

# Possible Link Between Childhood Separation Anxiety and Adulthood Personality Disorder in Patients With Anxiety Disorders in Japan

Akira Osone, M.D., and Saburo Takahashi, M.D.

Received Feb. 13, 2006; accepted May 18, 2006. From the Department of Psychiatry, Tokyo Women's Medical University, Tokyo (Dr. Osone); and Saitama Kounan Hospital, Saitama (Dr. Takahashi), Japan.

Drs. Osone and Takahashi report no financial affiliations or other relationships relevant to the subject of this article.

Corresponding author and reprints: Akira Osone, M.D., Department of Psychiatry, Tokyo Women's Medical University, 8-1 Kawada-cho, Shinjuku-ku, Tokyo 162-8666, Japan (e-mail: aosone@psy.twmu.ac.jp).

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**Objective:** The aim of this study was to examine whether childhood separation anxiety symptoms associate with adulthood anxiety disorders or personality disorders.

**Method:** Separation Anxiety Symptom Inventory (SASI), Structured Clinical Interview for DSM-IV Axis II Personality Disorders (SCID-II), and Global Assessment of Functioning (GAF) were administered to 134 outpatients with anxiety disorders and SASI was administered to 176 healthy volunteers (controls) recruited in Japan from April 1999 through November 2003.

**Results:** SASI scores were not correlated with age or sex in controls. In contrast, SASI scores were higher in patients with anxiety disorders than in controls, especially in women. SASI showed good test-retest reliability (Pearson correlation coefficient = 0.8). One hundred thirteen patients (84.3%) had no comorbid anxiety disorder while 21 (15.7%) had any, and those with comorbid anxiety disorder tended to show higher SASI scores ( $p = .053$ ). In total, 60 (44.8%) of 134 patients had at least 1 personality disorder, and the most frequent disorders were from cluster C (36.6%). The subgroup with comorbid personality disorders showed earlier onset ( $p < .01$ ), higher SASI scores ( $p < .01$ ), and poorer recovery of global functioning ( $p < .05$ ) than the noncomorbid subgroup. Stepwise multiple regression analysis revealed that SASI scores were higher in female ( $p < .05$ ) and younger ( $p < .01$ ) patients and most strongly correlated with number of comorbid personality disorders in adulthood ( $p < .01$ ).

**Conclusion:** These results suggest that there is a continuum of anxiety disorders from childhood to adulthood, the severity of separation anxiety appears to increase the risk of severe anxious-fearful personality disorders in adulthood, and those with severe separation anxiety, particularly females, may progress to suffer from comorbid adult anxiety disorders.

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In 1956, Estes et al.<sup>1</sup> introduced the term *separation anxiety* to describe fear of leaving the mother or home rather than actual school situation per se. As Bowlby<sup>2</sup> suggested, the term *pseudophobia* would clarify the underlying pathologic processes of separation anxiety, and the aberrations of parent-child bonds may render the child vulnerable to future mental disorders.<sup>3</sup> Empirical studies in the Western world have suggested a possible link between childhood separation anxiety and adult anxiety disorders. For example, separation anxiety may be a precursor of panic disorder<sup>4-8</sup> and agoraphobia<sup>9</sup> or a risk factor for multiple anxiety syndromes in adulthood.<sup>10</sup> However, controversy still remains over the etiologic factors of anxiety disorders. Furthermore, there have been few studies in the non-Western world to investigate whether early separation anxiety is specifically associated with adult mental disorders.

On the other hand, recent research has revealed that comorbid personality disorders have a differential effect on the outcome of anxiety disorders,<sup>11</sup> may be predictors of panic disorder with agoraphobia,<sup>12</sup> and are characterized by chronicity and lower levels of functioning compared with anxiety disorders without personality disorders.<sup>13</sup> Although clinical diagnosis of personality disorders had shown that agreement was generally poor, recent development of the Structured Clinical Interview for DSM-IV Axis II Personality Disorders (SCID-II)<sup>14</sup> has provided accurate diagnoses as well as diagnoses of comorbid personality disorders. In contrast, as exemplified by a recent study<sup>15</sup> that reported the disagreement about the presence of separation anxiety between parents and children, a number of methodological difficulties in assessing separation anxiety seem to exist (e.g., assessment methods and instruments, sample composition, and handling of multiple informant data).

