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# THE PRIMARY ATTACHMENT STYLE QUESTIONNAIRE: A BRIEF MEASURE FOR ASSESSING SIX PRIMARY ATTACHMENT STYLES BEFORE AND AFTER AGE TWELVE\*

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## ABSTRACT

*Objective:* This article describes development and initial validation studies of the *Primary Attachment Style Questionnaire* (PASQ), a brief self-report for delineating six styles of attachment to a primary caregiver. Theoretically cued to Ainsworth's original infant classifications, the questionnaire is designed to map attachment patterns during two developmental periods (before and after age 12) and is intended for use in both clinical and nonclinical populations. *Method:* Pilot studies of the PASQ were conducted with a total of 441 college undergraduates. Over this period, test-retest analyses and factor analyses reduced the number of questionnaire items to the current

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42-item version. Participants also responded to a variety of additional measures intended to assess the PASQ's validity. *Results:* In the first of three validity studies, investigators found moderate correlations between 120 college undergraduates' predominant attachment styles on the PASQ Before 12 and romantic attachment styles on Brennan, Clark, and Shaver's ECR. In the second study, 167 respondents' Axis I and Axis II scores on the Millon Clinical Multiaxial Inventory supported the hypothesis that particular insecure attachment styles before age 12 would be related to specific personality disorders and to PTSD. The third validity study demonstrated the PASQ's sensitivity to shifts in attachment security between childhood and adolescence in the presence of three types of events that might generate attachment-related distress: mother's death, parents' divorce, and disruption of mother's ability to provide adequate caregiving. *Conclusion:* Findings support the utility of the PASQ for use in attachment research and in clinical practice.

Among the existing attachment measures for use in adolescent and adult samples, many require time-consuming procedures for administration and scoring. These include two interview methods: George, Kaplan, and Main's (1985) Adult Attachment Interview, the AAI, plus Crowell and Owens's Current Relationship Interview (1996). Three others—Kobak's (1993) Q-sort of the AAI; Bucheim, George, and West's (2003) Adult Attachment Projective; Waters and Rodriguez-Doolabh's (2004) Narrative Attachment Assessment—also involve lengthy scoring procedures. Of these, the AAI, which obtains data directly from a respondent's narrative of attachment to a primary caregiver,<sup>1</sup> is the most demanding measure in that it requires extensive training as well as approximately 15 hours per subject for administration, transcription, and scoring (Bakermans-Kranenburg & van IJzendoorn, 2009a; Mikulincer & Shaver, 2007).

A number of briefer self-report attachment scales have proven suitable for group administration and are also more easily scored than interview-based assessments. These include: Hazan and Shaver's (1987) Love-Experience Scales; West, Sheldon, and Reiffer's (1987) Attachment Scales; Bartholomew and Horowitz's (1991) Relationship Questionnaire; Feeney, Noller, and Hanrahan's (1994) Attachment Style Questionnaire; and Brennan, Clark, and Shaver's (1998) Experiences in Close Relationships scales. However, all of these questionnaires focus exclusively on current attachments, in particular to romantic partners. Two other questionnaires, one by Pottharst (1990) and one by Parkes (2006), include items designed primarily to gather data on insecure attachments, with specific focus on the disorganized category. In an extensive review of all the above mentioned

<sup>&</sup>lt;sup>1</sup>Inasmuch as 90% of the college students queried for this article identified their "primary caregiver" as their *mother* (and the remaining students identified either their *grandmother* or their *aunt*), the "primary caregiver" refers, in effect, to the "maternal caregiver."

scales, Crowell, Fraley, and Shaver (2008) therefore conclude that "further work with self-reports of attachment history in less troubled samples would yield interesting and useful results" (p. 612).

Created in part for this purpose, the PASQ offers both developmental researchers and clinicians an easily administered and easily scored instrument for assessing the quality of a respondent's primary attachment experience during two developmental periods: before and after age 12 (see Appendix A). Its six scales also delineate a wider range of attachment styles than other measures, which customarily discriminate among either three or four distinct attachment categories (secure, ambivalent/preoccupied, avoidant/dismissing, and fearful/disorganized). By adding a pair of analogues to the B1 and B4 subtypes of secure attachment first identified by Ainsworth, Blehar, Waters, and Wall (1978) in the Strange Situation procedure, the PASQ makes meaningful distinctions among fully secure attachment and two other relatively secure styles, which the authors have defined as secure/avoidant and secure/ambivalent attachment.

The PASQ also offers two useful scoring options for researchers and clinicians. As described in Appendix B, the PASQ's six attachment styles may be defined statistically either as discrete categories or as a series of scale scores that may be used to quantify a respondent's attachment experiences across all six styles. The latter method generates a relatively complex attachment profile for individual respondents, one that helps to bridge the gap between measures that produce either categorical or dimensional results (Bakermans-Kranenburg & van IJzendoorn, 2009a; Roisman, Fraley, & Belsky, 2007). In this respect, the PASQ resembles the original behavioral classifications of Ainsworth and her colleagues, who identified a total of nine relatively continuous attachment configurations in their original infant sample but ultimately reduced them to three categories (secure, anxious/ambivalent, and anxious/avoidant).

Finally, the PASQ provides a means to assess the occurrence and direction of shifts in attachment style between childhood and later development. While John Bowlby's (1969) views supported the notion that attachment organization customarily remains stable across the life span, recent longitudinal investigations have documented changes, most often in at-risk samples, between infancy and later stages of development (Aikins, Howes, & Hamilton, 2009; Kerns, Tomich, & Kim, 2006; van Ryzin, Carlson, & Sroufe, 2011; Waters, Hamilton, & Weinfield, 2000; Weinfield, Sroufe, & Egeland, 2000). The PASQ's identification of shifts in attachment status over the course of development may therefore prove useful for studying populations for whom no longitudinal data exist.

Both the *Primary Attachment Style Questionnaire before Age 12* (PASQ Before 12) and the *Primary Attachment Style Questionnaire after 12* (PASQ After 12) consist of the same 42 items, each of which is associated with a particular attachment style: secure, secure/avoidant, secure/ambivalent, avoidant, ambivalent, or disorganized. A respondent rates each item on a 7-point Likert scale

that ranges from "1 = never true" to "7 = always true" regarding an individual's experience of attachment to a primary caregiver. The questionnaire can be administered individually or in groups. By scoring the PASQ Before 12 and After 12 in accordance with the instructions in Appendix B, a respondent's results can be represented either dimensionally, as his or her mean ratings on six scales of primary attachment, or typologically, as his or her predominant category of primary attachment.

Three of the attachment styles measured by PASQ scales fall broadly within the parameters of secure attachment, although two deviate to a measurable degree from the conditions of full security. High ratings on the 12-item scale for secure attachment describe a respondent who has consistently experienced the primary caregiver as providing a safe haven offering both physical and emotional comfort in times of stress, as well as a secure base from which to explore the surrounding environment—i.e., someone whose attachment style is analogous to that of the B2 subgroup described by Ainsworth and her colleagues in their infant observations (Ainsworth et al., 1978). High ratings on the PASQ's six-item scale for secure/ambivalent attachment identify a respondent who has consistently experienced the caregiver as providing a *safe haven* for comfort, but not always as a secure base for independent exploration-i.e., someone whose attachment style is analogous to that of Ainsworth's B4 subgroup. High ratings on the 6-item scale for secure/avoidant attachment describe a respondent who has consistently experienced the caregiver as providing a *secure base* for exploration, but not always as a safe haven for comfort-i.e., someone with an attachment style analogous to Ainsworth's B1 subgroup.

The PASQ also delineates three insecure attachment categories, two of which were first identified by Ainsworth and her associates in the Strange Situation paradigm. High ratings on the PASQ's six-item scale for ambivalent attachment describe a respondent who has experienced the primary caregiver as unable to provide either a safe haven or secure base for exploration with a reasonable degree of consistency-i.e., someone whose attachment style is analogous to Ainsworth's C1 subgroup or to the less dysfunctional half of the C2 subgroup. In response to a pattern of inconsistent maternal behavior, individuals in this category tend to be erratic in their own attachment behaviors, which can alternate between intense neediness and angry resistance to a caregiver's effort's to soothe and comfort (Cassidy & Berlin, 1994). In contrast, high ratings on the six-item scale for avoidant attachment denote a respondent who has experienced the caregiver as authoritarian, reliant on discipline more than comfort, and disapproving of her child's dependency needs from an early age-i.e., someone whose attachment style is analogous to Ainsworth's A2 subgroup or the less dysfunctional half of the A1 subgroup. Having learned to avoid expressions of emotional vulnerability, individuals in this category develop a posture of premature or false self-sufficiency (Bowlby, 1969), relying on a repertoire of self-soothing strategies rather than turning to the caregiver for comfort.

Finally, high ratings on the PASQ's six-item scale for disorganized attachment denote a respondent who has experienced a caregiver as abusively frightening, helplessly frightened, or sequentially both, and who, unlike ambivalent and avoidant individuals, cannot organize a coherent strategy for eliciting even minimally adequate care (Lyons-Ruth, Bronfman, & Parsons, 1999; Lyons-Ruth & Jacobvitz, 1999, 2008; Lyons-Ruth, Repacholi, McLeod, & Silva, 1991; Lyons-Ruth, Yellin, Melnick, & Atwood, 2005; Main & Solomon, 1990). Main and Solomon (1990) refer to this attachment experience as "fright without solution," as it places the individual in a classic double-bind for which there can be no successful outcome.

