

## Regular Article

# Childhood parental separation experiences and depressive symptomatology in acute major depression

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### Abstract

The aim of this study was to examine the pathoplastic effects of childhood parental separation experiences on depressive symptoms. Patients with acute major depression were identified in a large 31-center study of affective disorders in Japan. Information regarding the patients' childhood losses was collected using a semistructured interview, and their depressive symptomatology was assessed by the Center for Epidemiologic Studies Depression Scale (CES-D). Patients reported significantly higher CES-D total scores when they had experienced early object loss of the same-sex parent. In terms of the CES-D subscores derived by factor analysis, early object loss significantly aggravated symptoms that people normally could cope with but could no longer cope with when depressed (e.g. 'poor appetite', 'cannot shake off the blues' and 'everything an effort.'). Once depression develops, early object loss may act as a pathoplastic factor by making it severer especially by rendering people less able to perform what they normally could do.

### Key words

depressive disorder, parent–child relationship, psychiatric status rating scales.

## INTRODUCTION

Death or prolonged absence of a parent during childhood has been implicated as an antecedent to adult psychopathology including depression. Many studies have been conducted on this topic in the past three decades but the literature is far from consistent, with many positive<sup>1–4</sup> and negative<sup>5,6</sup> studies. We ourselves have previously studied the association between early parental separation experiences and adult major depression and found that female, but not male, patients with unipolar depression experienced significantly more maternal loss than the corresponding controls.<sup>7</sup>

Apart from this etiologic or pathogenetic role of childhood parental separation experiences, it is also

possible that they may act as pathoplastic factors once a depressive episode develops.<sup>8</sup> We previously found that such might be the case with schizophrenia (i.e. early parental loss did not contribute to development of schizophrenia (pathogenesis) but affected the psychopathological phenotypes of schizophrenia once it has developed (pathoplasty)).<sup>9</sup> As far as the present authors are aware, no similar research has been reported with regard to major depression. The present report therefore examined whether childhood death of or separation from a parent influenced the depressive symptomatology among patients with major depression.

## MATERIALS AND METHODS

### Patients and procedures

The Group for Longitudinal Affective Disorders Study (GLADS) in Japan has been conducting a multicenter prospective follow-up study of a broad spectrum of affective disorders under the sponsorship of the Ministry of Health and Welfare.<sup>10</sup> The study methodology

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Received 3 September 2002; accepted 23 September 2002.

has been explained in detail elsewhere<sup>11,12</sup> and are only briefly presented below.

The participating centers from all over Japan include psychiatric departments of 15 university hospitals, eight general hospitals, five mental hospitals, a community mental health center and an outpatient clinic, and a psychosomatic department of a university hospital.

In the first stage of the collaborative study, each hospital and clinic examined a representative subset of its first-visit patients according to the predetermined rules; in certain centers, a representative subset meant all the first-visit patients examined by the psychiatrist(s) participating in the GLADS Project; in others, it meant all the first-visit patients on a certain day of the week; in still some others, it meant only the first such patient to show up on a certain day of the week. The selection of these preset rules was left to the individual center as time and human resources varied in each hospital.

DSM-III-R diagnoses were given by psychiatrists who administered the Psychiatric Initial Screening for Affective disorders (PISA). The PISA is a semistructured interview listing 33 symptoms corresponding to diagnostic criteria of schizophrenia, mood disorders, anxiety disorders, somatoform disorders, dissociative disorders, organic mental disorders and substance use disorders. The interrater reliability of these psychopathological variables has been reported to range between kappas of 0.71 and 1.00 (median = 0.85).<sup>10</sup> The PISA contains a section about the parent's current age if alive, or each parent's age and the patient's age when the parent died, and whether (and when and how long) the patient lived apart from each parent for a period longer than 1 month before the patient's 16th birthday. In the event of more than one period of separation from a parent longer than 1 month, regardless of the cause, only the first separation was considered. Other studies in the literature have also used the same conventions as ours to adopt the age limit of the 16th birthday,<sup>13-15</sup> the cut-off of 1 month for the length of separation,<sup>16,17</sup> and to count only the first separation in the event of multiple separations.<sup>13</sup> We were thus able to collect data on the patients' parental loss through direct and systematic interviewing. Approximately half of the cases were accompanied by their relatives and, where necessary, corroborative information was obtained from them.

