The Link Between Response Styles and Major Depression and Anxiety Disorders After Child-Loss

Taku Ito, Takuro Tomita, Chieko Hasui, Akiko Otsuka, Yayoi Katayama, Yumiko Kawamura, Michiko Muraoka, Masako Miwa, Shinji Sakamoto, Ichiro Agari, and Toshinori Kitamura

Although several studies have indicated that persons with a high ruminative coping style experience higher depression after the loss of a loved one, the relationship between ruminative coping and the occurrence of clinical depression and anxiety disorders after a loss has not been thoroughly investigated. This study investigated the relationship between response styles (ruminative coping v distractive coping) and the onset of major depression and anxiety disorders in a sample of parents who had experienced sudden child-loss (N = 106). The incidence of major depression after the loss of a child was very high (69%). After controlling for demographic variables and psychiatric history, ruminative coping was significantly associated with the onset of major depression, as defined by DSM-IV, but not with the onset of anxiety disorders. Thus ruminative coping after the loss of a child appears to be a risk factor specifically for major depression.
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BEREAVEMENT, THE LOSS OF of someone to whom one was closely attached, is one of the most stressful life events.[1] Bereaved people often suffer from major depression[2,3] and other psychiatric disorders,[4] and from poor physical health[5,6] and increased mortality.[7] Essential aspects of the adaptation to loss and factors that influence the grief process have been studied theoretically (e.g., by psychoanalysis) and, more recently, empirically. Investigation of the negative effects of bereavement on cognitive and behavioral patterns in terms of mental and/or physical illness should provide useful material for the planning of clinical intervention.

Nolen-Hoeksema[8] hypothesized that individual differences in the duration and severity of depression may be explained by differing coping styles in response to depression. She suggested that people who engage in ruminative responses to a depressed mood—focusing on their symptoms and the possible causes and consequences of their symptoms—are more likely to suffer from a long and severe depression. By contrast, people who engage in distractive responses—taking their minds off their symptoms and focusing on pleasant or neutral activities—are more likely to have a short and mild depression. In studies of bereaved persons, Nolen-Hoeksema et al.[9] found that people who engaged in ruminative coping 1 month after their loss were more depressed 6 months after their loss than were those who did not use this coping strategy. A longitudinal study of people who had lost a loved one to a terminal illness indicated that high ruminators reported more symptoms of depression over the course of the study than did low ruminators.[10]

There is much evidence that ruminative coping is a stable characteristic of individuals.[9,11,12] Nolen-Hoeksema and Davis[10] found the correlation between a ruminative coping style before a loss and after the loss to be very high, and ruminative coping scores at 1 month after a loss were highly correlated with scores 6 months after the loss.[9] The ruminative response style may thus be a promising candidate for explaining the pathway from initial coping with loss to subsequent negative affect, especially as regards the onset, intensity, and duration of depression.

The studies described above have some methodological limitations. The term "depression" has several levels of reference: it may denote a symptom, a syndrome, or a nosological disorder.[13] The psychological instruments used for measuring the

severity of depression in Nolen-Hoeksema and her colleagues' studies about bereaved persons[9,10] were the Hamilton's Rating Scale for Depression (HRSD)[14] and the Inventory to Diagnose Depression (IDD),[15] respectively. Both instruments measure the range of depressive symptoms, but the clinical validity of the IDD (e.g., its specificity) has not been sufficiently confirmed.[16] Furthermore, although both assess the severity of the depressive syndrome, the total scores do not necessarily determine a diagnosis of clinical depression.

Because the above measures cannot differentiate a nosological depressive disorder (major depression) from depressive symptoms, Nolen-Hoeksema et al.[9] admitted as a limitation of their study about people after a loss that, "our conclusions may apply to dysphoria but not to 'clinical' depression (p102)." Although one study,[17] in which the subjects were not specifically experiencing loss, found that ruminative coping predicted the occurrence of major depression, it has not been investigated whether individuals who use ruminative coping after a loss are more likely to suffer from clinical depression.