One approach toward clarifying the relationship between juvenile and adult anxiety disorders is to measure adults' memories of early separation anxiety. The Separation Anxiety Symptom Inventory (SASI), which was developed by Silove et al.<sup>16</sup> to measure adults' memories of separation symptoms prior to 18 years of age, has been used in several countries and has demonstrated some association between separation anxiety and adult mental disorders.<sup>7,8,12</sup> Although previous studies suggested the association between separation anxiety and panic disorder, few studies have revealed a link between separation anxiety and a wider range of anxiety disorders or personality disorders. The authors translated SASI<sup>17</sup> as well as SCID-II<sup>14</sup> into Japanese to examine the relationship between separation anxiety and adult anxiety disorder and/or personality disorder. This was the first study investigating the relationship between separation anxiety and mental disorders, such as anxiety disorders and/or personality disorders, in adulthood in Japan.

## METHOD

### Participants

**Healthy Japanese subjects.** One hundred seventy-six healthy volunteers who worked at Ushiku Aiwa General Hospital in Ibaraki and Saitama Kounan Hospital in Saitama and their spouses, 80 (45.5%) women and 96 (54.5%) men, without a history of psychiatric diagnosis were randomly recruited from April 1999 through May 2003. The subjects included hospital medical, technical, and clerical staff; housewives; office workers; and students. Although we did not administer SCID-II diagnoses to these subjects, we excluded those with apparent personality disorder. The mean (SD) age of these subjects was 36.9 (10.6) years: that of the women was 37.2 (11.2) years (range, 21–65 years) and of the men was 36.6 (10.2) years (range, 22–69 years). Educational levels of the subjects were as follows: primary school, N = 3 (1.7%); junior high school, N = 13 (7.4%); high school, N = 102 (58.0%); junior college, N = 9 (5.1%); university, N = 49 (27.8%). Among the subjects, 36 (20.5%) were unmarried, 128 (72.7%) were married, and 12 (6.8%) were divorced.

**Patients with anxiety disorders.** One hundred thirty-four patients, 88 women (65.7%) and 46 men (34.3%), were recruited consecutively from the outpatients who visited the Department of Psychosomatics, Ushiku Aiwa General Hospital, for the 4 years from December 1999 through November 2003. The patients were all Japanese, and informed consent was obtained from all participating patients. Patients younger than 18 years and those with organic mental disorder, severe psychiatric disorder such as bipolar disorder, and schizophrenia were excluded.

The mean (SD) age of these patients was 42.9 (15.3) years: that of the women was 43.8 (15.1) years (range,

19–72 years) and of the men was 41.3 (15.8) years (range, 19–76 years) at the time of first evaluation. Twenty-five (18.7%) were unmarried, 100 (74.6%) were married, and 9 (6.7%) were divorced. Sixty-two (46.3%) were employed. Five (3.7%) of the 134 patients completed primary school education, 19 (14.2%) junior high school, 79 (59.0%) high school, 9 (6.7%) junior college, and 22 (16.4%) university. There were no significant differences in these variables as compared with controls except for age ( $t = 4.10$ ,  $df = 308$ ,  $p < .01$ ) and sex ratio ( $\chi^2 = 12.53$ ,  $p < .01$ ,  $OR = 2.30$ , 95%  $CI = 1.44$  to 3.65).

The principal Axis I diagnoses were anxiety disorders. All diagnoses were made in strict accordance with the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I)—Clinician version<sup>18</sup> before the SCID-II interview was made. Fifty-four patients (40.3%) had panic disorder with agoraphobia, 32 (23.9%) had generalized anxiety disorder, 21 (15.7%) had panic disorder without agoraphobia, 15 (11.2%) had social phobia, 7 (5.2%) had specific phobias, 4 (3.0%) had obsessive-compulsive disorder, and 1 (0.7%) had anxiety disorder not otherwise specified.

