The Effects of Adult Attachment and Life Stress on Daily Depression: A Sample of Japanese University Students

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To investigate the relationship among adult attachment style, life stress, and daily depression, a sample of 437 undergraduate students was prospectively studied. Insecure adult attachment and perceived life stress were related to their daily depressive mood. Further analyses using both multiple hierarchical regression and structural equation models (SEM) demonstrated that adult attachment style and perceived life stress independently predicted depression and had no interactive effects on daily depression. The impact of adult attachment on depression was not contingent upon the presence of life stress and securely attached participants were less impacted by depression than insecurely attached ones. These results suggest that adult attachment can play an important role in mental health intervention and may be helpful when it comes to preventing and treating depression. © 2009 Wiley Periodicals, Inc. J Clin Psychol 65: 639–652, 2009.

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Depression is a pervasive and debilitating illness. People of all ages, cultures, and backgrounds can experience depression, and an increase of depression in college students has been reported (Astin, 1993). Further, an individual with severe depressive symptoms faces a higher risk of poor outcomes during young adulthood (Kandel & Davies, 1986). It has been generally accepted that the onset of depression is multifactorial, and understanding its etiology would require the rigorous integration of genetic, temperamental, and environmental risk factors (Kendler, Kessler, Neale, Heath, & Eaves, 1993). Among these risk factors, increased life stress and insecure attachment have been reported to be associated with depressive episodes (Beatson & Taryan, 2003; Bifulco, Moran, Ball, & Bernazzani, 2002; Kendler et al., 1995).

Since the late 1960s, when the relationship of negative life events and psychiatric disorders was initially researched, many studies have demonstrated that negative life events are strongly related to the development of depression (Brown & Harris, 1978; Christensen et al., 2003; Friis, Wittchen, Pfister, & Lieb, 2002; Kessing, Agerbo, & Mortensen, 2004; Kessler, 1997; Lin, Dean, & Ensel, 1978; Mazure, 1998; Monroe & Simons, 1991). Most of these previous investigations were retrospective, and the assessments of life stress were based on either a checklist or an interview of major life changes, such as the loss of a loved one, separation from parents, or abusive experiences, which had occurred during at least a 3-month period prior to the onset of depression. However, Paykel (2001) has suggested that the future research into life events should be longitudinal in nature. Other researchers (Lazarus, DeLongis, Folkman, & Gruen, 1985) have been more interested in the effects of "daily hassles" or minor stressors on depressive mood in the general population, but these types of stressors have generally been less well studied (Mazure, 1998) and are challenging to assess (Stone, Kessler, & Haythornthwaite, 1991). Thus, the contribution of minor stressors to daily depressive mood has remained unclear. Moreover, an important development in negative life events research is to focus on the subjective appraisal of life stress rather than objective measures of the impact of life events (Kanner, Coyne, Schaefer, & Lazarus, 1981; Lazarus, 1984). Some studies have reported that subjective distress is more strongly correlated with psychological symptoms than with the number of events experienced or the weighted objective impact of life events (Cohen, Kamarck, & Mermelstein, 1983; Tennant & Andrews, 1978). Therefore, in the present study, we evaluated subjects' subjective appraisal of perceived stress from daily negative life events, such as interpersonal relationship in university, partnership, family relationship, no free time, achievement of school, own health, health of family member, the future, and economy.

This study also evaluated the effect of attachment on the development of depression. The initial attachment theory proposed by Bowlby (1969, 1973, 1980) and Ainsworth (1989) was used to account for the relationship between infant and caregiver. According to attachment theory, attachment reflects how children seek psychological and physical proximity to their caregivers to attain security, a sense of protection, and comfort at times of threat. Proximity to the caregiver provides a safe haven to which children return when they are afraid or fearful, and a secure base from which children can explore the environment. Research indicates that the nature of one's childhood attachments with primary caregivers shapes an individual's attachment orientation in his or her later life. Consequentially, in the late 1980s, attachment theory was extended to adult romantic relationships and it was noted that attachment between adult romantic partners shared similarities to that between children and caregivers (Hazan & Shaver, 1987, 1990, 1994).

In the last two decades, researchers have increasingly placed a critical emphasis on attachment styles in understanding the development of depression. Associations have been found between insecure attachment in infancy and various forms of psychopathology in adulthood (Belsky & Cassidy, 1994). Parental relationships have been studied as correlates and possible etiological factors in adolescent depression. In cross-sectional studies, secure attachment to parents and peers has been related to psychological well-being (Armsden & Greenberg, 1987), and inversely correlated with depression (Armsden, McCauley, Greenberg, Burke, & Mitchell, 1990) and antisocial behavior (Marcus & Betzer, 1996). In longitudinal studies, insecure child attachment to parents has been identified as a predictor of a variety of problems, including depressive symptoms (Kenny, Lomax, Brabeck, & Fife, 1998). On the other hand, relatively little work has been conducted to examine the potential impact of adult attachment styles on psychological distress and disorders in adulthood. For example, insecure adult attachment has been found to be associated with affective distress, including depression (Bifulco et al., 2002; Rosenfarb, Becker, & Khan, 1994).