A second question relates to the generalizability of the previous results to varying situations of loss. Nolen-Hoeksema and her colleagues'[9,10] subjects had loved ones who had died in a hospice. Grief at the death in such circumstances is generally preceded by grief for an anticipated loss. Nolen-Hoeksema and Davis[10] observed that, "Our results might have been different if we had sampled people who experienced a sudden loss instead of an anticipated loss (p 813)." Some studies have indicated that people who experience sudden loss fare worse than those whose loss is the culmination of a long illness,[18,19] and child-loss appears to have more severe effects than loss of a spouse or parent.[20] This suggests that parents, after the sudden loss of a child, will be at particular risk, so that it is of particular importance to investigate their cognitive and behavioral patterns in order to predict the onset of psychiatric disorders.

Moreover, the specificity of the ruminative response style to the development of depression remains uncertain. Morrow and Nolen-Hoeksema[21] suggested that "the effects of rumination should not be limited to depressed mood; rather, rumination would be expected to have parallel effects on other negative moods (p 525)." It has been pro-

posed that the theory could be generalized to other negative moods such as anxiety[17,22] and anger.[23] Bereaved spouses have a raised likelihood of suffering from anxiety disorders,[24] suggesting that the relationship of response styles to the onset of anxiety disorders after the loss of a loved one should be investigated.

Most studies of the ruminative response style have been carried out in Western countries, and in particular there is no study of the effects of the ruminative coping response after loss in Japan. The findings reported above for Western countries require investigation and confirmation if they are to be considered applicable in Japan.

The aim of the present study was, in relation to the issues of generalizability and specificity raised above, to investigate whether, following the sudden loss of a child, Japanese parents were more likely to suffer from mood and anxiety disorders, as defined by the DSM-IV,[25] if their response was characterized by ruminative, rather than nonruminative, coping.

METHOD

The research plan was approved by the ethics committee in the Kohnodai district of the National Center of Neurology and Psychiatry.

Participants

Advertisements describing our proposed study of parents who had experienced the sudden loss of their young children were placed in several magazines between December 1998 and March 1999 in an effort to recruit participants for our research. We also, with permission, inserted a flyer into the regular newsletter sent to the approximately 500 members of a support group for families who had lost a child from sudden infant death syndrome (SIDS), stillbirth, miscarriage, and perinatal death. Of approximately 200 initial respondents, 106 (53%), of whom 28 were men and 76 women, completed the full schedule of questionnaires and interviews and are the subjects of the analysis that follows.

Measuring Instruments

Major depression and anxiety disorders. The Structured Clinical Interview for DSM-IV Axis I (SCID), consisting of an administration booklet, scoring sheet, and user's manual,[26] was translated into Japanese with permission from the original author, by Dr. Tadaharu Okano with assistance from one of the experimenters (T.T.) and from colleagues. The SCID is commonly used for diagnosis of DSM-IV disorders. In this study, we used the version of the interview designed for nonpatients, and the sections dealing with major depression and anxiety disorders (panic disorder, agoraphobia, social and specific phobia, obsessive-compulsive disorder, and generalized anxiety disorder).

Response styles. The Japanese version[27] of the Response Styles Questionnaire[8] contains two subscales, the Ruminative Response Scale and the Distractive Response Scale. The Ruminative Response Scale consists of 22 items that assess how often participants' responses to depressed mood are self-focused, symptom-focused, and focused on the possible consequences and causes of their mood. The Distractive Response Scale consists of 13 items that assess the degree to which participants engage in distractive activities in response to depressed mood. For both sets of questions, the participants are asked to indicate what they "generally do when feeling down, sad, or depressed" by circling a reply to each item on a four-point scale, from almost never (0) to always (4).