All the subjects were invited to complete a series of self-report questionnaires including the Center for Epidemiologic Studies Depression Scale (CES-D).<sup>18</sup> This is a 20-item self-report scale which assesses the frequency/duration of cognitive, affective, behavioral and interpersonal symptoms associated with depression. It was originally designed to measure depressive

symptomatology in the general population, but has since been employed in numerous studies in psychiatric settings as well.<sup>19-21</sup>

## Analyses

Because the CES-D probes for depression-related symptoms in the past 1 week preceding its administration, we limited our sample to those with the most acutely depressed patients, namely those whose onset of depression was within 1 month of the intake.

We used SPSS 11.0 for statistical analyses. The CES-D scores were compared by unpaired *t*-tests between patients who had experienced early parental separations and those who had not.

We applied principal-component factor analysis (Varimax rotation) to examine the factor structure of the CES-D. Scree plot was used to find the most appropriate number of factors to be extracted, as this has been shown to be the most robust method.<sup>22</sup> We then examined the influence of the early separation experiences on the CES-D subscales using unpaired *t*-tests.

## RESULTS

### Effect of early object loss on CES-D score by sex

Of the 2557 first-visit patients (1193 men and 1364 women) who were screened in the 31 participating centers and who were aged 16 years or over, 613 were diagnosed with major depression, single episode (69%) or recurrent (31%), according to DSM-III-R by the PISA. There were 271 men and 342 women. Of these, 187 (73 men and 114 women) had had the onset of the index episode within 1 month of the screening interview. Their mean age and SD were 46.0 and 17.0 years.

Table 1 shows the early separation experiences of these 187 patients. Because of the limited size of each cell in Table 1, we compared the CES-D scores according to whether the subjects had experienced the death of or separation from each parent (Table 2). Patients reported significantly higher CES-D scores when they had experienced early object loss of the same-sex parent. Because there was a significant or trend difference in age between those with or without early object loss among male patients (48.1 (SD=14.4) vs 40.7 (SD=14.0),  $t = -1.94$ , d.f. = 71,  $P = 0.056$  among men with vs without early object loss of father, and 51.9 (SD=14.3) vs 41.0 (SD=13.9),  $t = -2.29$ , d.f. = 71,  $P = 0.025$  among men with vs without early object loss of mother), we controlled for the effect of age in multiple linear regression but still found a significant effect of early object loss of father on the CES-D score ( $\beta = 0.30$ ,

$P = 0.03$ ) but a non-significant effect of early object loss of mother on the CES-D score ( $\beta = 0.21, P = 0.14$ ).

**Factor analysis of CES-D and effects of early object loss on CES-D subscores**

We next sought to examine the aspects of depressive symptoms significantly affected by early object loss.

Table 3 shows the results of the principal-component factor analysis (Varimax rotation) of the CES-D among our patients who completed the CES-D ( $n = 1174$ ). Scree plot suggested three factors to be extracted, which all together explained 55.8% of the total variance. Factor I included items such as ‘poor appetite’, ‘cannot shake off the blues’, ‘felt depressed’, ‘everything an effort’, and ‘not get going’; these were items which people normally could do but could no longer do when depressed. Factor II included items such as ‘felt tearful’, ‘lonely’, ‘people unfriendly’, ‘crying spells’ and ‘others disliked you’; these were items which people normally would not do but would do or feel when depressed. Factor III included items such as ‘as good as others’, ‘hopeful future’, ‘happy’ and ‘enjoyed life’, all apparently items that tapped positive affect and need to be reversed in the calculation of the total score.