### Instruments

**Separation Anxiety Symptom Inventory.** SASI is a self-rated questionnaire consisting of 15 items, which were derived from the extensive literature on the subject as well as from DSM-III-R (and DSM-IV) criteria for separation anxiety disorder, with a 4-point frequency scale to measure adults' memories of separation symptoms prior to 18 years of age. The English version of SASI has been shown to have a coherent factor structure as well as high internal and test-retest reliability.<sup>16</sup> The first author (A.O.) translated SASI into Japanese, and the second author (S.T.) back-translated it into English and sent it to the developers to have it readjusted. Cutoff scores for high separation anxiety (SASI scores > 13.8) and low separation anxiety (SASI scores ≤ 13.8) were derived from the mixture analysis of 1800 Australian subjects in the research of Manicavasagar et al.<sup>19</sup> We used the cutoff score of 13.8 on the SASI for the purpose of assigning subjects to either a high or a low separation anxiety category.

**Structured Clinical Interview for DSM-IV Axis II Personality Disorders (SCID-II).** SCID-II is an instrument measuring 10 DSM-IV Axis II personality disorders,<sup>14</sup> as well as depressive personality disorder and passive-aggressive personality disorder, which were included in DSM-IV appendix B,<sup>20</sup> "Criteria Sets and Axes Provided for Further Study." The first author (A.O.) translated SCID-II (User's Guide, Personality Questionnaire, and Sample Case for SCID-II) into Japanese, under the supervision of the second author (S.T.; who has published Japanese versions of DSM-III, DSM-III-R, DSM-IV, and DSM-IV-R in Japan), checked it, and published it in

Japan.<sup>14</sup> The test-retest reliability of the Japanese version of SCID-II was examined by the authors and showed excellent reliability ( $\kappa = 0.87$ ).<sup>21</sup>

**Global Assessment of Functioning (GAF).** The GAF scale is defined in *Diagnostic and Statistical Manual of Mental Disorders*, Fourth Edition (DSM-IV),<sup>20</sup> which includes scores from 1 to 100 reflecting the “current level of psychological, social, and occupational functioning,” and it is useful in tracking the clinical progress of individuals in global terms.

### Statistical Analysis

Differences between the groups were tested by t test, analysis of variance (ANOVA), analysis of covariance (ANCOVA), and Scheffé post hoc analysis for continuous variables. Chi-square test, Fisher exact probability test, 95% confidence intervals (CIs), and odds ratios (ORs) were calculated for categorical variables. Pearson correlation coefficient and Cronbach  $\alpha$  were calculated to examine reliability and the internal consistency of SASI, and stepwise multiple regression analyses were performed to explore the relation between scores on SASI and other variables. Statistical analyses were done by using the Statistica for Mac 4.1J.<sup>22</sup>

### Procedures

First, we investigated the prevalence of separation anxiety, measured by SASI, in healthy Japanese subjects. Second, we administered SASI to the patients with anxiety disorders to compare its results with those found for the healthy subjects. SASI and GAF were administered to the patients with anxiety disorders twice in a 2-year interval to examine their reliability.

The first author (A.O.) administered SCID-II personality questionnaire and interviews when the patients were not in the acute psychiatric state to exclude state-trait contamination and made diagnoses of personality disorder.

## RESULTS

### SASI Scores in Healthy Japanese Subjects

The mean (SD) SASI score in healthy Japanese volunteers was 6.4 (5.4) in total (N = 176). The women (N = 80) returned a mean SASI score of 6.9 (6.1), while the mean score of the men (N = 96) was 6.0 (4.7), yielding no statistically significant difference ( $t = 1.15$ ,  $df = 174$ ,  $p = .25$ ) between female and male subjects. There were 17 subjects (9.7%) with high separation anxiety scores in total, 9 women (11.3%) and 8 men (8.3%), and there was no statistically significant difference ( $\chi^2 = 0.43$ ,  $p = .51$ , OR = 1.39, 95% CI = 0.51 to 3.80) between female and male subjects. Stepwise multiple regression analysis performed to determine whether sex and/or age correlate with SASI scores resulted in no statistically significant difference (sex:  $\beta$  coefficient =  $-0.09$ ,  $t = 1.24$ ,

$p = .23$ ; age:  $\beta$  coefficient =  $-0.12$ ,  $t = -1.64$ ,  $p = .10$ ); that is, SASI scores were not correlated with sex or age in healthy Japanese subjects.