The Response Style Items After the Loss (RSIAL) was used to measure the actual coping patterns employed by the participants *after* child-loss. For this purpose, we composed a self-report questionnaire consisting of 20 items selected from the Japanese version[27] of the RSQ, such as, "You think about how passive and unmotivated you feel" and "You think 'Why do I have problems other people don't have?'." The participants are asked to indicate "what you actually think and do when faced with your loss" by circling a reply to each item on a four-point scale, from *does not apply to me at all* (0) to *completely applies to me* (4).

Procedure

A preliminary questionnaire seeking demographic information and details of the circumstances of the bereavement was sent to the approximately 200 persons who expressed interest in participating in our research, and 194 persons (51 males and 143 females) returned the questionnaire. A second set of questionnaires (the RSQ and RSIAL) was sent to the initial respondents and 175 of these questionnaires were returned (48 males, 127 females). As stated earlier, 106 of these 175 respondents (28 males, 78 females) responded to our invitation to participate in an interview. The time lapse from child-loss to interview varied widely, ranging from 4 months to 115 months (mean = 41.02, SD = 25.17).

The interviews, using the SCID, were carried out by a psychiatrist, three clinical psychologists, and five graduate students majoring in clinical psychology. The psychiatrist (T.K.) taught the other interviewers the basic theory of psychotic symptoms (5 hours) and psychiatric diagnostic methods (5 hours), and trained them in interview skills using a role-playing method (5 to 10 hours). The training period totaled 7 days. To check the reliability of diagnosis between the interviewers, all diagnosed 30 case vignettes in a DSM-IV casebook[28] and those of the psychiatrist and the other interviewers were compared. The generalized kappa coefficient[29] for mood disorders (bipolar disorder, major depressive disorder, and dysthymic disorder), anxiety disorders (panic disorder, agoraphobia, social and specific phobia, obsessive-compulsive disorder, and generalized anxiety disorder), and schizophrenia was .90,[30] indicating "almost perfect" agreement.[31]

The interviews were semistructured and took 3 to 4 hours to complete on average. They were conducted either in a counseling room of the National Institute of Mental Health National Center of Neurology and Psychiatry (NCNP; Chiba, Japan), in the subject's home, or in a meeting room at a hotel near the subject's home, according to the participant's preference.

The interview comprised an in-depth and a structured component. During the in-depth interview, participants were asked about internal and external changes that had occurred during their bereavement, including what coping behaviors they had employed or were employing. The second part of the interview was the SCID. Participants were asked about their experience of major depression and anxiety disorders before child loss, and then about their experience of these conditions after the loss. There was no time limit on the interviews, so participants were able to speak freely and in a relaxed manner.

Statistical Analyses

A logistic regression analysis of the dichotomous dependent variables (the mood disorders and the anxiety disorders) was performed. As the number of participants with obsessive-compulsive disorder (n = 5) and specific phobia (n = 6) after the loss was small, these disorders were not analyzed as dependent variables. The RSIAL subscales (ruminative coping and distractive coping) were the independent variables, and sex, age, income, and past mood and anxiety disorders were included in the analysis as intervening variables. Probabilities of less than .05 were considered statistically significant for the purposes of the analysis.

RESULTS

Demographic Characteristics of Subjects

The subjects' ages ranged 24 to 60 years (mean = 35.0, SD = 5.66). The median annual family income was approximately $50,000 (range, $0 to $130,000 per year). Median years of formal education completed was 18 years (range, 12 to 21 years). The age of the child at its death ranged from 0 days (including stillbirths) to 10 years 1 month (mean = 14.6 months, SD = 19.1). The causes of death were: SIDS (26), neonatal death (13), stillbirth (12), acute encephalopathy (7), accident (6), pneumonia (3), leukemia (3), unknown (8), and other chronic or acute illness (28).

Reliability of the RSQ and RSIAL

The internal consistencies of the scoring of subscales of the RSQ and RSIAL were confirmed, with Cronbach's alpha coefficients for ruminative coping and distractive coping scores of .88 (.78) and .82 (.79), respectively.

