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Agoraphobia and Anxious-Ambivalent Attachment: An Integrative Review

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Abstract — Attachment theory proposes that internal working models of attachment, that is, mental representations of attachment relationships, are shaped in childhood experiences with primary caregivers. It is hypothesized that an anxious-ambivalent internal working model of attachment is a risk factor for the development of agoraphobia. Indirect support for this hypothesis was obtained from a meta-analysis of four studies on parental caregiving style and from a secondary analysis of six studies on childhood separation anxiety in adult agoraphobics and normal and clinical control subjects. However, anxious-ambivalent attachment does not seem to be specific to agoraphobia alone, but appears to play an etiological role in other mental disorders as well. Suggestions for future research are offered.

Agoraphobia is a severely incapacitating anxiety disorder affecting substantial portions of the general population. In an epidemiologic catchment area study in five U.S. cities, Weissman (1988) reported a six-month prevalence rate between 2.7 and 5.8 per 100. The disorder usually begins with the onset of spontaneous panic attacks, followed by the development of anticipatory anxiety and avoidance behavior. Agoraphobic fear typically occurs in supermarkets, restaurants, public transportation, and enclosed places. Agoraphobic patients often feel safer in these situations when accompanied by someone they know. In its most severe form, agoraphobia causes a person to be nearly completely housebound.

The etiology of agoraphobia is unknown, although a growing body of research indicates several biological and psychological mechanisms. In this paper we will focus on John Bowlby's (1969, 1973, 1980) attachment theory as a theoretical framework for the etiology of agoraphobia. We will briefly review this theory and present Bowlby's hypotheses regarding the familial etiology of agoraphobia. Then, we will review the empirical literature pertaining to these hypotheses. Since recent research (Aronson & Logue, 1987; Garvey & Tuason, 1984; Thyer & Himle, 1985; Uhde et al., 1985) has shown that

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agoraphobia is closely related to panic disorder, that is, a disorder characterized by spontaneous panic attacks without phobic avoidance, both disorders will be considered here.

BOWLBY-AINSWORTH ATTACHMENT THEORY

Attachment theory is an integral theory of human socio-emotional development based on insights from ethology, systems theory, and psychoanalysis. Bowlby (1969) maintains that the human infant is endowed with an "attachment behavioral system," which ensures sufficient proximity to one or more protective caretakers, and thus survival. In accord with earlier psychoanalytic scholars (Fairbairn, 1952; Hartmann, 1958, cited in Bretherton, 1990), Bowlby (1969, 1973) proposed that the child develops mental representations or "internal working models" of the relationships with his or her attachment figures. These working models are mental representations of interactive sequences, and they contain expectations regarding relationships. They govern future interactive behavior. Although internal working models of attachment relationships are molded by experiences in these relationships, and so would theoretically be continuously changing, Bowlby (1973) has noted that internal models shaped early in life tend to be resistant to change. The internal model itself will start to have an impact on experience, since it influences such vital cognitive processes as attention, information processing, and decision making. In general, the internal working model will generate experiences that are in line with it.

Ideally, the child's attachment figures are optimally *sensitive* and *responsive* to the child's signals and needs. Sensitivity refers to the ability to accurately perceive the child's signals, and responsivity to the capacity to respond consistently and adequately (Ainsworth et al., 1978). A sensitive-responsive caretaker serves as a safe and reliable anchor from which to explore the world, the so-called 'secure-base' (Ainsworth, 1973). Ainsworth et al. (1978) demonstrated, however, that some caretakers are less than optimally responsive. They discovered that consistently unresponsive, and inconsistently responsive caretaking leads to anxiety feelings in the child, to anxious internal working models of attachment. For infants, a laboratory procedure involving two brief (maximum three minutes) separations from a caretaker (the Strange Situation) was used to assess the type of internal working model of attachment; for older children longer separations were used (e.g., Main et al., 1985). Children of sensitively responsive caregivers tend to be easily comforted after reunion with the attachment figure and will resume exploratory behavior within a short while. These children reveal a secure internal working model of attachment. Children of consistently unresponsive or rejecting caregivers tend to avoid the attachment figure after reunion because they have learned that this figure is unable to relieve their stress. Children of inconsistently responsive caregivers are ambivalent, as evidenced by alternating contact-seeking and angry, resistant behavior. These anxious-ambivalently attached children try to minimize the distance from the caregiver and at the same time to prevent further separations by displaying their anger. Some of these children are difficult to soothe and

are slow to resume exploration of the environment (Ainsworth et al., 1978). At home, secure infants show significantly less separation anxiety when mother leaves the room than either avoidant or ambivalent children. Ambivalent children show most separation anxiety both at home and in the Strange Situation (Ainsworth et al., 1978, p. 127).