**Table 1.** Early separation experiences of 187 patients with recent onset major depression

	Men ( $n = 73$ )	Women ( $n = 114$ )
Death of father before age 16 years	6	10
Separation from father before age 16 years	12	13
Death of mother before age 16 years	2	4
Separation from mother before age 16 years	8	10

**Table 2.** Mean and SD (in parentheses) of CES-D scores by presence/absence of early object loss

	Men ( $n = 73$ )	Women ( $n = 114$ )
Death of or separation from father		
Present	44.5 (10.6)*	45.6 (9.1)
Absent	37.0 (11.7)*	40.3 (12.7)
Death of or separation from mother		
Present	43.5 (15.6)	47.6 (5.6)**
Absent	37.9 (11.1)	40.5 (12.7)**

\*  $t = -2.07, d.f. = 55, P = 0.04, **t = -3.12, d.f. = 21.5, P = 0.01$ .

The effects of early object loss were then examined for these CES-D subscales separately among subjects who demonstrated such effects on the total CES-D score (Table 4). Among both men and women, early object loss of the same-sex parent significantly increased the Factor I subscore of the CES-D scale.

**DISCUSSION**

Our results suggest that people who had experienced the death of or separation from the same-sex parent in their childhood report more severe depressive

**Table 3.** Factor loadings of CES-D items in principal-component factor analysis (Varimax rotation)

	Factor I	Factor II	Factor III
C1 Bothered	0.763		
C2 Poor appetite	0.619		
C3 Blues	0.754		
C4 As good as others			0.752
C5 Concentrating	0.772		
C6 Felt depressed	0.813		
C7 Effort	0.799		
C8 Hopeful future			0.652
C9 Life a failure	0.444	0.518	
C10 Felt tearful	0.449	0.548	
C11 Sleep restless	0.532		
C12 Happy			0.668
C13 Talked less	0.663		
C14 Lonely	0.385	0.626	
C15 People unfriendly		0.758	
C16 Enjoyed life			0.725
C17 Crying spells		0.592	
C18 Felt sad	0.483	0.576	
C19 Others disliked you		0.820	
C20 Not get going	0.724		

Loadings above 0.35 are shown.

**Table 4.** Mean and SD (in parentheses) of CES-D subscores by presence/absence of early object loss

	Factor I	Factor II	Factor III
Men, with early object loss of father			
Present	25.2 (4.1)*	12.6 (6.7)	5.8 (2.4)
Absent	21.2 (6.2)*	8.8 (6.0)	6.9 (3.0)
Women, with early object loss of mother			
Present	24.4 (3.3)**	15.5 (4.3)	7.7 (3.3)
Absent	21.2 (7.4)**	12.1 (6.5)	7.0 (3.7)

\*  $t = -2.22, d.f. = 55, P = 0.03, **t = -3.04, d.f. = 35.4, P = 0.004$ .

symptomatology once they developed a unipolar major depressive episode. Three possible mechanisms may be involved in this process.

First, it is plausible that early object loss strengthens learned helplessness, which in turn aggravates depression once it develops. Second, it is possible that loss of the same-sex parent would deprive the children of role models for coping with adulthood difficulties, which makes depression more severe once it develops. Third, parental loss may not be etiological in itself but only leaves the children with less social support when they later develop depression. This alone could aggravate depression when it develops.

We previously reported that female patients with unipolar depression had experienced significantly more maternal loss than the corresponding controls.<sup>7</sup> This finding may be supportive of our first hypothesis because learned helplessness not only increases the incidence of depression but also aggravates its severity after its onset. Examination of specific aspects of depressive symptomatology that early object loss would affect suggested that such patients tended to report greater frequencies of items that they used to be able to do but could no longer do when they became depressed. These individuals were bothered by things that usually did not bother them, they could not shake off the blues, had trouble concentrating, felt everything was an effort and talked less than usual. It may have been the lack of adult role models which predisposed the patients to succumb to depression by giving up what they used to be able to do.