RSQ and RSIAL Scores

Means and standard deviations of scores on the RSQ and RSIAL, for men and women separately, are presented in Table 1. Women had higher scores both for ruminative coping style (on the RSQ), and for ruminative coping after loss (on the RSIAL), than men.

Table 1. Means and Standard Deviations of All Variables for Men and Women

Variables	Men (n = 27)		Women (n = 78)		
	Mean	SD	Mean	SD	t for Gender Difference
RSQ					
Ruminative coping style	40.23	9.44	47.72	11.03	3.09*
Distractive coping style	22.22	5.38	22.10	5.21	0.10
RSIAL					
Ruminative coping after loss	25.08	5.45	30.15	5.69	3.88†
Distractive coping after loss	19.62	5.66	20.31	5.50	0.55

*$P < .05$.
†$P < .01$.

Correlation Between Coping Styles (RSQ) and Coping Behavior After the Loss (RSIAL)

Table 2 shows the correlations between scores on the RSQ and the RSIAL. Scores for ruminative coping style on the RSQ showed significant correlations with scores for actual ruminative coping after the loss, on the RSIAL; and scores for distractive coping on the RSQ and on the RSIAL were also significantly correlated. Correlations between distractive coping on the RSQ and ruminative coping on the RSIAL, and vice versa, were not significantly correlated. Thus parents reporting ruminative coping as their general coping style were significantly more likely to engage in ruminative coping after the loss of their child than in distractive coping, and parents reporting distractive coping as their general coping style were significantly more likely to continue in this coping style after the loss of their child.

Women showed significantly higher levels of ruminative coping than men, but men and women did not differ in the use of distractive coping.

Major Depression and Anxiety Disorders Before and After Child-Loss

Before the loss of a child, 20 parents (three men and 17 women), representing 19% of the subjects,

Table 2. Correlation Between RSQ and RSIAL

	RSIAL	
	Ruminative Coping After the Loss	Distractive Coping After the Loss
RSQ		
Ruminative coping style	.67*	.18
Distractive coping style	.08	.43*

NOTE. RSQ and RSIAL were measured at the interview after child-loss.
*$P < .01$.

had suffered from major depression; five (no men, five women) representing 5% of subjects, had suffered from panic disorder; three (one man, two women) representing 3%, had suffered from social phobia; and three (one man, two women), representing 3%, had suffered from generalized anxiety disorder.

After their loss of a child, 73 parents (13 men, 60 women), representing 69% of participants, reported having experienced an episode of major depression; 11 (no men, 11 women), representing 10%, had experienced panic disorder; 10 (no men, 10 women), representing 9%, had experienced social phobia; and 12 (two men, 10 women), representing 11 %, had experienced generalized anxiety disorder.

Of the 73 who reported experiencing an episode of major depression after child-loss, three (one man, two women) developed their major depression at least 3 years after child-loss, suggesting that the episode was not necessarily caused by child-loss. Therefore, the data of these three persons was excluded in the analysis of factors relating to major depression.

The time lapse from child-loss to the onset of major depression ranged from approximately 2 months to 15 months (mean = 3.28, SD = 3.24); to the onset of panic disorder, it ranged from less than 1 month to 14 months (mean = 3.00, SD = 5.12); to the onset of social phobia, from less than 1 month to 9 months (mean = 2.20, SD = 3.29); and to the onset of generalized anxiety disorder, from 6 months to 16 months (mean = 9.45, SD = 4.11).

The duration of major depression ranged from approximately 1 month to 70 months (mean = 9.00, SD = 11.45); the duration of panic disorder ranged from 2 months to 69 months (mean =

Table 3. Crude Odds Ratios and Adjusted Odds Ratios for Major Depression

Variable	Crude OR	95% CI	Adjusted OR	95% CI
Sex	4.03†	1.60–10.16	2.72	0.89–8.38
Age	1.07	0.98–1.17	1.10	0.96–1.26
Income	0.96	0.80–1.17	0.98	0.78–1.23
Past major depression	1.24	0.71–2.15	1.12	0.54–2.31
Ruminative coping	1.13†	1.05–1.23	1.11*	1.02–1.21
Distractive coping	0.99	0.92–1.07	0.99	0.90–1.10

*$P < .05$.