In recent years, these same three internal working models of attachment have been identified in adults by means of the Adult Attachment Interview, developed by Main and colleagues (Main et al., 1985; Main & Goldwyn, in press). The Adult Attachment Interview (AAI) is a semi-structured interview with questions concerning the relationships with parents in the past and present, and specific attachment-related experiences (e.g., separation, loss, illness, emotional distress). Individuals rated secure on the basis of their AAI transcript tend to value attachment relationships and present a coherent picture of their attachment biography, whether their childhood attachment-related experiences were favorable or not. Avoidant (or 'dismissive') adults tend to dismiss the importance and influence of attachment relationships in their life. On an abstract semantic level they present a positive image of their parents, but are unable to support it with childhood memories of a loving parent. Thus, an idealizing stance and a claim of lack of childhood memories are highly characteristic of these individuals. The parents of dismissive adults often displayed rejection of attachment behavior in their children. Ambivalent (or 'preoccupied') individuals are still highly preoccupied with past attachment relationships and/or experiences, and are therefore unable to describe the past coherently. These individuals may still be angry with their parents or passively trying to please them. Often parents of ambivalent adults showed an involving, overprotective, and role-reversing parenting style. The infant and adult internal working models of attachment are summarized in Table 1.

Thus far, only one study has provided evidence for Bowlby's thesis of the enduring quality of internal representational models of attachment. Main et al.

TABLE 1
PATTERNS OF ATTACHMENT AS RELATED TO CAREGIVING STYLE AND SEPARATION ANXIETY

Caregiving Style	Separation Anxiety	Infant Attachment	Adult Attachment
Consistently unresponsive-rejecting	High	Anxious/ avoidant	Dismissive
Consistently responsive	Low	Secure	Secure
Inconsistently responsive-overprotective	High	Anxious/ ambivalent	Preoccupied

(1985) found a correlation of .76 ($p < .001$) between security of attachment to mother at one year and security of attachment to mother at six years of age. The correlation between security of attachment to the father at 18 months and at six years was much lower ($r = .30$, $p < .05$). There have not yet been conducted long-term follow-up studies to see whether attachment status is stable from infancy to adulthood. Interestingly, however, several independent studies have provided evidence for intergenerational transmission of the internal attachment models. A secure parent tends to have a secure relationship with his or her child; a dismissive parent, an avoidant child; and a preoccupied parent, an ambivalent child (Fonagy et al., in press; Grossmann et al., 1988; Main et al., 1985; van IJzendoorn et al., 1990).

AGORAPHOBIA AND AMBIVALENT ATTACHMENT

Bowlby has hypothesized that an anxious-ambivalent internal working model of attachment plays a key role in the etiology of agoraphobia. He considers the fear of leaving home (i.e., separation anxiety) as the central symptom of this condition. This fear is the result of pathogenic patterns of family interaction. He distinguishes three patterns (1973; p. 345):

- Pattern A: Mother, or more rarely father, is a sufferer from chronic anxiety regarding attachment figures, and either did in the past or still does retain the patient at home to be a companion.
- Pattern B: The patient fears that something dreadful may happen to mother, or possibly father, while the patient is away from the parent; the patient therefore either remains at home or else insists on the parent accompanying the patient whenever the patient leaves the house.
- Pattern C: The patient fears that something dreadful may happen to him or herself if away from home, and so remains home to prevent that.