## **DEVELOPMENT OF THE PASQ**

#### Pilot Studies: 1982-1988

In the 1970s and 1980s a number of investigators—Sroufe and Waters (1977); Sroufe (1979); Greenberg, Siegel, and Leitch (1983); Kobak and Sceery (1988); Main, Kaplan, and Cassidy (1985); George, Kaplan, and Main (1985); Armsden and Greenberg (1987); Hazan and Shaver (1987)—began to utilize constructs derived from Bowlby (1958, 1960, 1969/1982, 1973, 1980) and Ainsworth (1964, 1972, 1979, 1989) to map attachment patterns beyond infancy. These researchers employed a variety of methods (classroom observations, questionnaires, interviews, surveys, Q-sorts) that were theoretically congruent with Ainsworth's Strange Situation paradigm for infants. It was during this time that a series of studies leading to development of the current version of the PASQ was undertaken as part of a dissertation project by the first author (Salzman, 1988).

Following an initial study conducted in 1982 as part of a longitudinal investigation of female adolescent development, Salzman piloted a series of semistructured attachment interviews with both school-age children and adolescents, and in 1985 screened a pool of 101 female undergraduates from the Boston area for a more rigorous investigation that employed her four-part Adolescent Attachment Interview (Salzman, 1990). Before inclusion in the study, all potential interview subjects completed a criterion-keyed 45-item forced choice screening questionnaire based on Ainsworth's three predominant infant classifications: secure, anxious/ambivalent, and anxious/avoidant attachment (Salzman, 1996).

In order to be assigned to a particular category, questionnaire respondents must have endorsed at least five out of nine questionnaire statements corresponding to a particular attachment classification, and no more than three in another category. Those subjects who endorsed four or five statements in the secure category and four or five statements in one other category (either ambivalent or avoidant) were considered "mixed" classifications. According to Mary Ainsworth,<sup>2</sup> these "mixed" categories resembled the B4 and B1 subgroups

<sup>&</sup>lt;sup>2</sup>Mary Ainsworth, personal communication to Judy Salzman, 1985.

of secure attachment identified by the Strange Situation procedure. Salzman (1988) later designated these groups as "bridge categories," as each of them appeared to have features of both secure attachment and one other attachment category (either ambivalent or avoidant). Because the unresolved and disorganized classifications were not yet widely used in 1985, those respondents who endorsed approximately equal numbers of statements in all three categories were considered unclassifiable and were not included in the study.

The Adolescent Attachment Interview, administered to 41 young women who qualified for the final study sample, was designed to assess subjects' experience of a primary caregiver during two phases of development: childhood, up to age 12, and from age 12 to the present. Like the screening questionnaire, the interview was organized around five themes identified by Ainsworth, Blehar, Waters, and Wall (1978) as essential components of attachment security: an individual's experience of comfort, protection, availability, consistency, and emotional sensitivity offered by the respondent's primary caregiver. Underlying these themes are constructs initially formulated by Bowlby (1958, 1960), according to which primary attachment is monotropic and hierarchical-i.e., it is organized in relation to a single preferred caregiver; it is a primary instinct, separate from other behavior systems, and has as its purpose ensuring proximity to the primary caregiver, especially during times of stress. In his trilogy, Bowlby (1969/1982, 1973, 1980) also postulated two manifestations of anxious attachment, later termed anxious ambivalent and anxious avoidant by Ainsworth and her colleagues (Ainsworth, 1982; Ainsworth et al., 1978). He further emphasized the differences between the relatively organized strategies employed in these two anxious attachment categories and the incoherent freezing and stilling that may accompany true fear. Such fearful behavior, initially described by Ainsworth and associates as unclassifiable, later formed the basis for establishment of the disorganized category (Main & Solomon, 1990).

Results from the 1988 study revealed that the proportions of secure, ambivalent, and avoidant attachment identified by the screening questionnaire (72% fully or partially secure, 16% ambivalent, and 11% avoidant) were similar to those reported by infant researchers (70%, 10%, and 20%, respectively). In addition, interview data coded by two readers revealed shifts in attachment status over time, usually as a consequence of stress within the attachment relationship itself. Finally, the two so-called bridge categories generated distinctive profiles that resembled Ainsworth's B4 and B1 subgroups. Individuals classified as secure-ambivalent (B4) remained overly involved with primary caregivers in adolescence, a pattern that restricted their participation in a variety of age-appropriate social experiences. In contrast, those in the secure-avoidant (B1) group successfully used caregivers as a base for exploration, but felt less able to turn to them for comfort and soothing than subjects in the fully secure category.

## The UMass Lowell Investigation: 1998-2010

On the basis of these preliminary findings, in 1998 a team of attachment researchers based at the University of Massachusetts Lowell embarked on the development of a longer self-report questionnaire that could be tested and validated with a large undergraduate sample. This instrument, the 42-item PASQ Before12/After 12, replaced the original questionnaire's forced-choice format with a Likert-scale. The investigators initially added new items to the five existing attachment categories and created several items for a sixth disorganized category, extrapolated from Main and Solomon (1990) and from Lyons-Ruth and her colleagues (Lyons-Ruth et al., 1999; Lyons-Ruth & Jacobvitz, 1999, 2008; Lyons-Ruth et al., 1991).

Between 1998 and 2001, the initial 101-item version of the PASQ was reduced first to 70 and then to 42 items by a series of factor analyses, the last of which is reported in this article. Between 2001 and 2010, the final version of the PASQ was tested in three separate validity studies, also described in this article.

## **PSYCHOMETRIC PROPERTIES OF THE PASQ**

## Reliability

In order to evaluate the test-retest reliability of the Primary Attachment Style Questionnaire's scales, we administered both the PASQ Before 12 and the PASQ After 12 to 163 UMass Lowell students on two different occasions, 1 week apart. The mean age of the 82 male and 81 female students was 19.15 (SD = 2.15). Acceptable coefficients of reliability were obtained for all six scales of the PASQ Before 12: .85 for the secure scale, .68 for the secure-ambivalent scale, .72 for the secure-avoidant scale, .78 for the ambivalent scale, .75 for the avoidant scale, and .63 for the disorganized scale. Likewise, acceptable coefficients of reliability were obtained for all six scales of the PASQ After 12: .86 for secure, .65 for secure-ambivalent, .86 for secure-avoidant, .85 for ambivalent, .80 for avoidant, and .63 for disorganized.

Test-retest data were also used to compare the 82 male students' and 81 female students' mean ratings on the scales. Across the 24 scale scores (six attachment styles BY before versus after 12 BY test versus retest), 24 *t*-tests revealed no significant gender differences when the cluster-wise alpha level was controlled (cluster-wise  $\alpha \le .05$ ; thus,  $\alpha \le .008$ ), consistent with the findings from almost all attachment studies (Bakermans-Kranenburg & van IJzendoorn, 2009b).

## **Distribution of Attachment Styles**

Data from all 441 UMass Lowell students who participated in one of our early studies were pooled to examine the distribution of attachment styles that resulted from calculating best-fitting categories on both the PASQ Before 12 and the PASQ After 12. For the 12 items constituting the PASQ's secure scale and the six items constituting each of the other five scales, Table 1 reports the grand

Table	e I. Desc	sublive Sta	atistics for	441 5000	ents wea	an Ratings	s (IVIRS) O	n Primary	Attachme	ent Questi	onnaire	
	Sca	Scales gauging 6 attachment styles before age 12					Scales gauging 6 attachment styles after age 12					
	secure	sec-am.	sec-av.	ambiv.	avoid.	disorg.	secure	sec.am.	sec.av.	ambiv.	avoid.	disorg.
Mean of MR	5.64	2.99	3.36	2.68	2.25	1.46	5.48	2.72	3.52	2.89	2.57	1.59
SD	1.05	0.83	1.20	1.18	1.07	0.75	1.15	0.81	1.35	1.41	1.28	0.94
Smallest MR	1.00	1.33	1.00	1.00	1.00	1.00	1.08	1.00	1.00	1.00	1.00	1.00
Larges MR	7.00	5.33	6.50	6.83	6.33	6.33	7.00	4.83	6.67	7.00	7.00	7.00
Skewness	-1.31	0.49	0.06	0.69	2.91	2.91	-1.06	0.51	-0.02	0.69	0.92	2.70
Cronbach's $\alpha$	.904	.467	.713	.773	.764	.828	.908	.495	.789	.848	.800	.857
# of Ss whose Z-score on scale is highest of 6 scales' Z-scores	153	66	83	44	47	48	155	84	67	45	50	40
% of Ss for whom scale is therefore the predominant attachment category		68.5%		10.0%	10.7%	10.9%		69.4%		10.2%	11.3%	9.1%

	Table 1.	Descriptive Stat	istics for 441 Stuc	ents' Mean Ratin	as (MRs) o	on Primary	Attachment	Questionnaire
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mean of all 441 subjects' mean ratings on each scale, the standard deviation of the scale's mean ratings, the minimum value of the scale's mean ratings, the maximum value of the scale's mean ratings, the skewness of the scale's mean ratings, Cronbach's  $\alpha$ , the number of students whose *Z*-score on the scale represented the highest *Z*-score in the cluster, and the percentage of students for whom the scale therefore represented the predominant attachment category.