†$P < .01$.

Abbreviations: OR, odds ratio; CI, confidence interval.

28.55, SD = 27.55); the duration of social phobia ranged from 2 months to 29 months (mean = 13.00, SD = 8.99); and the duration of generalized anxiety disorder ranged from 1 month to 26 months (mean = 10.18, SD = 7.51).

At the time of the interview, five parents (no men, five women), representing 5% of participants, were experiencing major depression; three (no men, three women), representing 3%, were experiencing panic disorder; four (no men, four women), representing 4%, were experiencing social phobia; and five (two men, three women), representing 5%, were experiencing generalized anxiety disorder.

Logistic Regression Analysis of Major Depression and Anxiety Disorders

Logistic regression analysis was used to determine whether ruminative coping was significantly associated with major depression and anxiety disorders after controlling for sex, age, income, past major depression and anxiety disorders, and distractive coping. Major depression after the loss of a child (Table 3) showed significant associations with level of ruminative coping behavior after the loss (OR = 1.11). No significant associations occurred in relation to the other three pathologies tested. Panic disorder and social phobia occurred only in women, and sex was not included in the analysis for these conditions.

DISCUSSION

In this study, a logistic regression analysis was used to identify the association of coping (ruminative *v* distractive) responses with the experience of psychiatric disorders, after controlling for demographic variables and past psychiatric disorders in parents who had experienced the sudden loss of a child. Our results are consistent with previous find-

ings showing an association between rumination and depression. This study confirmed that ruminative coping after the loss of a loved one is associated with depression, but further, it confirmed ruminative coping after the loss as a risk factor for major clinical depression, in addition to subclinical depressive symptoms. The adjusted odds ratio of ruminative coping for predicting a diagnosis of major depression, although significant, was low (1.11). As this is similar to a previous finding,[17] it is suggested that ruminative coping is a relatively weak predictor of major depression.

Although analyses of earlier findings suggest that the effect of response styles generalizes to other negative moods such as anxiety,[17,22] the present study found that ruminative coping after loss had no effect on the incidence of anxiety disorders such as panic disorder, social phobia, and general anxiety disorder. In previous studies, the level of anxiety was assessed by the Beck Anxiety Inventory (BAI),[32,33] which does not measure clinical anxiety, so that the difference of design suggests that although ruminative coping may predict higher anxiety levels, it is not associated with anxiety disorder as a clinical entity. Our results suggest that response styles theory should not presume that raised levels of symptoms indicate an association at the clinical level.

This study found no association between distractive coping scores and the onset of major depression and anxiety disorders; that is, the level of distractive coping neither increased nor decreased the risk of these disorders. Previous empirical studies of response styles after loss have not investigated the effect of distractive coping,[9,10] but some longitudinal studies, in which the subjects were not specifically experiencing loss, have suggested that distractive coping does not predict depression.[11,34] Nevertheless it may be too early to conclude that

the use of distractive coping has no relationship with the onset of the psychiatric disorders investigated in our study. It is possible that our distractive response scale did not adequately measure distractive coping. Nolen-Hoeksema[8] argued that, "a self-report measure of distraction should assess not only how many types of distracters people use, but also the amount of effort and concentration people put into each distracter and perhaps how engaging the distracter itself is." A more sophisticated measure of the distractive coping response is probably needed, before definite conclusions are drawn.

This study also indicated no association between past major depression and the onset of major depression after child-loss: 15 of 20 persons with past major depression (75%) developed major depression after child-loss, compared with 58 of 86 persons without past major depression (67%), not a large disparity. It may be that the very severity of sudden child-loss as a stressor can trigger major depression in people with past major depression or otherwise.