These three patterns were derived from extensive clinical research and case material (for a review, see Bowlby, 1973). Bowlby considered intense ambivalence the main feature of parents of agoraphobics. Parents fitting into patterns A through C were overprotective, dominant, role-reversing, guilt-inducing, and perhaps agoraphobic themselves. Parental threats of abandonment, separation, and suicide were also thought to be antecedents of agoraphobia (Bowlby, 1973). In the last part of his trilogy "Attachment and Loss," Bowlby also linked agoraphobia with chronic mourning following a loss (1980), but he does not elaborate on the exact mechanisms of this link.

Prospective studies linking childhood anxious-ambivalent attachment status to adult agoraphobia have not been conducted. A few follow-up studies of anxious-ambivalent infants have shown that these children function less well during the toddler and preschool years. Erickson et al. (1985) conducted a follow-up study of an original sample of 267 infants observed in the Strange Situation. The infants' mothers were considered at risk for later caretaking problems because of low socioeconomic background, lack of social support,

and high degrees of life stress. When the children were between 4.5 and 5 years old, they were rated by observers and their preschool teachers on seven-point scales assessing agency, ego control, dependency, positive affect, social skills, negative affect, compliance (observer ratings), and the Preschool Behavior Questionnaire (PBQ; Behar & Stringfield, 1974; teacher ratings). The PBQ measures socio-emotional problems in young children, and comprises five factors: hostility, hyperactivity, gives up/cries easily, nervous habits, and worried/unhappy.

The observers rated anxious-ambivalent infants as significantly less agentic (confident, assertive) and as having poorer social skills than securely attached infants. Teachers rated anxious-ambivalent infants as more hyperactive and more nervous than securely attached infants, but these differences were not significant. However, the power of the statistical tests was relatively weak due to the small number of anxious-ambivalent infants ($N = 10$).

Matas et al. (1978) studied 37 toddlers of an original sample of 48 middle-class mother-infant dyads. Ten variables were rated during a problem-solving task (including frequencies of help seeking, whining/crying, aggressive behavior, frustration behavior, compliance, and noncompliance). Furthermore, Likert scales for enthusiasm, positive affect, and negative affect were used. The analyses showed that securely attached infants were significantly more enthusiastic and compliant, and exhibited less frustration behavior and less crying or whining than the anxiously attached infants.

Recent research with the Adult Attachment Interview has shown that anxious-ambivalently attached late adolescents are rated as more anxious by their peers than either securely or avoidantly attached adolescents (Kobak & Sceery, 1988). They also reported higher levels of psychological distress than the other two groups.

As is evident from a review of six recent studies with the Adult Attachment Interview in normal populations, not all anxious-ambivalently attached adults suffer from agoraphobia (van IJzendoorn, 1992). Bowlby's claims of a purely familial etiology may have to be refined. We would like to propose that an anxious-ambivalent working model of attachment relationships should be viewed as a risk factor for later development of agoraphobia. Coupled with certain temperamental dispositions and high levels of psychosocial stress, the disorder's developmental foundation may then be laid (Biederman et al., 1990; Faravelli et al., 1985; Tweed et al., 1989).

In this paper, we will address the hypothesis of an anxious-ambivalent attachment organization in adult agoraphobia. According to attachment theory, an ambivalent internal working model of attachment is characterized by a greater degree of separation anxiety than a secure model. The ambivalent model is also hypothesized to be the result of a caregiving style of involvement and overprotection. Both the separation anxiety and the caregiving style hypotheses will be tested using existing studies in the empirical literature. To test the separation anxiety hypothesis, agoraphobic patients will be compared to normal controls and nonagoraphobic neurotic controls. To test the caregiving style hypothesis, agoraphobics will be compared to normal controls and social phobia patients.

METHOD

PsychLit and Medline (1973–1990) were used to screen for studies on the relationship between attachment and agoraphobia. The following index terms were used: attachment behavior, object relations, parent-child relations, separation anxiety, separation individuation, agoraphobia, anxiety neurosis, and phobias. Criteria for inclusion in the current study were: (a) a (quasi-)experimental design comparing agoraphobic subjects with controls, and (b) use of reliable and valid measures for retrospective assessment of separation anxiety and caregiving style. It was preferable for psychiatric diagnoses to be assigned on the basis of (semi-)structured diagnostic interview schedules. References found in selected studies were also screened.