### SASI Scores in Patients With Anxiety Disorders

The mean (SD) overall (N = 134) SASI score in patients at baseline was 7.9 (7.4). Women (N = 88) returned higher SASI scores of 8.6 (7.8) than those of 6.5 (6.6) in men (N = 46). Stepwise multiple regression analysis was performed to evaluate whether sex and/or age affected SASI scores. When 3 variables of sex, age at onset, and age at research were entered, SASI scores were correlated with sex ( $\beta$  coefficient = 0.17,  $t = 2.1$ ,  $p < .05$ ) and strongly correlated with age at research ( $\beta$  coefficient =  $-0.37$ ,  $t = -4.6$ ,  $p < .01$ ); that is, SASI scores were higher in female and younger patients. Moreover, 23 women (26.1%) but only 4 men (8.7%) were categorized as high separation anxiety (SASI scores > 13.8) subjects ( $\chi^2 = 5.71$ ,  $p < .05$ , OR = 3.7, 95% CI = 1.20 to 11.51).

The dimensions underlying the items of SASI were investigated in 310 subjects (176 healthy subjects and 134 patients with anxiety disorders) using factor analysis. Extraction of 4 factors, using principal components analysis following orthogonal (varimax) rotation of 15 separation anxiety items, accounted for 58% of the common variance as shown in Table 1. The variables loading on each of the 4 factors are mostly identical to those reported by Silove et al.<sup>16</sup>; however, 2 items were different: Item 9, “I had nightmares about violence towards me or my family,” is well explained in the dimension “fear of harm befalling family members” in our research; in contrast, item 6, “I was afraid of getting lost when I was in strange places,” is well explained in the dimension “distress at being away from a secure base” in Silove’s research, and the percent of variance of factor 3 and factor 4 was reversed between our study and Silove and colleagues’ study. Cronbach  $\alpha$  of the 15 items was .83 and indicated a high level of internal consistency for the total items.

### Reliability Test on SASI Japanese Version (N = 134)

The mean (SD) SASI scores for patients were 7.9 (7.4) at baseline and 8.3 (7.4) 2 years later, and Pearson correlation coefficient of 0.80 showed good reliability. The mean GAF scores at baseline and 2 years later were 57.1 (7.6) and 71.7 (7.4), respectively. The Pearson correlation coefficient between delta GAF and delta SASI was 0.34, suggesting that SASI scores were hardly influenced by the psychological, social, and occupational functioning, and SASI scores remained stable over 2 years.

### Comorbidity Among Anxiety Disorder Subgroups

Twenty-one patients (15.7%) received 2 comorbid anxiety disorder diagnoses and there were no patients with more than 2 comorbidities. Table 2 shows female rate, age at onset, age at research, the number of patients

**Table 1. Factor Loading Matrix: Percent of Common Variance Accounted for by Each Factor of 15 Separation Anxiety Items**

Items	Mean (SD)	Factor 1	Factor 2	Factor 3	Factor 4
Factor 1 items: separation anxiety					
Item 15. I was afraid of the dark	0.79 (0.96)	.80	.07	.04	.03
Item 7. I imagined that monsters or animals might attack me when I was alone at night	0.84 (0.98)	.74	.03	-.12	-.05
Item 13. I was afraid to go to sleep alone	0.43 (0.75)	.70	.06	-.01	-.15
Item 11. I was afraid of being harmed or kidnapped when I was alone	0.25 (0.63)	.63	.17	-.42	-.05
Item 8. I was afraid of strangers when I was on my own	0.39 (0.80)	.57	.28	-.46	.02
Item 6. I was afraid of getting lost when I was in strange places	0.46 (0.77)	.51	.39	-.14	-.03
Item 3. I did not want to be left alone at home	0.46 (0.78)	.47	.21	-.08	-.24
Factor 2 items: school phobia					
Item 4. I had physical symptoms like stomach aches, nausea, headaches before going to school	0.28 (0.62)	.10	.83	-.06	-.05
Item 14. I was very tense before going to school	0.42 (0.76)	.28	.77	-.06	-.10
Item 1. I did not want to go to school	0.83 (0.88)	.05	.73	-.19	.07
Factor 3 items: fear of harm befalling family members					
Item 5. I had fears that accidents might happen to members of my family when I was not with them	0.42 (0.73)	.17	.05	.81	.11
Item 2. I feared that one of my parents might come to harm when I was away from home	0.42 (0.80)	.03	.05	.66	-.31
Item 9. I had nightmares about violence towards me or my family	0.25 (0.64)	-.28	-.15	.63	-.19
Factor 4 items: distress at being away from a secure base					
Item 12. I daydreamed about being with my family when I was away from home	0.22 (0.52)	.09	.14	.00	-.80
Item 10. I was very unhappy if I was separated from my family	0.58 (0.88)	-.24	-.04	.38	.66
Percent of variance		21	15	13	9