Because our measure derives from Ainsworth's original classification system, we have used van IJzendoorn and Kranenburg's (1988) meta-analytic findings based on the Strange Situation paradigm for infants (rather than Bakermans-Kranenburg and van IJzendoorn's 2009a analysis of AAI categories) as a basis of comparison to our own distribution results. If the students categorized as secure, secure/ambivalent, or secure/avoidant before age 12 are collapsed into a single category designated "more securely attached than otherwise," our finding of 68.5% secure attachment in this cohort approaches van IJzendoorn and Kranenburg's (1988) meta-analytic finding of 65%. With regard to our avoidant and ambivalent categories, the differences between van IJzendoorn and Kranenburg's percentages and our percentages (21% avoidant infants versus 11% avoidant students in our sample; 14% ambivalent/resistant infants versus 10% ambivalent students) may be attributable to the fact that another 11% of our student subjects were classified as disorganized by the six-category PASQ. It is possible that if van IJzendoorn and Kranenburg's (1988) study had included an additional disorganized category, their percentages of avoidant and ambivalent subjects might have more nearly matched our own.

## Factor Analyses

Based on Principal Component Analyses and Promax Rotations of the PASQ's 42 items, a confirmatory factor analysis of 441 students' *PASQ Before 12* ratings converged on nine factors, and a confirmatory factor analysis of the students' *PASQ After 12* ratings converged on nine factors. As presented in Table 2, all 12 items from the PASQ's secure scale load positively on Factor 1 before age 12 and on Factor 1 after age 12. None of the secure items load positively on any insecure factor either before or after 12, and most of them load negatively on the three insecure factors.

Items from the secure/ambivalent scale—all six of them—load positively on both the before-12 aggregate and the after-12 aggregate of Factors 6-9. The fact that the secure/ambivalent items load on four factors, instead of one, accounts for its relatively low internal consistencies, as noted in Table 1. However, none of the secure/ambivalent items load on any other factor. Items from the other bridge category—i.e., all six items from the secure/avoidant scale—load positively on Factor 3 before age 12 and Factor 3 after age 12, and when averaged within each age grouping, produce secure/avoidant-before-12 and secure/avoidant-after-12 scores that can be validly differentiated from other PASQ scales with items loading on Factor 3.

	Factor # for PASQ before age 12 Attachment style corresponding to factor							Factor # for PASQ after age 12 Attachment style corresponding to factor					
Scale  Item	1 secure	6-9 sec-am.	3 sec-av.	4 ambiv.	5 avoid.	2 disorg.	1 secure	6-9 sec.am.	3 sec.av.	2 ambiv.	4 avoid.	5 disorg.	
secure													
01	.60	45					.61	52		55	47		
04	.69						.61	42					
06	.67						.64	49	42	52			
12	.60						.58	48					
18	.77			46			.72			50			
20	.76						.78			41			
23	.65			41	54	44	.60				49		
26	.83				42	42	.82			43			
27	.79			51			.83			52			
28	.75	.42		49	42		.71			48			
32	.57			-		41	.64			-			
36	.70			42		51	.80			48			
sec-am.													
03		.67						.61					
08		.80						.72					
10		59						64					
19		.00						65					
30		.57						.69					
1381		.05						.57					

Table 2. Factor Loadings for 441 Students' Ratings on All 6 Scales of the Primary Attachment Questionnaire

sec-av.												
15			.71						.73			
21			.41						.48	.45		
22			.60						.74			
29			.71	.47			49		.77	.46		
35			.63		.40			.45	.59		.52	
37			.56	.55			51		.61	.45	.44	
ambiv.												
07		.56					45			.59		
09		.60		.49						.75		
11		.47		.49	.43	.48	43		.49	.67		
33	49		.45	.72		.43	64		.54	.75		
34	49		.41	.74		.52	57		.46	.80		
40				.68		.42	49			.76		
void.												
02					.70						.76	
16			.41	.43	.68		57				.54	.44
17					.84						.85	
24	61	47		.54	.59	.52	75				.58	.49
41				.44	.41				.46	.61		
42	42		.58	.67	.51	.44	64		.68	.67	.47	
lisorg.												
05		.48				.48	41	.56				.42
13						.66	58			.45		.55
14						.79	55			.53		.60
25	51				.47	.70	71				.44	.56
31						.83	56					.67
39	42				.41	.82	63			.50	.45	.59

Note: Factor loadings between -.40 and .40 are omitted.

For the PASQ's ambivalent attachment scale, the first of its three insecure attachment scales, five out of six items load positively on Factor 4 before age 12, and all six load positively on Factor 2 after age 12. Notably, four avoidant items also load on Factor 4 before age 12. One of this finding's interpretations-that Factor 4 before 12 reflects the insecurity-related anxiety from which either an ambivalent or an avoidant style of coping can developsupports Ainsworth's theoretical approach to attachment. Another plausible interpretation-that ambivalent and avoidant attachments are harder to measure as separate categories, but easier to measure as opposites within a dimensional structure-has been suggested in the past by Feeney, Noller, and Hanrahan (1994). They argue that, whereas empirical data show strong negative correlations between secure attachment and these two insecure styles, Likert scale ratings of avoidant and ambivalent attachment "are virtually uncorrelated (hence, the subject can be high on *both* avoidant and anxious ambivalent attachment)" (p. 130). Feeney and her colleagues further observe that scales with a dimensional structure associating avoidance with a positive attitude toward self, and ambivalence with a positive attitude toward others, serve to obscure empirical evidence that avoidant individuals "do not hold unreservedly positive attitudes toward themselves" (p. 130). Likewise, ambivalent individuals are not unreservedly positive in describing their attitudes toward others, despite their apparent longing for closeness. Thus, the loading of both avoidant and ambivalent on Factor 4 before 12 can be interpreted as supporting Ainsworth's approach, Feeney's argument, or both.

All six of the PASQ's avoidant items load positively on Factor 5 before age 12, and five of the six load positively on Factor 4 after age 12. However, only one of the PASQ's ambivalent items loads on Factor 5 before age 12, and none of the ambivalent items loads on Factor 4 after age 12. Thus, the avoidant and ambivalent items do psychometrically differentiate between the avoidant and ambivalent styles, notwithstanding the attachment anxiety that tends to underlie both styles and seems to emerge particularly in Factor 4 after age 12. In contrast, the fact that only one avoidant item appears in both Factor 4 after age 12 (the avoidant factor) and Factor 2 after age 12 (the ambivalent factor) suggests that young children classified as avoidant may experience greater anxiety than avoidant adolescents or adults, who can more easily maintain a posture of self-reliance in relation to attachment figures. This hypothesis is supported in part by results from an earlier study (Salzman, 1988).

Finally, all six items on the PASQ's disorganized scale load positively on Factor 2 before age 12, and all six load positively on Factor 5 after age 12. Although four ambivalent items also load positively on Factor 2 before age 12, no disorganized items load on the early ambivalence factor (Factor 4 before age 12). It thus appears that the overt fear underlying early disorganized attachment sets it apart from the anxious but relatively organized coping style of ambivalent attachment before age 12.

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## VALIDITY OF THE PASQ

In order to evaluate the validity of the PASQ, investigators conducted studies to examine three distinct hypotheses. In the first two studies we predicted that specific attachment styles before age 12 might be precursors to particular styles of romantic attachment in adulthood and also to certain features of personality disorders in later development. In a third study we tested the hypothesis that the PASQ would reveal shifts in attachment from before age 12 to after age 12, as a consequence of negative life events analogous to those previously cited in reports from the Minnesota Parent-Child Project (van Ryzin et al., 2011; Waters et al., 2000; Weinfield et al., 2000; Weinfield, Whaley, & Egeland, 2004).

In the first study we compared 120 college students' predominant style of attachment before age 12, as determined by the PASQ Before 12, with their current style of romantic attachment, as measured by Brennan, Clark, and Shaver's (1998) Experiences in Close Relationships (ECR). For the second, we compared 167 students' predominant attachment styles before age 12 to their scores on the Axis I and Axis II scales of Millon, Millon, Davis, and Grossman's (2009) Millon Clinical Multiaxial Inventory-III (MCMI). Finally, in a third study we assessed the PASQ's usefulness for identifying shifts in attachment security and their relationship to three attachment-related adverse events: maternal death, parental divorce, and disruptions in maternal caregiving.