Several studies were excluded because they used samples of mixed anxiety disorder patients (e.g., Alnaes & Torgersen, 1990; Lamont et al., 1976; Parker, 1981). Most studies used DSM-III(-R) criteria (American Psychiatric Association, 1980, 1987) for diagnoses, but only a relatively small number used structured diagnostic interviews. With respect to caregiving style, two measures have established reliability and validity: the Parental Bonding Instrument (PBI; Parker, Tupling, & Brown, 1979) and the Egna Minnen Betraffande Uppfostran (EMBU; English translation: Memories of my upbringing; Perris et al., 1980; Arrindell, Emmelkamp, Brilman, & Monsma, 1983; Arrindell, Hanewald, & Kolk, 1989; Arrindell et al., 1986).

Briefly, the PBI is a 25-item self-report questionnaire measuring the parenting style factors "Care" and "Overprotection." Each of the items is scored on a four-point scale, and subjects are instructed to try to remember each parent as they were before the subject reached the age of 16. The EMBU is originally a Swedish questionnaire for the assessment of memories of parental caregiving style. Arrindell, Emmelkamp, Brilman, & Monsma (1983) found the instrument to have a four-factor structure: Rejection, Emotional warmth, Overprotection, and Favored subject, which was replicated in a subsequent study (Arrindell & van der Ende, 1984).

For testing the second hypothesis of the current study, that agoraphobic patients had overprotective and involving parents, EMBU and PBI dimensions of Overprotection were considered relevant. The Overprotection factor is defined as control, overprotection, excessive contact, intrusion, infantilization, and prevention of independent behavior. The PBI Care factor and the EMBU Emotional Warmth factor measure a similar construct, termed Affection by Gerlsma et al. (1990). This factor refers to affection, empathy, and closeness, and will be included for exploratory purposes.

Measures for retrospective assessment of childhood separation anxiety are highly diverse, ranging from 14-item questionnaires (Thyer et al., 1985) to a few questions regarding early separation anxiety and school phobia in the course of an evaluation interview (Zitrin & Ross, 1988). None of these measures has established reliability and validity. Because of the lack of any psychometrically researched instrument in this area, all pertinent studies, which included agoraphobic patients and a comparison control group, were selected.

Data Analysis

For the separation anxiety hypothesis. Our literature search revealed seven studies that examined childhood separation anxiety in adult agoraphobics and control subjects (see Table 2).

Since the dependent variable for all but one of the studies (Thyer et al., 1985) was categorical, we conducted two secondary analyses instead of a meta-analysis. The data from the different studies were entered into single 2 (agoraphobia vs control group) × 2 (yes vs no separation anxiety) contingency

TABLE 2
SUMMARY OF STUDIES OF CHILDHOOD SEPARATION ANXIETY IN AGORAPHOBIC AND CONTROL GROUPS

Study	Subjects	*N*	Diagnosis	*N* Separation Anxiety
Ayuso et al. (1989)	panic disorder with/without agoraphobia vs	107	DSM-III-R, SCID-UP	20
	normal controls	50		2
Balon et al. (1989)	panic disorder with/without agoraphobia vs	100	DSM-III-R	29
	normal controls	100		6
Deltito et al. (1986)	panic disorder with agoraphobia	25	DSM-III-R	15
	vs panic disorder without agoraphobia	14		0
Gittelman & Klein (1984)	agoraphobia	58	DSM-III	29
	vs simple phobia	59		16
van der Molen et al. (1989)	panic disorder with/without agoraphobia	41	DSM-III	7
	vs neurotic controls	83		29
	vs normal controls	50		5
Thyer et al. (1985)	agoraphobics	44	no information	SAQ[a]
	vs simple phobics	83		
Zitrin & Ross (1988)	agoraphobics + panic disorder with mild avoidance	122	not DSM-III[b]	45
	social + simple phobics	66		26

[a]SAQ = 14-item Separation Anxiety Questionnaire Agoraphobics did not differ from simple phobics on any item of this questionnaire
[b]This is a retrospective study, prior diagnostic assignments were retrospectively related to DSM-III-R criteria

tables. Because the control samples were dissimilar across studies, two separate analyses were conducted.