**Table 2. Comparison Between Noncomorbid and Comorbid Anxiety Disorder Subgroups (N = 134)**

Characteristic	Noncomorbid Anxiety Disorder Subgroup (N = 113; 84.3%)	Comorbid Anxiety Disorder Subgroup (N = 21; 15.7%)	Statistic	p Value
Women, N (%)	71 (62.8)	17 (80.9)	$\chi^2 = 2.58$	.11
Age at onset, mean (SD), y	38.7 (15.8)	38.9 (14.1)	$t = -0.06$	.96
Age at research, mean (SD), y	45.1 (15.4)	43.8 (15.1)	$t = 0.36$	.72
With personality disorder, N (%)	50 (44.2)	10 (47.6)	$\chi^2 = 0.08$	.77
$\Delta$ GAF, mean (SD) <sup>a</sup>	15.0 (10.3)	12.6 (8.0)	$t = 1.02$	.31
SASI scores, mean (SD)	7.5 (7.1)	10.3 (8.8)	$t = -1.62$	.11
High SA (SASI scores > 13.8), N (%)	21 (18.6)	6 (28.6)	$\chi^2 = 1.10$	.29

<sup>a</sup> $\Delta$  GAF = GAF (2 years later) – GAF (baseline).

Abbreviations: GAF = Global Assessment of Functioning, SA = separation anxiety, SASI = Separation Anxiety Symptom Inventory.

with personality disorder, delta GAF, SASI scores, and rate of high separation anxiety of noncomorbid and comorbid anxiety disorder subgroups. No variable had significant difference between the 2 subgroups. Although SASI scores were affected by sex and age at research in our study, an analysis of covariance (ANCOVA) with age at research as a covariate and sex and number of comorbid anxiety disorders as between-subgroups factors was performed to determine the effects of sex and comorbidity on responses to SASI. The results showed no statistically significant difference on sex ( $F = 0.00, p = .99$ ) but a trend toward statistical significance on comorbidity of anxiety disorders ( $F = 3.80, p = .053$ ), and there was no interaction ( $F = 2.22, p = .14$ ) between sex and comorbidity; that is, the comorbid anxiety disorder subgroup returned higher SASI scores than the noncomorbid subgroup; however, the difference remained a trend.

**Personality Disorders in Patients With Anxiety Disorders**

In total, 60 (44.8%) of the 134 patients with anxiety disorders had at least 1 personality disorder. The most frequently diagnosed personality disorders were 49 (36.6%) from cluster C (i.e., obsessive-compulsive personality disorder in 27 subjects [20.1%] and avoidant personality disorder in 19 [14.2%]), and 10 (7.5%) with schizoid personality disorder of cluster A. Personality disorders of cluster A (11.9%) and of cluster B (11.2%) were much less frequent than cluster C category. Table 3 shows comparison between subgroups with and without personality disorder in patients with anxiety disorder. One patient (0.7%) who had 4 personality disorders was excluded because of the low rate of 4 disorders. The subgroup of anxiety disorder patients with comorbid personality disorder showed earlier onset ( $t = -2.92, p < .01$ ), younger age at