## **First Study**

In our first study, we predicted that college students' styles of romantic attachment, as categorized by Brennan, Clark, and Shaver's (1998) measure of Experiences in Close Relationships, would be moderately correlated with the PASQ's corresponding styles of attachment before age 12. While we expected that the similar self-report structures of the two instruments would yield associations between their respective measurements (Roisman, Holland, Fortuna, Fraley, Clausell, & Clarke, 2007), we also anticipated that their dissimilarities might reduce the strength of those associations. One such dissimilarity is that the PASQ, like the AAI, draws on memories of attachment to a primary caregiver rather than the experience of attachment to a romantic partner, which is defined as reciprocal in nature-an alternation between attachment behavior per se and caregiving. Secondly, in contrast to ECR, the PASQ's scales, like those of the AAI, were derived in large part from clinical-style interviews rather than from a distillation of surveys and questionnaires developed by social psychologists (Bartholomew & Horowitz, 1991; Brennan, Clark, & Shaver, 1998; Griffin & Bartholomew, 1994; Hazan & Shaver, 1987). Therefore, PASQ items tend to reflect more of a developmental-clinical sensibility than do those of the ECR. In particular, the PASQ's items for ambivalent (preoccupied) and disorganized (fearful) attachment are described in terms more nearly resembling those of infant developmental research than are ECR items for the corresponding categories. This perspective on

differences between social versus developmental measures of attachment is consistent with that of Fortuna and Roisman (2008), who state that these two approaches "are associated with domains of adaptation central to Bowlby's account of human development in empirically distinct ways" (p. 23).

We hypothesized that other features of the measures, such as the PASQ's introduction of bridge categories, might also reduce their degree of association. Moreover, five of the six PASQ scales are derived directly from Ainsworth's nine original attachment configurations, whereas the ECR's four scales were initially adapted from attachment measures using dimensional scoring (Bartholomew & Horowitz, 1991; Kobak, 1993). Its authors rejected a typological methodology in favor of scores that reflect positions along the dimensions of anxiety and avoidance ---where low anxiety and low avoidance constitute a secure style, high anxiety and high avoidance a disorganized style, low anxiety and high avoidance a dismissing style, and high anxiety and low avoidance a preoccupied style. These dimensions are neither congruent with Ainsworth's view (1982) nor with our own, both of which conceive of ambivalent (preoccupied) and avoidant (dismissing) attachments as alternate forms of anxious attachment. This anxietybased conception has received support from psychophysiological studies, which found signs of attachment-related anxiety in avoidant infants during the Strange Situation procedure (Sroufe & Waters, 1977) and in adult subjects challenged to discuss childhood memories and the importance of early relationships (Dozier & Kobak, 1992).

#### Method

*Participants:* In response to the public posting of signup sheets for psychological research, 120 college students enrolled in General Psychology classes at UMass Lowell completed this first study. Three of these students did not report their age or their gender. Of the remaining 117 students, 61 were male and 56 were female; their mean age was 21.6 years old (SD = 6.3). In return for their service as research subjects, all 120 students received credit toward the research-participation requirement in their General Psychology course.

*Procedure:* After reading and signing an IRB-approved statement of informed consent, all subjects filled out a packet of brief instruments including Brennan, Clark, and Shaver's (1998) Experiences in Close Relationships scales (ECR), along with the PASQ Before 12.

#### Results and Discussion

Based on Brennan, Clark, and Shaver's (1998, Appendix 3.2) scoring instructions for the ECR, 37 of the student participants were classified as secure in their romantic attachments, 44 as preoccupied (ambivalent) in their romantic attachments, 12 as dismissing (avoidant) in their romantic attachments, and 27 as fearful (disorganized). At the same time, based on the PASQ's scoring instructions in Appendix B, 31 students were categorized as secure before age 12; 36 students as secure-ambivalent; 21 students as secure-avoidant; 7 students as ambivalent; 4 students as avoidant; and 21 students as disorganized. Notably, the latter six frequencies are not a good fit with expected frequencies derived from Table  $1-G = 31.56 > \chi^2_{.05[5]} = 11.0$ .

A 4 by 6 cross-tabulation of the ECR's 4 romantic-attachment classifications and the PASQ's six primary attachment categories before age 12 is presented in Table 3, along with a 4 by 4 cross-tabulation in which the ambivalent, avoidant, and disorganized categories of attachment before age 12 are collapsed into an insecure category of attachment before age 12. In the 4 by 6 cross-tabulation, there was no statistical association between the ECR's romantic-attachment classifications and the PASQ's primary-attachment categories—Pearson  $\chi^2_{(15)} =$ 19.44. In the 4 by 4 cross-tabulation, however, there was not only a significant association between the ECR's romantic-attachment classifications and PASQ's primary-attachment categories—Pearson  $\chi^2_{(9)} = 17.89$ , p < .05—but also a significant linear-by-linear or diagonal association—linear-by-linear  $\chi^2_{(1)} = 4.52$ , p < .05. Thus, a college student's style of romantic attachment appears to reflect his or her style of primary attachment before age 12, not perfectly so, but statistically so.

The linear-by-linear association in the 4-by-4 cross-tabulation merits some discussion. Many previous studies have found that the ECR's classifications of romantic attachment and the corresponding categories of Main's Adult Attachment Interview were not statistically associated, except for the secure classification (Dykas, Woodhouse, Cassidy, & Waters, 2006; Riggs, Paulson, Tunnell, Sahl, Atkison, & Ross, 2007; Roisman et al., 2007). In contrast, all four of the ECR classifications of romantic attachment in the current study are statistically associated with PASQ categories of attachment before age 12, owing to the inclusion of the two bridge categories delineated by Salzman (1996): the secure/ambivalent "bridge" between secure and ambivalent styles and the secure/avoidant "bridge" between secure and avoidant styles. Accordingly, in Table 3, for subjects with a preoccupied style of romantic attachment, the statistically significant precursor (38.6% of the time) is a secure/ambivalent style of primary attachment before age 12, rather than an ambivalent style. For subjects with a dismissing style of romantic attachment, the statistically significant precursor (41.7% of the time) is a secure/avoidant style of primary attachment before age 12, rather than an avoidant style. For subjects with a fearful style of romantic attachment, the statistically significant childhood precursor (40.7% of the time) is a composite of the PASQ's three insecure styles: ambivalent, avoidant, and disorganized. And finally, as in previous studies, for subjects with a secure style of romantic attachment, the statistically significant precursor (40.5%) of the time) is a secure style of primary attachment before age 12.

by Adult Style	e of Rom	antic Att	achment	t (Their E	ECR Cat	egory)	
Adult atula of romantia		Style (t	of primar based on	ry attachn S's highe	nent befo st Z-scor	ore 12 re)	
attachment	Secure	Sec-am.	Sec-av.	Ambiv.	Avoid.	Disorg.	Total
Secure ( <i>n</i> = 37)	40.5%	27.0%	8.1%	5.4%	2.7%	16.2%	100%
Preoccupied (ambivalent) $(n = 44)$	20.5%	38.6%	18.2%	6.8%	2.3%	13.6%	100%
Dismissive (avoidant) $(n = 12)$	33.3%	8.3%	41.7%	0.0%	0.0%	16.7%	100%
Fearful ( $n = 27$ )	11.1%	29.6%	18.5%	7.4%	7.4%	25.9%	100%
	( <i>n</i> = 31)	( <i>n</i> = 36)	( <i>n</i> = 21)	( <i>n</i> = 7)	( <i>n</i> = 4)	( <i>n</i> = 21)	
	Style of primary attachment before 12 (3 insecure styles collapsed)						
	Secure	Sec-am.	Sec-av.	Avoid. &	Ambiv. a	& Disorg.	Total
Secure ( $n = 37$ )	40.5%	27.0%	8.1%		24.3%		100%
Preoccupied (ambivalent) $(n = 44)$	20.5%	38.6%	18.2%		22.7%		100%
Dismissive (avoidant) $(n = 12)$	33.3%	8.3%	41.7%		16.7%		100%
Fearful ( $n = 27$ )	11.1%	29.6%	18.5%		40.7%		100%
	( <i>n</i> = 31	( <i>n</i> = 36)	( <i>n</i> = 21)		(n = 32)		

## Table 3. College Students Categorized by Style of Primary Attachment Before Age 12 (Their PASQ Scale with the Highest *Z*-Score) and by Adult Style of Romantic Attachment (Their ECR Category)

**Note**: For the latter table,  $\chi^2 = 17.89$ ; p < .05; and Linear-by-Linear Association = 5.87; p < .05.

Given these results, it could be argued that the ECR's scales of romantic attachment do not differentiate sufficiently between slightly insecure and strongly insecure attachment styles, although they do distinguish between the more general hyperactivating and deactivating dimensions described by Kobak (1993). Thus, the PASQ's inclusion of the secure/ambivalent and secure/avoidant bridge categories reveals statistically significant associations with the ECR's preoccupied and dismissing categories, presumably because their positions on the hyperactivating versus deactivating dimensions appear to be analogous.

However, to the extent that strongly insecure attachments are not well differentiated by the ECR, its fearful category is statistically associated with all three of the PASQ's insecure categories instead of being uniquely associated with the disorganized style, as hypothesized in other studies (Riggs, 2010; Simpson & Rholes, 2002).

## Second Study

In our second study we predicted that college students with an insecure attachment style before age 12 would be more likely than securely attached students to display symptoms of Axis II personality disorders, and that those students in the disorganized category would be most likely to manifest symptoms of post-traumatic stress disorder, as measured by the Millon Multiaxial Clinical Inventory (MCMI-III, 2009).