For the caregiving style hypothesis. The search revealed four studies (see Table 5) that employed either the PBI or the EMBU with samples of agoraphobic patients and normal control subjects. Because the samples and the dependent measures of the different studies were largely comparable, we decided to conduct a meta-analysis. Hedges & Olkin (1985, p. 81) recommend the index:

$$d = \left(1 - \frac{3}{4N-9}\right) \times \frac{X_e - X_c}{s},$$

with X_e and X_c the means of experimental and control groups, $N = N_e + N_c$, and s the pooled sample standard deviation, as an unbiased estimator of effect size (p. 81). Effect size is a standardized measure of the difference between experimental and control group means. Silove (1986) did not provide standard deviations in his paper, so in this case the same d could be determined from the t-statistic (Hedges & Becker, 1986):

$$d = \left(1 - \frac{3}{4N-9}\right) \times t \sqrt{\frac{N_e + N_c}{N_e \times N_c}}$$

To determine whether ds from a series of studies share a common effect size (i.e., were consistent across studies), we calculated the homogeneity statistic Q (Hedges & Olkin, 1985, p. 123), which has an approximate chi-square distribution with $k - 1$ degrees of freedom, where k is the number of effect sizes. If the studies were heterogeneous, average effect sizes were not computed. The caregiving style data were analyzed using a software package for meta-analysis META (Schwarzer, version 4.3).

RESULTS

The Separation Anxiety Hypothesis

First, an analysis of all studies comparing agoraphobics with normal controls was performed, using the χ^2 test of independence (see Table 3).

Agoraphobic patients reported significantly more childhood separation anxiety than normal control subjects ($\chi^2(1) = 20.75$, $p < .001$).

Second, we performed a similar analysis of all studies comparing agoraphobics to nonagoraphobic/nonpanic neurotic patients (see Table 4).

Agoraphobic patients and neurotic control subjects did not differ significantly with regard to frequency of childhood separation anxiety disorder ($\chi^2(1) = 0.30$, NS). The study by Deltito et al. (1986) was not included in any of the analyses because it contained a control group of patients with panic disorder *without* agoraphobia. Most contemporary scholars consider these patients highly comparable to patients *with* agoraphobia, so we deemed it inappropriate to

TABLE 3
NUMBER OF CASES OF CHILDHOOD SEPARATION ANXIETY FOR AGORAPHOBIA PATIENTS AND NORMAL CONTROLS

	Separation Anxiety		
Sample[a]	Yes	No	Total
Agoraphobics[b]	56	192	248
Normal controls	13	187	200

[a]Total sample based on Ayuso et al (1989), Balon et al (1989) and van der Molen et al (1989)
[b]For all three studies the sample included patients with panic disorder with and without agoraphobia

include them in our neurotic control sample. It should be noted, however, that Deltito and colleagues found that panic patients with agoraphobia report significantly more childhood separation anxiety than those without agoraphobia.

Because of the lack of a comparable categorical dependent measure, the study by Thyer et al. (1985) could not be included in the secondary analysis. We note, however, that the face validity of Thyer et al.'s separation anxiety questionnaire is questionable. Seven of its fourteen questions do not seem related to childhood separation anxiety, nor to the DSM-III-R criteria for Separation Anxiety Disorder of Childhood. Examples of such questions are: "Was your mother ill while she was pregnant with you?" "Did you have feeding problems as an infant?" and "How often did your parents leave you with baby-sitters when you were very very young?"

The Caregiving Style Hypothesis

Table 5 gives effect sizes *d* for the comparisons between agoraphobic and normal control groups on Affection and Overprotection factors. Cohen (1977)

TABLE 4
NUMBER OF CASES OF CHILDHOOD SEPARATION ANXIETY FOR AGORAPHOBIA PATIENTS AND NEUROTIC CONTROLS

	Separation Anxiety		
Sample[a]	Yes	No	Total
Agoraphobics[b]	81	140	221
Neurotic controls[c]	71	137	208