Several caveats are in order, however, before concluding on the pathoplastic effects of childhood parental loss. First, the factor structure of the CES-D that we found in our sample was not identical to the one proposed by Radloff in his original presentation of the CES-D scale.<sup>18</sup> He identified four factors: 'depressed affect', 'positive affect', 'somatic and retarded activity' and 'interpersonal'. However, subsequent analyses of the measurement structure of the CES-D in diverse racial/ethnic populations have resulted in conflicting results.<sup>23,24</sup> Some confirmed a satisfactory fit of their data to the original four-factor solution.<sup>25,26</sup> Some reported a three-factor solution, similar to the one we found.<sup>27-29</sup> Still others preferred a simple two-factor solution, one corresponding with the four positive affect items and another embracing all the other items.<sup>30,31</sup> It is noteworthy, however, that these factor structures all represent certain recombinations of the original four factors. Basically, the three-factor solution combines the original 'depressed affect' with 'interpersonal'. The two-factor solution further amalgamates the 'somatic and retarded activity' and leaves only 'positive affect'. Although preferable, there is a

priori no reason for a certain depression scale to show an identical structure across groups with various socio-cultural backgrounds and with clinical status. We therefore think it reasonable to rely on the factor structure that was found to best fit the Japanese psychiatric patients that we examined.

Second, it must be pointed out that our study is a retrospective one and cannot rule out the possibility of some recall bias whereby patients with more severe depression tend to recall past separation experiences more often than those with less severe depression. Moreover, it is also possible that early object loss is in itself not causative of more severe depression but only hinders help seeking behavior (perhaps because such people do not have social support to allow them to visit a doctor), so that people do not present to medical attention until after their life is severely disturbed by depression. This is a form of Berkson bias. Both recall bias and Berkson bias are inevitable to a certain extent in retrospective case-control studies of clinical samples.

In order to be certain about the pathoplastic effects of early object loss, we would therefore need independent replication of the present findings in different populations with different study designs (preferably a prospective cohort study in the general population).

## ACKNOWLEDGMENTS

This paper was prepared on behalf of the Group for Longitudinal Affective Disorders Study (GLADS). This study was supported by Research Grants 3 A-6, 6 A-4, 8B-2, 11 A-5 and 14 A-3 for Nervous and Mental Disorders from the Ministry of Health, Labour and Welfare, Japan.

## REFERENCES

1. Lloyd C. Life events and depressive disorder reviewed: I. events as predisposing factors. *Arch. General Psychiatry* 1980; **37**: 529-535.
2. Parker GB, Barrett EA, Hickie IB. From nurture to network: examining links between perceptions of parenting received in childhood and social bonds in adulthood. *Am. J. Psychiatry* 1992; **149**: 877-885.
3. Brown GW, Harris TO, Bifulco A. Long-term effects of early loss of parent. In: Rutter M *et al.* (eds). *Depression in Young People: Clinical and Developmental Perspectives*. Guilford Press, New York, 1986; 251-296.
4. Quinton D. Adult consequences of early parental loss: quality of care matters more than the loss itself. *BMJ* 1989; **299**: 694-695.
5. Cook T, Eliot J. Parental death during childhood and adult depression: a critical review of the literature. *Psychol. Bull.* 1980; **87**: 252-259.