Our hypotheses also included the specific prediction that students with an ambivalent style of attachment before age 12 would score higher on the MCMI's Borderline Personality Disorder scale, based on past research by one of our authors (Salzman, 1996, 1997) and by findings in a number of clinical investigations (Agrawal, Gunderson, Holmes, & Lyons-Ruth, 2004; Fonagy, 1999; Fonagy, Leigh, Steele, Steele, Kennedy, Mattoon, et al., 1996; Fonagy, Target, & Gergely, 2000; Nakash-Eiskovits, Dutra, & Westen, 2002; Patrick, Hobson, Castle, Howard, & Maugham, 1994; Westen, Nakash-Eiskovits, Thomas, & Bradley, 2006). In addition, we predicted that avoidant attachment would be associated with higher scores on the MCMI's antisocial, schizoid, and paranoid scales, based in part on previous findings (Fossati, Feeney, Donati, Donini, Novella, Bagnato, et al., 2003; Livesley, Schroeder, & Jackson, 1990; West, Rose, & Sheldon-Keller, 1994; Westen, Nakash-Eiskovits, Thomas, & Bradley, 2006), and that disorganized attachment would be primarily associated with post-traumatic stress disorder, as previously reported (Bakermans-Kranenburg & van IJzendoorn, 2009a; Dozier, Stovall-McClough, & Albus, 2008; Lyons-Ruth, Bronfman, & Parsons, 1999).

Finally, we anticipated that securely attached respondents would show significant negative correlations with both Axis II disorders and PTSD, a hypothesis supported by the findings of Brennan and Shaver (1998), Meyer, Pilkonis, Proietti, Heape, and Egan (2001), and Westen, Nakash, Thomas, and Bradley (2006). We also anticipated that MCMI scores for the two bridge categories would fall between those of the fully secure and insecure categories, and would therefore yield no significant correlations for either Axis I or Axis II disorders.

## Method

*Participants:* In response to the electronic posting of signup forms, 167 college students enrolled in General Psychology classes at UMass Lowell participated in this second study. Two of these students did not report their age or their gender.

Of the remaining 165 students, 74 were male and 91 were female; their mean age was 19.1 years old (SD = 2.1). In return for their contribution to the study, all 167 students received credit towards the research-participation requirement in their General Psychology course.

*Procedure:* All subjects were tested in large groups. After reading and signing an IRB-approved statement of informed consent, they filled out the PASQ Before 12 along with Millon, Millon, Davis, and Grossman's (2009) Millon Clinical Mutiaxial Inventory–III, a measure composed of 175 true/false items distributed across 14 scales corresponding to Axis II personality disorders, and 10 scales corresponding to Axis I clinical syndromes. Because the MCMI's structure is theoretically based, its diagnostic classifications differ to some degree from those of DSM-IV diagnoses, which are empirically derived.

#### Results and Discussion

Every student's MCMI was scored by calculating his or her base rate on each of the Axis I and Axis II scales. (In clinical samples, base-rate scores above 85 are deemed to meet the criteria for Axis I and Axis II diagnoses.) Based on PASQ scoring instructions in Appendix B, 39 students were categorized as securely attached; 35 students, as secure-ambivalent; 25 students, as secure-avoidant; 19 students, as ambivalent; 21 students, as avoidant; and 28 students, as disorganized. These six categories of attachment define the columns in Table 4, as well as the six-level independent variable in every ANOVA computed for Table 4. The MCMI–III's 10 Axis I scales and 14 Axis II scales define the rows in Table 4, and each scale's base-rate scores define the dependent variable for one ANOVA.

The first column in Table 4 indicates, as predicted, that the 39 students with a secure attachment style scored lower than all other groups pooled together on a wide range of MCMI scales for Axis II personality disorders and Axis I syndromes. Such results are consistent with our hypothesis that early attachment security serves to protect against later psychiatric disorders, in accord with the findings of Brennan, Clark and Shaver (1998), Meyer, Pilkonis, Proietti, Heape, and Egan (2001), and Westen, Nakash-Eiskovits, Thomas, and Bradley (2006).

In a finding unanticipated by our hypotheses, the first column in Table 4 also indicates that securely attached students scored significantly higher than all others on the scales for both histrionic and compulsive personality disorders. These results may be explained by the findings of Strack (2005), who has noted that the psychiatric norms of the MCMI-III, when used in non-clinical populations, may create "a situation where most normal persons obtain elevated scores on a small set of personality scales," including the Histrionic, Compulsive, and Narcissistic scales. Further, when Roisman, Holland, Fortuna, Fraley, Clausell, and Clarke (2007) investigated both the AAI and the RSQ in relation to the Big Five personality traits (Costa & McCrae, 1992), they found that attachment security as scored by Kobak's 1993 AAI-based Q-Sort was associated with extroversion, a

			Style of primary att	achment before 12		
MCMI scale	Secure ( <i>n</i> = 39)	Sec-am. ( <i>n</i> = 35)	Sec-av. ( <i>n</i> = 25)	Ambiv. ( <i>n</i> = 19)	Avoid. ( <i>n</i> = 21)	Disorg. ( <i>n</i> = 28)
Schizoid PD <sup>#</sup>	$27^{\Delta}$ (s = 21)	44 (s = 23)	51 (s = 26)	48 (s = 21)	54 (s = 21)	51 (s = 23)
Avoidant PD <sup>#</sup>	$22^{\Delta}$ (s = 24)	49 $(s = 3-)$	48 (s = 34)	54 $(s = 27)$	55 $(s = 29)$	57 $(s = 32)$
Depressive PD <sup>#</sup>	$21^{\Delta}$ (s = 21)	40 $(s = 33)$	51 (s = 37)	47 $(s = 33)$	54 $(s = 23)$	59*(s = 33)
Dependent PD <sup>#</sup>	$39^{\Delta}$ (s = 23)	64 $(s = 29)$	57 (s = 27)	64 $(s = 28)$	65 (s = 21)	63 (s = 28)
Histrionic PD <sup>#</sup>	75* (s = 14)	61 (s = 18)	52(s = 25)	54 $(s = 22)$	52 $(s = 24)$	55 $(s = 22)$
Narcissistic PD	72 (s = 19)	67 (s = 20)	65 (s = 20)	60 (s = 18)	66 (s = 25)	65 (s = 24)
Antisocial PD <sup>#</sup>	$43^{\Delta}$ (s = 25)	50 (s = 22)	49 (s = 23)	64* (s = 14)	63* (s = 14)	62* (s = 14)
Sadistic PD <sup>#</sup>	$44^{\Delta}$ (s = 24)	57 (s = 15)	55 (s = 19)	63 (s = 15)	62 (s = 18)	57 (s = 21)
Compulsive PD <sup>#</sup>	60* (s = 17)	57* (s = 16)	56 (s = 15)	46 (s = 18)	47 (s = 15)	$42^{\Delta}$ (s = 17)
Negativistic PD <sup>#</sup>	$38^{\Delta}$ (s = 25)	60 (s = 19)	58 (s = 22)	67* (s = 16)	62 (s = 19)	62 $(s = 22)$
Masochistic PD <sup>#</sup>	$18^{\Delta} (s = 24)$	41 (s = 30)	40 (s = 27)	62* (s = 18)	58* (s = 21)	57* (s = 27)
Schizotypal PD <sup>#</sup>	$33^{\Delta}$ (s = 28)	56 (s = 23)	51 (s = 30)	57 (s = 24)	62* (s = 13)	55 (s = 22)
Borderline PD <sup>#</sup>	$31^{\Delta}$ (s = 27)	50 (s = 26)	51 (s = 30)	62* (s = 23)	56 (s = 24)	57 (s = 27)
Paranoid PD <sup>#</sup>	$30^{\Delta}$ (s = 26)	55 (s = 19)	52 (s = 27)	60 (s = 23)	62* (s = 17)	57 (s = 23)
Anxiety <sup>#</sup>	$39^{\Delta} (s = 32)$	59 (s = 33)	57 (s = 32)	64 (s = 31)	53 (s = 33)	64 (s = 30)
Somatoform <sup>#</sup>	$23^{\Delta}$ (s = 26)	39 (s = 27)	44 (s = 27)	51 (s = 25)	42 (s = 33)	43 (s = 29)
Bipolar: Manic	56 (s = 20)	62 (s = 19)	61 (s = 17)	66 (s = 21)	64 (s = 26)	68 (s = 20)
Dysthymia <sup>#</sup>	$16^{\Delta}$ (s = 20)	38 (s = 29)	41 (s = 30)	44 (s = 31)	50 (s = 27)	49 (s = 33)
Alcohol Dependence <sup>#</sup>	$43^{\Delta}$ (s = 25)	44 (s = 26)	46 (s = 26)	65* (s = 14)	58 (s = 21)	59 (s = 26)
Drug Dependence <sup>#</sup>	$43^{\Delta}$ (s = 24)	48 (s = 23)	45 (s = 23)	64* (s = 15)	55 (s = 17)	58 (s = 20)
Post-Traumatic Stress Disorder#	$20^{\Delta}$ (s = 22)	39 (s = 30)	44 (s = 34)	39 (s = 29)	39 (s = 27)	48* (s = 27)
Thought Disorder <sup>#</sup>	$35^{\Delta} (s = 27)$	51 (s = 26)	55 (s = 24)	59 (s = 21)	60 (s = 16)	60 (s = 20)
Major Depression <sup>#</sup>	$21^{\Delta}$ (s = 26)	43 (s = 32)	48 (s = 33)	52 (s = 37)	49 (s = 37)	51 (s = 34)
Delusional Disorder#	$24^{\Delta}$ (s = 26)	47 (s = 18)	34 (s = 34)	44 (s = 33)	43 (s = 28)	41 (s = 29)

Table 4. Mean (and Standard Deviation) of Students' Scores on Each MCMI Personality Disorder (PD) and Each MCMI Clinical Syndrome, by Their Style of Attachment Before Age 12 (Their PASQ Scale with the Highest Z-Score)

#Main effect of primary attachment style on MCMI scale, F[5, 161] > 2.27, p < .05. \*Higher than other 5 style means pooled, t[161] > 1.97, p < .05. <sup>Δ</sup>Lower than other 5 style means pooled, t[161] < -1.97, p < .05.