[a]Total sample based on Gittelman and Klein (1984), van der Molen et al (1989) and Zitrin & Ross (1988)
[b]For the study by van der Molen et al (1989), the sample also included patients with panic disorder without agoraphobia
[c]This sample consisted mainly of patients with social and simple phobia (N = 139, Gittelman and Klein, 1984, van der Molen et al, 1989, Zitrin & Ross, 1988) The remaining 69 patients suffered from various neurotic disorders (van der Molen et al, 1989)

TABLE 5
SUMMARY OF EFFECT SIZES OF STUDIES OF CAREGIVING STYLE IN AGORAPHOBIC PATIENTS AND NORMAL CONTROL SUBJECTS

Study	Subjects	*N*	Dependent Variable	Affection		Overprotection	
				Mother *d*	Father *d*	Mother *d*	Father *d*
Arrindell et al. (1983)	agoraphobics vs normal controls	40 277	EMBU	–0.73	–0.64	0.45	0.30
Arrindell et al. (1989)	agoraphobics vs normal controls	43 100	EMBU	–0.75	–0.61	0.00	0.13
Parker (1979)	agoraphobics vs general practice controls	41 41	PBI	–0.88	–0.36	0.05	0.14
Silove (1986)	agoraphobics vs normal controls	33 31	PBI	–0.50	–0.80	0.67	0.64

designated $d = .2$ a small effect size, $d = .5$ medium, and $d = .8$ large. The effect sizes show that agoraphobic patients rated their parents lower on Affection and higher on Overprotection across studies (see Table 1). For Affection, effect sizes ranged between medium–small (–0.36) and large (–0.88). For Overprotection, they were between zero and medium-large (0.67).

For all factors effect sizes were homogeneous across studies. However, for maternal overprotection the homogeneity index $Q(3) = 6.74$, $p = .08$, indicating only marginal homogeneity. Mean weighted effect sizes $d+$ (Hedges & Olkin, 1985, p. 112) were –0.73 ($p < .001$) for maternal Affection, –0.60 ($p < .001$) for paternal Affection, and 0.27 ($p < .01$) for maternal and paternal Overprotection.

Three of the four studies (Arrindell, Emmelkamp, Monsma, & Brilman, 1983; Arrindell, Kwee, Methorst, van der Ende, Pol, & Moritz, 1989; Parker, 1979) contained a control group of patients with social phobia. Since it is of particular interest to test the specificity of our caregiving style hypothesis to agoraphobia, we conducted a second meta-analysis comparing agoraphobic and social phobic patients on the caregiving style factors (see Table 6). Effect sizes ranged between zero and medium for the maternal and paternal Affection and the maternal Overprotection scales. For paternal Overprotection, effect sizes ranged between small and medium-small. The combination of effect sizes from the three studies yielded a homogeneous sample for all factors. Mean weighted effect sizes $d+$ were 0.00 ($p > .05$) for maternal Affection, 0.38 ($p < .01$) for paternal Affection, –0.30 ($p < .05$) for maternal Overprotection, and –0.17 ($p > .05$) for paternal Overprotection. Thus, the two groups do not seem to differ with regard to maternal Affection, but agoraphobics report more paternal Affection (medium-small effect size),

TABLE 6
SUMMARY OF EFFECT SIZES OF STUDIES OF CAREGIVING STYLE IN AGORAPHOBIC AND SOCIAL PHOBIC PATIENTS

Study	Subjects	*N*	Dependent Variable	Affection		Overprotection	
				Mother *d*	Father *d*	Mother *d*	Father *d*
Arrindell et al. (1983)	agoraphobics vs social phobics	40 29	EMBU	−0.04	0.23	−0.05	−0.14
Arrindell et al. (1989)	agoraphobics vs social phobics	43 16	EMBU	0.52	0.51	−0.45	−0.28
Parker (1979)	agoraphobics vs social phobics	41 40	PBI	−0.27	0.45	−0.44	−0.13

less maternal Overprotection (medium-small effect size), and less paternal Overprotection (small effect size).

DISCUSSION

Our test of the separation anxiety hypothesis yielded mixed results. On the one hand we found that adult agoraphobics reported significantly more childhood separation anxiety than nonpatient control subjects. However, we did not find a difference between agoraphobic patients and neurotic control patients in frequency of childhood separation anxiety. Thus, the *specificity* of the link between childhood separation anxiety and adult agoraphobia seems questionable. Childhood separation anxiety seems to present a more general predisposition to psychological disturbance.