It is of grave concern that this study showed a large majority of those who suddenly lost a child suffered from major depression as a consequence. Compared with a lifetime prevalence of major depression of approximately 10% to 25% in a population-based sample,[35] and a prevalence of about 30% in a conjugally bereaved sample,[36] the prevalence of major depression in this study, at 69%, was extremely high. Sudden loss is associated with increased psychiatric morbidity as compared with anticipated loss,[18] and child-loss has been found to provoke more severe grief reactions than loss of other loved ones, for example, conjugal death,[20,37] so the high incidence in this study, in which losses were sudden and all were of children, is consistent with these previous studies. Parents who lose a child, and particularly who lose a child suddenly, should be regarded as a high-risk group likely to be in need of clinical intervention.

Having said this, it must be acknowledged that the establishment of a causal relationship between ruminative coping and major depression is limited by a retrospective design. Given this design, it is possible that both death of a child and depression can modify the individual's coping methods, and ruminative coping may be a symptom or a consequence of suffering a major depressive episode. However, the correlation between use of a ruminative coping style before and after the loss was found to be very high by using RSQ,[10] suggesting that child-loss or depression do not significantly change the individual's characteristic coping style. Longitudinal studies in future research will provide more secure evidence of the presumed directionality of the relations observed.

The sample size of this study was comparatively small, but this is acceptable for a focused as compared with a population target group. This study recruited participants by advertisement in several magazines and in the newsletter of a support group for families who had lost children to SIDS. The subjects of this study were therefore self-selected. Sampling methods in bereavement research have included self-selection via personal referral from support groups and medical professionals, and random-sampling from death certificates. Acceptance rates have differed for the two sampling methods in both empirical[38] and clinical[39] studies, indicating the operation of sampling bias.

This study used questionnaires to assess coping style and interviews to assess psychiatric status, and the design meant that only subjects who agreed to interviews remained in the study. Recent studies have shown that this difference in method is not significantly associated with differences in psychological status. Stroebe and Stroebe[38] found that bereaved spouses who agreed to in-home interviews did not differ in terms of depression and somatic symptoms from those who refused the interviews but agreed to complete the questionnaire. Jacobs et al.[36] also found that bereaved spouses who agreed to participate in a telephone interview did not differ from those who refused, in terms of gender, age of the deceased, and expectedness of the death. Reviewing these findings, Bonanno and Kaltman[40] suggested that the difference between samples, in relation to data-gathering method, might not be associated with differences in the level of grief reactions, but rather with the distribution of possible moderators (e.g., demographic variables, socioeconomic status, race). From this point of view, this aspect of the design of the study would not appear to be seriously problematic.

The findings of this study are significant in extending the evidence for generalizability of the association of response styles and depression. Previous subjects of studies of the effect of

response styles on bereavement-induced reactions have been of family members in situations of anticipated loss, such as patients in a hospice.[9,41] By contrast, the subjects of this study were parents who suddenly lost their young child. This is the first study to investigate the response styles theory with regard to this type of sudden loss. Additionally, although there are several studies of the effect of ruminative coping after loss in Western countries, there have been no similar studies in Eastern countries.

The clinical implications of this finding merit comment, suggesting that approaches to intervention that are likely to result in decreased a ruminative coping may be useful in alleviating depression, including clinical depression. Nolen-Hoeksema et al.[9] found that people with poorer social support reported engaging in more rumination than did people with better social support. Therefore, potential sources of social support could be sought for bereaved persons lacking this resource. Sakamoto[42] investigated self-focusing situations in daily life and showed that people who prefer self-focusing in situations of solitude have raised levels of depression. This suggests that people employing ruminative coping will intensify their depression if they are left alone. Taking care that people, after a loss, do not suffer in isolation may prevent an intensification of their depression.

In this regard, the traditional Japanese memorial services may be beneficial. In Japan, memorial services were held every seven days for 49 days after a death. Braun[43] observed that these services allow relatives to comfort one another, share, cry in company, and get to know each other better. This custom ensured that the bereaved would not suffer in isolation for prolonged periods immediately after a loss, and might be expected to assist in preventing psychiatric disease.

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