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trait that might be found to a heightened degree in histrionic personality. In the aggregate, our results, along with these other findings, may reflect a tendency for securely attached persons to endorse MCMI Histrionic items such as "I think I am a very social and outgoing person" and "I am always looking to make new friends and meet new people," as well as MCMI Compulsive items such as "I always make sure that my work is well planned and organized" and "People tell me that I'm a very proper and moral person." Rather than being viewed as indicators of pathology, these statements by themselves might instead reflect a securely attached individual's social comfort, capacity for self-regulation, and internalized moral compass.

Notable across the fourth, fifth, and sixth columns of Table 4 are associations between all three insecure attachment styles and the MCMI's scales for Masochistic Personality Disorder and Antisocial Personality Disorder. Regarding the latter pair of findings, the relational insecurity underlying ambivalent, avoidant, and disorganized attachments seems to be reflected in the *MCMI-III Manual*'s statement that masochistic "object relations are composed of failed past relationships" (Millon, Millon, Davis, & Grossman, 2009, p. 42) and its statement that antisocial "internalized representations include degraded and corrupt relationships" (p. 36). Several researchers have noted similar links between attachment insecurity and antisocial personality disorder (Bakermans-Kranenburg & van Ijzendoorn, 2009a; Dozier et al., 2008; Fonagy et al., 1996). In addition, the hostile/helpless delineation of disorganized attachment experience described by Lyons-Ruth and colleagues might imply an association with features of masochistic personality disorder. However, because this diagnosis is not included in the DSM-IV manual, it is not usually cited in studies using the MCMI.

The fourth column of Table 4 shows that the 19 students with an ambivalent attachment style scored significantly higher than all other students on the MCMI scales for Borderline Personality Disorder, Negativistic Personality Disorder, Alcohol Dependence, and Drug Dependence. Borderline personality, like alcohol and drug dependence, entails difficulties in regulating negative emotions and in controlling impulses—difficulties associated with the maladaptive self-soothing strategies that characterizes ambivalent attachment. A similar pattern, along with vulnerability to eating disorders, has been noted in Salzman's (1997) study of ambivalent attachment in female adolescents and, also, in Salzman, Kunzendorf, and Saunders' (2012) study. Other investigations have likewise found a link between ambivalent attachment and borderline personality, using both the AAI (Bakermans-Kranenburg & van IJzendoorn, 2009a; Fonagy et al., 1996; Patrick et al., 1994) and two related prototype measures of attachment (Meyer et al., 2001; Westen et al., 2006).

Regarding the unanticipated correlation between ambivalent attachment and negativistic personality disorder, this association may reflect an overlap between the MCMI characterization of a negative personality's susceptibility to extreme mood swings—from deference to aggressive opposition, from anger to guilt or shame—and the emotional lability that is often associated with borderline personality. And finally, while we did not predict the significant correlation between ambivalent attachment and alcohol or drug dependence, this association has been reported in other attachment studies (Bakermans-Kranenburg & van IJzendoorn, 2009a; Dozier et al., 2008).

The fifth column of Table 4 indicates that the 21 students with an avoidant attachment style scored significantly higher than all other students on the MCMI scales for Schizotypal Personality Disorder and Paranoid Personality Disorder. Avoidant attachment, schizotypal personality disorder, and paranoid personality disorder all share the characteristic of interpersonal distancing, which may be associated with false self-reliance, as described by Bowlby (1973), and difficulty in establishing intimate relationships. Nakash-Eiskovits, Dutra, and Westen (2002) have reported a similar relationship between dismissing attachment (measured by both the ECR and the AAI) and DSM-IV's Cluster A disorders, which include paranoid and schizotypal diagnoses. In addition, Crawford, Shaver, Cohen, Pilkonis, Gillath, & Kasen (2006) found associations between dismissing attachment and Cluster A diagnoses, while Brennan, Clark, and Shaver (1998) found an association between the dismissing category and paranoid personality disorder.

The sixth column in Table 4 reveals that the 28 students with a disorganized attachment style scored significantly higher than all other students on the MCMI scales for Post-Traumatic Stress Disorder (PTSD) and Depressive Personality Disorder. The relationship between disorganized attachment and PTSD parallels Saunders, Salzman, and Kunzendorf's (2012) finding that disorganized attachment on the PASQ Before 12 is strongly associated with emotional and sexual abuse on the Childhood Trauma Questionnaire (Bernstein & Fink, 1997). Other studies have reported similar associations between disorganized attachment and PTSD (Bakermans-Kranenburg & van IJzendoorn, 2009a; Dozier et al., 2008). The unanticipated correlation between attachment disorganization and depressive personality may be accounted for by the inclusion of items in the PASQ's disorganized scale that correspond to the MCMI's use of adjectives such as "worthless," "disconsolate," "pessimistic," and "defenseless" to characterize depressive personality.

Finally, in keeping with our hypotheses, MCMI results for the two bridge categories reveal almost no significant associations, either positive or negative. The single exception is a correlation between secure-ambivalent attachment and the scale for compulsive personality disorder, which is also associated with secure attachment in this study. As previously noted by Salzman (1988), secure-ambivalent individuals often display the interpersonal sensitivity characteristic of secure attachment. Items on the PASQ's secure-ambivalent scale—e.g., "I would feel bad if I put my own needs ahead of my caregiver's"—capture the particularly strong sense of moral obligation often cited by individuals in this group.

It should be noted that not all researchers have found associations between the ambivalent attachment style and the MCMI's Negativistic and Borderline personalities, nor between avoidant attachment and Paranoid and Schizotypal personalities. Measuring insecure attachments with Brennan, Clark, and Shaver's (1998) ECR, Riggs, Paulson, Tunnell, Sahl, Atkison, and Ross (2007) found no differences in Borderline PD scores, Paranoid PD scores, or Schizotypal PD scores across 16 preoccupied, 14 dismissing, and 46 fearful inpatients. The difference between their findings and ours may indicate that the relationship between romantic attachment in adulthood and serious psychopathology is less robust than that between early attachment experiences and later personality disorders. Furthermore, given our finding that the ECR's categories for preoccupied and dismissing attachment correspond more closely to the PASQ's relatively secure bridge categories than to the PASQ's fully insecure ambivalent and avoidant styles, it might be expected that the ECR's preoccupied and dismissing styles would fail to show significant correlations with the MCMI's personality disorder scales.

Overall, the results of our second validation study confirmed our prediction that the PASQ would yield meaningful correlations between styles of attachment and diagnostic measures of Axis II personality disorder. The correlation of PTSD with the PASQ scale for disorganization was also anticipated, and findings of associations between other Axis I syndromes—Alcohol and Drug Dependence—and the PASQ scale for ambivalence are consistent with several previous studies.

## Third Study

The third validation study tested the hypothesis that PASQ data would reveal a decline between early and later attachment security in the presence of three adverse events ascertained by our Biographical Questionnaire: maternal death, parental divorce, and disruption of maternal caregiving. The first two of these events have been cited by Bowlby (1980) and Lewis, Feiring, and Rosenthal (2000) as having the potential to alter the course of attachment security in childhood. And based on longitudinal data from the Minnesota Parent-Child Project, changes in attachment have been noted in association with a cluster of negative life events in childhood, including maltreatment and familial stresses that compromise the quality of maternal caregiving (van Ryzin et al., 2011; Waters et al., 2000; Weinfield et al., 2000).