Our hypothesis of the presence of an overprotective, role-reversing caregiving style in the parents of agoraphobic patients was also only partially supported. Compared to normal control subjects, agoraphobic patients reported that their fathers and mothers were more overprotective, but the size of this effect was relatively small ($d = 0.27$ for both). Although the homogeneity index Q for maternal overprotection failed to reach the conventional .05 significance level, the effect sizes for this factor were rather divergent (0.00, 0.05, 0.45, and 0.67). Two studies found medium–large effect sizes (Silove, 1986; Arrindell, Emmelkamp, Monsma, & Brilman, 1983), and the other two found virtually no effect (Arrindell, Kwee, Methorst et al., 1989; Parker, 1979). We examined whether sample characteristics could explain this finding, but failed to detect any systematic differences. Arrindell, Emmelkamp, Monsma, & Brilman (1983) and Parker (1979) used an agoraphobic outpatient sample, whereas Arrindell, Kwee, Methorst, van der Ende, Pol, & Moritz (1989) and Silove (1986) used inpatient agoraphobics. In all studies, patient and control samples were matched with regard to sex and age. Exact information on the sex distribution of the samples was not available for the studies by Arrindell, Emmelkamp, Monsma, &

Brilman (1983) and Parker (1979), so we could not determine whether differing sex distributions could have caused the divergent findings across studies.

Agoraphobic patients reported both parents to be less affectionate than normal controls, with medium to large effect sizes. The combined effect size for the Affection factor was higher than the combined effect size for the Overprotection factor. It could thus be concluded that agoraphobic patients view their parents as highly unaffectionate, but only moderately overprotective, intrusive, and role-reversing. This finding was not predicted, but is also not in complete disagreement with attachment theory and attachment research. Adults with an anxious-ambivalent working model of attachment often report parenting that was high in involvement, and included guilt inducement, criticism, and role-reversal (Main & Goldwyn, in press). However, these adults' parents also seem to have been characterized by a lack of affectionate response, especially in times of need (e.g., when child was in pain, ill, or emotionally upset). In infant research, the mothers of anxious-ambivalent infants tend to show inconsistent responsiveness to their infants' signals, and are only moderately affectionate compared to the mothers of securely attached infants (Ainsworth et al., 1978).

When we compared agoraphobic patients to social phobic patients, we found that agoraphobic patients rate their parents as *somewhat less* overprotective than social phobic patients (small effect size). Social phobic and agoraphobic patients did not differ on reported maternal affection, but agoraphobics reported their fathers as more affectionate (small effect size).

Both hypotheses were thus relatively well supported when comparing agoraphobics to normal control subjects, but not when comparing them to neurotic and social phobic control groups. It should be noted here that the agoraphobic samples in many of the studies included patients with panic disorder *without* agoraphobia. This fact may have obscured the differences between agoraphobic patients and neurotic control groups. Although panic disorder patients with and without agoraphobia share their panic symptomatology and a number of other characteristics in common (e.g., provocation of their panic attacks with carbon dioxide, sodium lactate, and caffeine; response to antipanic medication), they differ in one important respect (i.e., a pattern of agoraphobic avoidance behavior). A comparative study of panic patients with and without agoraphobia would provide the most powerful test of the theoretical model proposed, yet contemporary researchers have tended to mix these two patient groups. Interestingly, the one study that did compare panic patients with and without agoraphobia found a significant difference in childhood separation anxiety in the direction predicted by our model (see above; Deltito et al., 1986).