6. Tennant C, Bebbington P, Hurry J. Parental death in childhood and risk of adult depressive disorders: a review. *Psychol. Med.* 1980; **10**: 289–299.
7. Furukawa TA, Ogura A, Hirai T, Fujihara S, Kitamura T, Takahashi K. Early parental separation experiences among patients with bipolar disorder and major depression: a case-control study. *J. Affect. Disord.* 1999; **52**: 85–91.
8. Birnbaum K. *Der Aufbau der Psychose: Grundzüge der Psychiatrischen Strukturanalyse*. Springer, Berlin, 1923.
9. Furukawa T, Mizukawa R, Hirai T, Fujihara S, Kitamura T, Takahashi K. Childhood parental loss and schizophrenia: evidence against pathogenic but for some pathoplastic effects. *Psychiatry Res.* 1998; **81**: 353–362.
10. Furukawa T, Takahashi K, Kitamura T *et al.* The Comprehensive Assessment List for Affective Disorders (COALA): a polydiagnostic, comprehensive, and serial semistructured interview system for affective and related disorders. *Acta Psychiatr. Scand.* 1995; **387** (Suppl.): 1–36.
11. Furukawa T, Yokouchi T, Hirai T, Kitamura T, Takahashi K. Parental loss in childhood and social support in adulthood among psychiatric patients. *J. Psychiatr. Res.* 1999; **33**: 165–169.
12. Furukawa TA, Kitamura T, Takahashi K. Time to recovery of an inception cohort with hitherto untreated unipolar major depressive episodes. *Br. J. Psychiatry* 2000; **177**: 331–335.
13. Brill NQ, Liston EH. Parental loss in adults with emotional disorders. *Arch. Gen. Psychiatry* 1966; **14**: 307–314.
14. Stastny P, Perlick D, Zeavin L, Empfield M, Mayer M. Early parental absence as an indicator of course and outcome in chronic schizophrenia. *Am. J. Psychiatry* 1984; **141**: 294–296.
15. Munro A, Griffiths AB. Some psychiatric non-sequelae of childhood bereavement. *Br. J. Psychiatry* 1969; **115**: 305–311.
16. Tennant C, Bernardi E. Childhood loss in alcoholics and narcotic addicts. *Br. J. Addict.* 1988; **83**: 695–703.
17. Oakley-Browne MA, Joyce PR, Wells JE, Bushnell JA, Hornblow AR. Disruptions in childhood parental care as risk factors for major depression in adult women. *Aust. NZ. J. Psychiatry* 1995; **29**: 437–448.
18. Radloff LS. The CES-D scale: a self-report depression scale for research in the general population. *Appl. Psychol. Measurement* 1977; **1**: 385–401.
19. Schulberg HC, Saul M, McClelland M, Ganguli M, Christy W, Frank R. Assessing depression in primary medical and psychiatric practices. *Arch. Gen. Psychiatry* 1985; **42**: 1164–1170.
20. Weissman MM, Locke BZ. Comparison of a self-report symptom rating scale (CES-D) with standardized depression rating scales in psychiatric populations. *Am. J. Epidemiol.* 1975; **102**: 430–431.
21. Hughes DC, DeMallie D, Blazer DG. Does age make a difference in the effects of physical health and social support on the outcome of a major depressive episode? *Am. J. Psychiatry* 1993; **150**: 728–733.
22. Zwick WR, Velicer WF. Factors influencing four rules for determining the number of components to retain. *Multivariate Behav. Res.* 1982; **17**: 253–269.
23. Callahan CM, Wolinsky FD. The effect of gender and race on the measurement properties of the CES-D in older adults. *Med. Care* 1994; **32**: 341–356.
24. Posner SF, Stewart AL, Marin G, Perez-Stable EJ. Factor variability of the Center for Epidemiological Studies Depression Scale (CES-D) among urban Latinos. *Ethn. Health* 2001; **6**: 137–144.
25. Knight RG, Williams S, McGee R, Olanman S. Psychometric properties of the Centre for Epidemiologic Studies Depression Scale (CES-D) in a sample of women in middle life. *Behav. Res. Ther.* 1997; **35**: 373–380.
26. Wong YL. Measurement properties of the Center for Epidemiologic Studies-Depression Scale in a homeless population. *Psychol. Assess.* 2000; **12**: 69–76.
27. Fountoulakis KN, Lacovides A, Samolis S *et al.* Reliability, validity and psychometric properties of the Greek translation of the Zung depression rating scale. *BMC Psychiatry* 2001; **1**: 6.
28. Ghubash R., Daradkeh TK, Al Naseri KS, Al Bloushi NB, Al Daheri AM. The performance of the Center for Epidemiologic Study Depression Scale (CES-D) in an Arab female community. *Int. J. Soc. Psychiatry* 2000; **46**: 241–249.
29. Muller MJ, Benkert O. Lower self-reported depression in patients with erectile dysfunction after treatment with sildenafil. *J. Affect. Disord.* 2001; **66**: 255–261.
30. Edman JL, Danko GP, Andrade N, McArdle JJ, Foster J, Glipa J. Factor structure of the CES-D (Center for Epidemiologic Studies Depression Scale) among Filipino-American adolescents. *Soc. Psychiatry Psychiatr. Epidemiol.* 1999; **34**: 211–215.
31. Schroevers MJ, Sanderman R, van Sonderen E, Ranchor AV. The evaluation of the Center for Epidemiologic Studies Depression (CES-D) scale: Depressed and Positive Affect in cancer patients and healthy reference subjects. *Qual. Life Res.* 2000; **9**: 1015–1029.