus, the only conclusion that can be drawn from the current study was that a mood-cognition link was not found. Nevertheless, given theoretical perspectives (Ingram et al., 1998) as well as empirical research which suggests

that mood can be an activating trigger (Segal & Ingram, 1994), future research would be wise to continue to examine the influence of mood, and mood-related events, on the association between cognition and bonding (and on the related construct of attachment).

The limitations of the current study must be acknowledged. For instance, the PBI represents a measure of perceived parental characteristics that relies on retrospective self-reports. Although a wealth of available information suggests that such measures can provide valid data (Brewin, Andrews, & Gotlib, 1993), caution must nevertheless be exercised in drawing conclusions about the recollection of events that happened in the past. Additionally, the PBI assesses perceptions of parental treatment that are thought to affect bonding, but bonding could not be directly measured. Care must therefore be applied in interpreting the results about bonding. Similarly, even though attachment and bonding are closely related constructs, it must also be acknowledged that bonding variables may be associated with cognition in somewhat different ways than are attachment variables. Finally, the fact that research participants were college students must also inform any attempts at generalization. Although bonding experiences are important issues to consider in this population, future research will need to determine whether the results obtained in this study characterize samples with other demographic characteristics.

In summary, the current data show that poorly bonded individuals in a nondistressed state appear to evidence a specific avoidance of depressive information. Another aspect of specificity was also detected in that higher levels of maternal overprotection appear to be related to the specific avoidance of anxious information in poorly bonded people. Such results argue that information processing in this group is not as simple as an enhanced attention to potentially dysfunctional information, and suggest that avoidance may serve as an effort to regulate distress, but in ways that may not be particularly effective. Clearly these individuals are vulnerable to a variety of psychological difficulties, and future research will need to determine which processes bring about the realization of this vulnerability.

NOTE

1. The number of research participants was too small to meaningfully conduct regression analyses.

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