**Table 3. Comparison Between Anxiety Disorder Subgroups With and Without Personality Disorder (N = 134)**

Characteristic	Anxiety Disorder Subgroup Without Personality Disorder (N = 74; 55.2%)	Anxiety Disorder Subgroup With Personality Disorder (N = 60; 44.8%)	Statistic	p Value
Women, N (%)	49 (66.2)	39 (65.0)	$\chi^2 = 0.02$	.88
Age at onset, mean (SD), y	42.2 (15.6)	34.5 (14.4)	$t = -2.92$	.004
Age at research, mean (SD), y	48.1 (14.9)	41.0 (15.0)	$t = -2.77$	.006
$\Delta$ GAF, mean (SD) <sup>a</sup>	16.5 (9.4)	12.4 (10.3)	$t = -2.39$	.018
SASI scores, mean (SD)	6.2 (6.3)	10.0 (8.1)	$t = 3.10$	.002
High SA (SASI scores > 13.8), N (%)	9 (12.2)	18 (30.0)	$\chi^2 = 6.55$	.011
With comorbid anxiety disorder, N (%)	11 (14.9)	10 (16.7)	$\chi^2 = 0.08$	.77

<sup>a</sup> $\Delta$  GAF = GAF (2 years later) – GAF (baseline).  
Abbreviations: GAF = Global Assessment of Functioning, SA = separation anxiety, SASI = Separation Anxiety Symptom Inventory.

**Table 4. Number of Personality Disorders Among Patients With Anxiety Disorder and Related Variables**

Characteristic	No. of Personality Disorders			
	0	1	2	3
Subjects, N (%)	74 (55.2)	41 (30.6)	12 (9.0)	6 (4.5)
Sex ratio (female/male) <sup>a</sup>	2.0	1.9	1.4	2.0
Age at onset, mean (SD), y <sup>b</sup>	42.1 (15.6)	37.1 (13.4)	30.3 (17.3)	26.8 (13.9)
Age at research, mean (SD), y <sup>b</sup>	48.1 (14.9)	43.6 (14.4)	35.5 (17.7)	35.8 (9.5)
$\Delta$ GAF, mean (SD) <sup>b,c</sup>	16.5 (9.4)	13.5 (11.0)	11.7 (8.9)	5.8 (6.6)
SASI scores, mean (SD)	6.2 (6.3)	7.7 (6.3)	11.5 (6.0)	18.5 (8.6) <sup>d</sup>
High SA (SASI scores > 13.8), N (%)	9 (12.2)	8 (19.5)	5 (41.7) <sup>e</sup>	4 (66.7) <sup>f</sup>

<sup>a</sup>No significant difference among the 4 groups as calculated by  $\chi^2$  or Fisher exact probability test ( $\chi^2$  comparisons were made for cell sizes  $\geq 5$ ).  
<sup>b</sup>No significant difference among the 4 groups as calculated by analysis of variance.  
<sup>c</sup> $\Delta$  GAF = GAF (2 years later) – GAF (baseline).  
<sup>d</sup> $p < .01$ ; no personality disorder group vs. 3 personality disorders group and 1 personality disorder group vs. 3 personality disorders group: calculated by Scheffé post hoc analysis among 4 groups.  
<sup>e</sup> $p < .05$ ; no personality disorder group vs. 2 personality disorders group: calculated by  $\chi^2$  test.  
<sup>f</sup> $p < .01$ ; no personality disorder group vs. 3 personality disorders group: calculated by Fisher exact probability test.  
Abbreviations: GAF = Global Assessment of Functioning, SA = separation anxiety, SASI = Separation Anxiety Symptom Inventory.

research ( $t = -2.77$ ,  $p < .01$ ), lower delta GAF ( $t = -2.39$ ,  $p < .05$ ), higher SASI scores ( $t = 3.10$ ,  $p < .01$ ), and more patients categorized with high separation anxiety ( $\chi^2 = 6.55$ ,  $p < .05$ ) than the without comorbid personality disorder subgroup. These results suggest that the subgroup of anxiety disorder patients with comorbid personality disorder have more severe separation anxiety, have earlier onset, seek earlier treatment, and are associated with poorer recovery of global functioning.