While Bowlby (1969/1982, 1980) postulated that in stable caregiving environments attachment should be resistant to change, he also suggested that major environmental perturbations could lead to shifts in attachment status. In support of Bowlby's first hypothesis, many investigations of attachment between infancy and adolescence or early adulthood have found continuity over time in stable caregiving environments (Hamilton, 2000; Main, 2001; Waters, Merrick, Treboux, Crowell, & Albersheim, 2000). However, in an extension of Waters, Hamilton, and Weinfield's (2000) longitudinal comparison of Strange Situation classifications at 12 months and AAI's administered at age 19, Weinfield, Whaley, and Egeland (2004) examined the impact of adverse events on attachment security in an at-risk subsample of the Minnesota Parent-Child Project and found that childhood maltreatment and changes in the family environment had significant negative effects on attachment security over time. In particular, Weinfield, Whaley, and Egeland (2004) reported that negative environmental changes "may represent important challenges to the family . . . that pull at the mother's personal resources and reduce her ability to maintain a consistently sensitive, emotionally positive relationship with her child" (p. 91). Also, based on data from the Minnesota Study of Risk and Adaptation, van Ryzin, Carlson, and Sroufe (2011) concluded that continuity in attachment "may be a reflection of a stable social context as much as it is an artifact of early working models, and [may] illustrate 'homeorhetic' pathways of development" (p. 381). This observation is consistent with Bowlby's view that a maternal caregiver cannot continuously offer sensitive caregiving unless she herself is also cared for (Bowlby, 1988).

## Method

*Participants*—Data in Study 3 were based on the protocols of 163 UMass students enrolled in general psychology courses between 2001 and 2005. Of these, four did not report their age or gender. Of the remaining 159 students, 81 were male and 78 were female; their mean age was 21.4 years (SD = 5.8). In return for the participation, all 163 students received credit toward the research participation requirement in their respective general psychology courses.

*Procedure*—After signing an IRB informed consent statement, each participant completed both the PASQ Before 12 and the PASQ After 12. In addition, participants filled out the study's Biographical Questionnaire, which included three items pertaining to the following negative life events: mother's death, parental divorce, and disruption of maternal care for an extended period of time (more than one month), as well as the respondent's age at the time these events occurred. Data gathered on a subsample (N = 52) who reported abuse and neglect on the Childhood Trauma Questionnaire (Bernstein & Fink, 1997) could not be included in the study because the age at which maltreatment occurred was not specified.

## Results and Discussion

On the PASQ Before 12, 51 respondents were scored as securely attached, 43 as secure/ambivalent, 27 as secure/avoidant, 12 as ambivalent, 7 as avoidant, and 23 as disorganized. The same number of students (51) was scored as securely attached after age 12, with 41 in this cohort remaining securely attached during both time periods.

Forty-two students were scored as secure/ambivalent after age 12, with 28 in this cohort remaining secure-ambivalent over both time periods. Twenty-six students were scored as secure/avoidant after age 12, with 17 of these remaining secure/avoidant over both time periods. Fourteen students were scored as ambivalent after age 12, with 7 respondents remaining ambivalent in both time periods. Eleven students were scored as avoidant after age 12, with 4 remaining avoidant in both time periods. Nineteen students were scored as disorganized after age 12, with 13 respondents classified as disorganized in both time periods.

The four columns of Table 5 represent the following cohorts (from left to right): those respondents who reported no negative events either before or after the age of 12; those who reported at least one negative event before age 12, but none after age 12; those who reported at least one negative event after age 12, but none before that age; and those who reported at least one negative event during both time periods. For the purposes of this analysis, the PASQ'S six attachment styles were reduced to three categories of attachment: a secure attachment, a bridge category (secure/ambivalent and secure/avoidant attachments), and an insecure category (ambivalent, avoidant, and disorganized attachments).

Loglinear analysis of the resulting 3-way interaction among the four negative event cohorts, the three before-12 attachment categories, and the three after-12 attachment categories yielded a Likelihood Ratio<sub>28</sub> = 154.65,  $p \le .001$ . On the basis of this finding, a series of two-way comparisons were analyzed. In the first of these comparisons, 27% of 11 students reporting both a secure attachment before age 12 and at least one negative event in both time periods shifted into a less secure category after age 12. In contrast, only 5% of the remaining 40 students in the secure before 12 cohort exhibited a decline in attachment security. A loglinear analysis of this contrast attained statistical significance: Likelihood Ratio<sub>2</sub> = 5.98,  $p \le .05$ . Thus, secure attachment before age 12 appears to be unaltered by negative events occurring in only one time period, though attachment security may not be sustained in the presence of negative events during both time periods.

Second, among students in the before-12 bridge category, 33% of the 12 students reporting no negative life events shifted into the secure category after age 12, whereas none of the 16 students reporting negative events after 12 or negative events before and after 12 made this positive shift. This difference also produced significant results: Likelihood Ratio<sub>2</sub> = 10.33, p < .01. Third, among students in the before-12 insecure category, 40% of the 5 students reporting no negative life events shifted into the secure category after age 12, while none of the 17 students reporting negative events after age 12 or negative events before and after 12 made such a shift. A loglinear analysis of this difference again produced significant results: Loglinear Ratio<sub>2</sub> = 9.03,  $p \le .05$ . It therefore appears that, in the absence of negative life events, a significant percentage of individuals in either the bridge category before age 12 or the insecure category before age 12 may shift into the secure category after age 12. Conversely, those who have experienced negative

	Negative event not present	Negative event before age 12	Negative event after age 12	Negative events before and after age 12
Secure attachment before 12	( <i>n</i> = 9)	( <i>n</i> = 22)	( <i>n</i> = 9)	( <i>n</i> = 11)
Secure attachment after 12	100%	73%	89%	73%
Bridge category after 12	0%	18%	11%	0%
Insecure category after 12	0%	9%	0%	27%
Bridge category before 12	(n = 12)	( <i>n</i> = 42)	( <i>n</i> = 6)	( <i>n</i> = 10)
Secure attachment after 12	33%	7%	0%	0%
Bridge category after 12	67%	71%	83%	80%
Insecure category after 12	0%	21%	17%	20%
Insecure category before 12	(n = 5)	( <i>n</i> = 20)	(n = 3)	(n = 14)
Secure attachment after 12	40%	5%	0%	0%
Bridge category after 12	0%	30%	33%	36%
Insecure category after 12	60%	65%	67%	64%

Table 5. Attachment-Style Shifts in Relation to a Negative Life Event (Maternal Death, Parental Divorce, or Disruption in Maternal Caregiving)

life events during both time periods or only after age 12 appear unlikely to make such a positive shift.

## **GENERAL DISCUSSION**

Our test-retest analyses and factor analyses demonstrate that both versions of the *Primary Attachment Style Questionnaire*, the PASQ Before 12 and the PASQ After 12, reliably differentiate among six attachment categories—secure, secure/ambivalent, secure/avoidant, ambivalent, avoidant and disorganized. In addition, all six of the attachment styles on the PASQ Before 12 exhibited predictive validity in one or more of our three validity studies.

In the first of these studies, a secure attachment style on the PASQ Before 12 was statistically associated with a secure style of romantic attachment as assessed by the ECR. The PASQ's bridge categories (secure/ambivalent and secure/avoidant) were associated with the ECR's preoccupied and dismissing styles, while a composite of the PASQ's three insecure styles were associated with the ECR's fearful category. These findings suggest that the PASQ may pick up the experience of anxiety in ambivalent and avoidant attachment more sensitively than the ECR does, although the two measures converge in identifying the dimension involving hyperactivation versus deactivation.

In the second validation study, a secure style before 12 was associated with significantly lower scores on all but two of the 24 MCMI scales measuring psychopathology, while the PASQ's three categories of insecure attachment yielded a number of significant findings not always obtained with other brief self-report measures but characteristic overall of investigations into the relationship between attachment and psychopathology, including those that use the AAI. An ambivalent attachment style on the PASQ Before 12 was uniquely associated with a greater likelihood of Borderline Personality Disorder, as anticipated, along with Negativistic Personality Disorder and Alcohol and Drug Dependence as measured by the MCMI-III-statistical associations compatible with results from another PASQ study that associates ambivalent attachment with indices of affect dysregulation (Salzman et al., 2012) and with findings in a number of previous studies. Also in line with our predictions, an avoidant attachment style on the PASQ Before 12 was associated with greater likelihoods of Schizotypal Personality Disorder and Paranoid Personality Disorder. These findings lend strength to our assumption that avoidant individuals may be just as anxious as their ambivalent counterparts, even though their strategies for coping with attachment-related anxiety can be seen as polar opposites. Finally, disorganized attachment style on the PASQ Before 12 was statistically associated with MCMI scales for Depressive Personality Disorder and as predicted, Post-Traumatic Stress Disorder.

Our third study found changes in attachment security between childhood and adulthood in the context of three negative life events. This finding, consistent in part with longitudinal data from the Minnesota Parent-Child Project, suggests that the PASQ may be useful for tracking shifts in attachment status over time when longitudinal data are unavailable.

In future studies of primary attachment and its correlates, we plan to use the PASQ to examine additional variables of interest to clinicians as well as developmental researchers. In particular, we hope to elaborate on Tyrrell, Dozier, Teague, and Fallot's (1999) study of the interaction between patients' and therapists' attachment styles in order to delineate issues that may arise during treatment, given particular pairings of attachment styles. Because PASQ classifications depend upon respondents' recalled experiences rather than current states of mind about primary attachment relationships, we believe the measure offers advantages for this type of investigation. It would allow researchers to evaluate the impact of early attachment style on transference and countertransference patterns, even in contexts where intervening life experiences, including therapy, might result in a classification of earned secure on a measure like the AAI.