We should also keep in mind that childhood separation anxiety and an overprotective caregiving style, and thus possibly anxious-ambivalent attachment, is probably but one risk factor for the development of adult agoraphobia. This could explain why the effect sizes tend to be modest; for instance, only 23% of agoraphobics reported childhood separation anxiety. Several other risk factors have recently been documented. Biederman et al. (1990) found that a temperamental characteristic termed 'behavioral inhibition to the unfamiliar',

measured at 21 months, predicted anxiety disorders and phobic disorders later in childhood. Early traumatic life events might also pose a risk. In a large community sample, Tweed et al. (1989) found that individuals whose mothers had died before the individual had reached age 10 ran a seven-times higher risk of developing agoraphobia than individuals whose mothers had not. For parental divorce before age 10, the increased risk was 3.4 for agoraphobia and 4.5 for panic disorder. Comparing 31 agoraphobic patients to normal control subjects, Faravelli et al. (1985) found a significantly higher rate of early traumatic life events in the former group. Long separations from one parent and parental divorce were common among agoraphobics. Interestingly, many of the early life events in these studies are related to the decreased availability of a child's primary attachment figures.

Before we can accept our hypothesis that an anxious-ambivalent attachment is a nonspecific risk factor in adult agoraphobia, we should review the methodology of our study. First, it should be mentioned that the database for testing the parental caregiving style hypothesis consisted of only four studies. This is a small number of studies to conduct a meta-analysis, and increases the sensitivity of the findings to the so-called 'file drawer problem' (Rosenthal, 1984, 1990). This problem refers to the idea that published studies in the behavioral sciences are a biased sample of studies that have actually been conducted due to the biased policy of not publishing nonsignificant results. The file drawer hypothesis can only be safely ruled out when the number of available replications grows large, and the tolerance for null results in the file drawer studies increases (Rosenthal, 1990). The file drawer problem also applies to our secondary analysis of the separation anxiety hypothesis which is based on six studies. However, the secondary analysis was based on original data without the use of comprehensive measures, which increases the power of the findings somewhat. Secondly, all studies in the meta-analysis comprised patients either applying for psychological treatment or undergoing such treatment. Thus, the question remains whether the current findings are only characteristic of the help-seeking agoraphobic population or of all individuals suffering from this disorder. Theoretically, it is conceivable that only patients who are willing to consider a psychological treatment for their disorder tend to endorse a psychological etiology, which might make them more liable to report negative childhood attachment experiences. Although probably difficult to realize, studies of childhood attachment experiences of adult agoraphobics in the general population would be highly relevant.

A third issue is the question of whether the retrospective measuring instruments used in the studies reviewed are reliable and valid instruments for the assessment of actual childhood experiences. In the Method and Results sections we briefly mentioned the lack of a psychometrically sound instrument for measuring childhood separation anxiety retrospectively. The instruments used are highly divergent, and some do not even show adequate face validity (Thyer et al., 1985). The most promising instruments in this area are those relying on the DSM-III-R criteria for childhood Separation Anxiety Disorder (Balon et al., 1989; van der Molen et al., 1989). The PBI and EMBU questionnaires used for the retrospective assessment of parental caregiving style have

acceptable psychometric properties (reliability, unrelated to social desirability, factorial invariance). As for validity, Parker (1989) found a strong correlation between all PBI scales for both monozygotic and dizygotic twins. A recent twin study of the PBI with a larger sample demonstrated that for female twins, three of its scales correlated highly (Mackinnon et al., 1991). Thus, the PBI scales seem to measure actual parental behavior. The similarity of the factor structure of PBI and EMBU suggests that this conclusion would also apply to the latter instrument.

The current study provided an indirect test of our main hypothesis of an anxious-ambivalent internal working model of attachment as a risk factor for agoraphobia. We tested two derived hypotheses, one on childhood separation anxiety, and one on parental caregiving style. Our review provides provisional support for the idea of ambivalent attachment in agoraphobic patients. Ideally, a long-term follow-up of children with anxious-ambivalent attachment relationships to their caregivers would have to be conducted. Since such a study is probably not feasible, an acceptable alternative would be a study of the internal working model of attachment in adult agoraphobics, using the Adult Attachment Interview. Although this interview asks questions about childhood relationships with both parents, the final assessment of the attachment quality is based on the subject's *current* state of mind with respect to attachment (Main & Goldwyn, in press). Bowlby (1973) has emphasized the relative stability of the internal working model of attachment over time, so it is very likely that in at least a majority of cases the adult internal working model would bear some resemblance to the childhood model. As mentioned earlier, the most suitable test of our model would be provided by a comparison study of panic disorder patients with and without agoraphobia.

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