Table 4 shows the number of personality disorders among patients with anxiety disorder and related variables. Stepwise multiple regression analysis of SASI scores as a dependent variable and number of comorbid personality disorders, number of comorbid anxiety disorders, sex, age at onset, age at research, and delta GAF as independent variables revealed that SASI scores were correlated with sex ( $\beta$  coefficient =  $-2.329$ ,  $p < .05$ ) and strongly correlated with both age at research ( $\beta$  coefficient =  $-0.134$ ,  $p < .01$ ) and number of comorbid personality disorders ( $\beta$  coefficient =  $3.342$ ,  $p < .01$ ). Further-

more, stepwise multiple regression analysis of number of comorbid personality disorders as a dependent variable and SASI scores, number of comorbid anxiety disorders, sex, age at onset, age at research, and delta GAF as independent variables revealed that number of comorbid personality disorders was correlated with delta GAF ( $\beta$  coefficient =  $-0.015$ ,  $p < .05$ ) and strongly correlated with SASI scores ( $\beta$  coefficient =  $0.047$ ,  $p < .01$ ). These results suggest that the more severe separation anxiety patients with anxiety disorders report, the more severe personality disorders the patients have, particularly in younger and female patients.

## DISCUSSION

### Reliability of SASI Japanese Version

There are limitations associated with retrospective measurement such as using a questionnaire that depends on the recall of childhood experiences. Data obtained in this study suggest that SASI scores are almost indepen-

dent of the current state of the patients. Although the sex ratio and age were not matched between healthy subjects and patients with anxiety disorders in our study, it is possible to compare SASI scores between the 2 groups because the SASI score was not correlated with sex or age in healthy Japanese subjects and educational levels were not significantly different between these 2 groups. Although the result that the younger patients with anxiety disorders had higher SASI scores than older patients might mean that the former memorized fearful events in childhood more strongly than the latter, that is not probable in general because there was no statistically significant difference in terms of age at research on SASI scores in healthy Japanese subjects. Some memory bias might have existed in patients with anxiety disorders.

### Relationship Between Separation Anxiety and Anxiety Disorders in Adulthood

Research on comorbidity among anxiety disorders is significant either cross-sectionally or longitudinally because it involves issues of definition and treatment.<sup>23</sup> Lipsitz et al.<sup>10</sup> reported that the prevalence of childhood separation anxiety disorder was significantly greater among patients with 2 or more lifetime adult anxiety disorder diagnoses than patients with only 1 anxiety disorder and childhood separation anxiety disorder might be a risk factor for multiple anxiety syndromes in adulthood. However, our result was not identical to their finding, although it is probable that the comorbid anxiety subgroup had severer separation anxiety disorder than the noncomorbid subgroup ( $p = .053$ ).

### Relationship Between Anxiety Disorders and Personality Disorders

The findings of one study<sup>24</sup> suggest a relatively high prevalence of personality disorders in panic patients and a possible relationship between panic disorder and the DSM-III cluster III personality disorders. Cluster III equates to cluster C in DSM-IV, which therefore means anxious-fearful personality disorder. A recent review<sup>25</sup> also demonstrated that cluster C personality disorders/traits are common in patients with anxiety disorders. In the present study, we found that severity of separation anxiety apparently correlated with the number of personality disorders, which were mostly from cluster C. Therefore, our results suggest a relationship between cluster C personality disorders and anxiety disorders as consequences of common underlying etiologies, which is consistent with previous studies.<sup>26–28</sup>

The comorbid personality disorder subgroup showed earlier onset, poorer recovery of global functioning, and severer separation anxiety than the noncomorbid subgroup. A recent study<sup>29</sup> reported that patients with panic disorder with comorbid personality disorder had earlier age at onset and had lower level of functioning than pa-

tients without any personality disorder, which was consistent with our results. These results suggest that patients with severer separation anxiety in their childhood will suffer from functional impairment or subjective distress more severely in their early adulthood and that there is a psychopathologic continuum in patients with anxiety disorders.

In summary, our results suggest that there is a continuum of anxiety disorders from childhood to adulthood; that the severity of separation anxiety in childhood is a significant predictor of severe personality disorders, particularly anxious-fearful personality disorders in adulthood; and that patients—particularly female patients—with severe separation anxiety may progress to suffer from comorbid adult anxiety disorders.

Further studies should examine whether vulnerabilities such as separation anxiety and/or personality disorder are genetically or environmentally determined and whether other factors that may cause separation anxiety and/or personality disorder in adulthood exist.

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*Editor's Note:* We encourage authors to submit papers for consideration as a part of our Focus on Childhood and Adolescent Mental Health section. Please contact Melissa P. DelBello, M.D., at [delbelmp@email.uc.edu](mailto:delbelmp@email.uc.edu).