This pilot investigation has a number of limitations, the foremost of which is the absence of a direct comparison between the PASQ and the Adult Attachment Interview, given its status as one of the most widely used measures for assessing attachment security in both community and clinical populations. The authors are currently in discussion with colleagues in Munich who have agreed to use the PASQ along with the AAI in two planned studies of maternal attachment.

A second limitation is the absence of clinical data to compare with that gathered in our non-clinical sample. While data were collected from 26 patients enrolled in a partial hospital program, a majority of their protocols were compromised on account of severe thought disorders or substance abuse, and the sample was skewed by an overrepresentation of individuals with severe trauma histories. A next step in the scale validation process will be to gather data from a less cognitively impaired and more diagnostically representative outpatient sample.

The study's third limitation, the absence of longitudinal attachment data comparable to that gathered by Sroufe and his colleagues, is shared by many other attachment investigations and is unlikely to be resolved, given the time and expense of conducting longitudinal research. Despite such limitations, the results of our initial studies suggest that the PASQ may prove useful for both research and clinical purposes that require the use of a comprehensive but brief retrospective attachment measure that can be easily administered and scored.

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# APPENDIX A Primary Attachment Questionnaire Before Age 12

Please rate each statement from 1 to 7, according to how true it was of your experience with your primary caregiver before you reached 12 years of age.

1	2	3	4	5	6	7
Never	Almost not at all	Rarely	Sometimes	Often	True	Always true

1 2 3 4 5 6 7	01 My primary caregiver was there for me when I needed him/her.
1 2 3 4 5 6 7	02 I learned to protect myself because my primary caregiver didn't want me to lean on him/her.
1 2 3 4 5 6 7	03  If I got into trouble, my primary caregiver would rescue me before I even had a chance to handle the situation on my own.
1 2 3 4 5 6 7	04 I could rise to challenges at school or other places, because I had my primary caregiver's support.
1 2 3 4 5 6 7	05 My primary caregiver left me exposed to danger.
1 2 3 4 5 6 7	06 My primary caregiver and I enjoyed hanging out together.
1 2 3 4 5 6 7	07 My self-confidence went up and down with my primary caregiver's changing attitude toward me.
1 2 3 4 5 6 7	08 I would feel "bad" if I put my own needs before my primary caregiver's.
1 2 3 4 5 6 7	When my primary caregiver and I argued we could really hurt each other.
1 2 3 4 5 6 7	10 I felt secure with my primary caregiver, but not so confident when I was away from him/her.
1 2 3 4 5 6 7	111 When I was upset, my primary caregiver's responses varied from comforting to blaming or ignoring.
1 2 3 4 5 6 7	[12] From my primary caregiver I learned to be a good judge of whether a situation would be safe for me.
1 2 3 4 5 6 7	13 My primary caregiver took no joy in me.
1 2 3 4 5 6 7	14 My primary caregiver liked to make me feel bad.
1 2 3 4 5 6 7	15 My primary caregiver and I communicated easily about schoolwork or hobbies, but not about upsetting personal experiences.

1 2 3 4 5 6 7  1	6 My primary caregiver didn't like demonstrations of affection, physical or otherwise.
1 2 3 4 5 6 7 1	[7] My primary caregiver preferred not to have me lean on him/her, so I learned not to.
1 2 3 4 5 6 7 1	[8] My primary caregiver was good at responding to my feelings, even when I was angry.
1 2 3 4 5 6 7 1	19 I felt as if I was the only source of happiness in my primary caregiver's life, and that made it hard to
	pursue my own interests.
1 2 3 4 5 6 7 2	20 I felt that my primary caregiver had confidence in me and that I could get along ok in the world.
1 2 3 4 5 6 7 2	21 My primary caregiver built up my confidence in my ability to accomplish things, but he/she couldn't
	boost my confidence about dealing with relationships.
1 2 3 4 5 6 7 2	22  My primary caregiver and I could argue comfortably about movies, politics, sports, etc., but we
	stayed away from personal disagreements.
1 2 3 4 5 6 7 2	23 When my primary caregiver hugged or kissed me, I could feel his/her love.
1 2 3 4 5 6 7 2	24 My primary caregiver didn't know how to comfort people, so I learned not to go to him/her when I
	was upset.
1 2 3 4 5 6 7 2	My primary caregiver made me feel that I lacked any power to get along in the world.
1 2 3 4 5 6 7 2	26 I think my primary caregiver helped me to feel good about myself.
1 2 3 4 5 6 7 2	27 My primary caregiver was good at understanding my feelings, when I discussed them with him/her.
1 2 3 4 5 6 7 2	When my primary caregiver and I argued, I could tell that he/she still loved and respected me.
1 2 3 4 5 6 7 2	My primary caregiver was there for me with practical help and advice, but it felt awkward to talk
	about feelings with him/her.
1 2 3 4 5 6 7 3	30 I felt too dependent on my primary caregiver, but he/she never seemed to mind.
1 2 3 4 5 6 7 3	31 My primary caregiver made me feel as if there was something so wrong with me that I wasn't quite
	human.
1 2 3 4 5 6 7 3	32 I think my primary caregiver was a good role model for me, but he/she didn't pressure me to be just
	like him/her.
1 2 3 4 5 6 7 3	If I tried to discuss things with my primary caregiver, I would end up feeling angry and frustrated.
1 2 3 4 5 6 7 3	Being with my primary caregiver could switch from feeling really secure to feeling frustrating and confusing.

# APPENDIX A (Cont'd.) Primary Attachment Questionnaire Before Age 12

1 2 3 4 5 6 7	35	My primary caregiver was ready to take my side against a coach or a teacher, but in my personal life I was on my own.
1 2 3 4 5 6 7	36	I felt as if my primary caregiver knew and appreciated me for who I was.
1 2 3 4 5 6 7	37	My primary caregiver and I liked and respected each other, but we weren't emotionally close.
1 2 3 4 5 6 7	38	My primary caregiver worried so much about upsetting me that he/she could be too soft on me.
1 2 3 4 5 6 7	39	I couldn't trust my primary caregiver because he/she seemed to hate me.
1 2 3 4 5 6 7	40	When my primary caregiver and I argued, he/she upset me so much that it interfered with the rest of my life.
1 2 3 4 5 6 7	41	When my primary caregiver criticized or challenged me, I tuned him/her out.*
1 2 3 4 5 6 7	42	Because I wasn't sure my primary caregiver would understand my point of view, I learned to stay away from sensitive topics with him/her.

# Alternative Title and Instructions:

Primary Attachment Questionnaire after Age 12

Please rate each statement from 1 to 7, according to how true it was of your experience with your primary caregiver after you reached 12 years of age.

\*The word "challenged" was recently inserted into the PASQ to replace the words "competed with."

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# APPENDIX B PASQ Scoring Instructions

A subject's mean ratings on the PASQ's six scales of primary attachment before age 12 and its six scales of primary attachment after age 12 are obtained by solving the following equations:

MeanRatingsecure	= (Item1+Item4+Item6+Item12+Item18+Item20+Item23+
	Item26+Item27+Item28+Item32+Item36)/12
MeanRating <sub>sec-am.</sub>	= (Item3+Item8+Item10+Item19+Item30+Item38)/6
MeanRating <sub>sec-av.</sub>	= (Item15+Item21+Item22+Item29+Item35+Item37)/6
MeanRating <sub>ambiv.</sub>	= (Item7+Item9+Item11+Item33+Item34+Item40)/6
MeanRating <sub>avoid.</sub>	= (Item2+Item16+Item17+Item24+Item41+Item42)/6
MeanRating <sub>disorg.</sub>	= (Item5+Item13+Item14+Item25+Item31+Item39)/6

If a subject's category of primary attachment before age 12 is also to be obtained, then the following equations must be solved in order to find the categorical style with the highest Z score:

Z <sub>secure</sub>	= (MeanRating <sub>secure</sub> $-5.64$ )/1.05
Zsec-am.	= (MeanRating <sub>sec-am.</sub> $- 2.99$ )/0.83
Z <sub>sec-av.</sub>	= (MeanRating <sub>sec-av.</sub> $- 3.36$ )/1.20
Z <sub>ambiv.</sub>	= (MeanRating <sub>ambiv.</sub> $-2.68$ )/1.18
Zavoid.	= (MeanRating <sub>avoid.</sub> $-2.25$ )/1.07
Z <sub>disorg.</sub>	= (MeanRating <sub>disorg.</sub> - 1.46)/0.75

If a subject's category of primary attachment after age 12 is also to be obtained, then the following equations must be solved in order to find the categorical style with the highest Z score:

Z <sub>secure</sub>	= (MeanRating <sub>secure</sub> - 5.48)/1.15
Z <sub>sec-am.</sub>	= (MeanRating <sub>sec-am.</sub> $- 2.72$ )/0.81
Zsec-av.	= (MeanRating <sub>sec-av.</sub> $-3.52$ )/1.35
Z <sub>ambiv.</sub>	= (MeanRating <sub>ambiv.</sub> $-2.89$ )/1.41
Z <sub>avoid.</sub>	= (MeanRating <sub>avoid.</sub> $-2.57$ )/1.28
Z <sub>disorg.</sub>	= (MeanRating <sub>disorg.</sub> - 1.59)/0.94

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