These findings suggested that secure attachment and perceived life stress may independently play a direct role in the onset of depression. Some researchers posit in the "main effect" model that secure attachment and life stress have a generally separate impact on mental health (Kenny et al., 1998; Christensen et al., 2003). However, according to attachment theory, attachment reflects how one seeks psychological and physical proximity to others to attain security, protection, and comfort at times of threat. Thus, critics of the "main effects" model of attachment and life stress note that although attachment and life stress separately play an important role in the development of depression, the effects are not direct. Rather, the "buffering" model has been proposed, stating that attachment and life stress influence each other and have an interactive effect on depressive mood. That is to say, secure attachment and perceived life stress attenuate each other's adverse effects, whereas in the absence of life stress, secure attachment has little impact on depression. Although some studies on adolescents and adults have supported this hypothesis (Hammen et al., 1995; Papini & Roggman, 1992; Petersen, Sarigiani, & Kennedy, 1994), others have not (Sund & Wichstrom, 2002).

Attachment styles may engender life stress from negative life events. For example, in a prospective study, Bottonari, Roberts, Kelly, Kashdan, and Ciesla (2007) have reported that patients with mild depression were more likely to experience sociotropic life events (i.e., interpersonal loss, rejection, or experience of abandonment) if their adult attachment style was dismissive or preoccupied. Those patients with a dismissive attachment style were more likely to experience events that were deemed to be at least partially dependent on patients' behavior. This was, however, not the case for patients with severe depression. Hankin, Kassel, and Abela (2005) have also reported that insecure attachment prospectively predicts self-reported interpersonal-related, but not achievement-related, events in a sample of undergraduates. The present study will examine whether insecure adult attachment can predict the generation of life stress.

We examined a sample of undergraduate students using a prospective questionnaire to determine (a) whether insecure adult attachment predicts future depression when gender, baseline depression symptoms, and perceived life stress are controlled; (b) whether secure attachment and perceived life stress have a "main effect" or "buffering effect" on daily depression; and (c) whether insecure adult attachment can predict the generation of perceived life stress.

<div align="center">Method</div>

Sample and Procedure

Undergraduate students from two universities in Kumamoto City, Japan were solicited to participate in a longitudinal study on depressive mood and suicidality. A nine-wave questionnaire survey (usually with a week interval) was administered. Before questionnaires were distributed to students in class, it was explained that participation was voluntary, but that students should provide the same nickname for each survey to facilitate follow-up. It was also stated that students were free to decline participation without any negative consequences. These instructions were also explicitly described in the cover letter attached to the questionnaire. To prevent the participants from forgetting their nickname, we reminded them to remember the nickname they used each time before the completed questionnaires were returned by hand at the end of the class. Because the attachment measurement was only included in the fifth wave questionnaire, the data of the fifth (T1) and sixth (T2) waves were used in the present study. The period between the fifth wave and sixth wave was 3 weeks. For these two waves, among the 1051 returned questionnaires there were 874 questionnaires (83.2%) that could be verified as coming from the same participants. Therefore, a final sample of 95 men (21.7%) and 342 women (78.3%) with a mean age of 19.0 ($SD = 1.3$) was analyzed.

The present investigation was approved by the ethical committee of the Kumamoto University Graduate School of Medical Sciences.

Measurement

Self-rating depression. The Zung Self-Rating Depression Scale (SDS; Zung, 1965) is one of the most popular self-rating measurements of the symptoms of depression, and is widely used in psychological investigations. The SDS is composed of 20 items with a 4-point Likert scale ranging from *little or none of the time* (1) to *most of the time* (4). During the process of analyses, the 4-point scores were recoded from 0–3 for the minimum total score to be 0. A 3-factor structure of SDS in a Japanese young adult sample was reported, comprising affective, cognitive, and somatic subscales (Kitamura, Hirano, Chen, & Hirata, 2004). Although the 20 items of SDS were constructed on the basis of the clinical diagnostic criteria and several studies have demonstrated SDS is a reliable and valid instrument for measuring depressive symptoms (Agrell & Dehlin, 1989; Biggs, Wylie, & Ziegler, 1978; Gabrys & Peters, 1985), the total scores on SDS do not necessarily yield a clinical diagnosis of depression, but rather indicate levels of depressive symptoms (Passik et al., 2000). Furthermore, in this study we were interested in depressed mood rather than the clinical diagnosis of depressive disorder because it is the former not the latter that was expected to show a discernable change in a short interval. Therefore, in the present study, only the six items of the affective subscale were used to evaluate the daily depressive mood in general population of Japan university students.

Stress related to negative life events. In many studies, life events are evaluated by the frequency and severity of events presented in list form. Such a list, however, includes a variety of major life events, and these events would rarely occur in an individual's daily life unless a long study period was used. To rate the impact of daily life events, we used the following ad hoc question: "Consider events you experienced during the past week which were undesirable, upsetting, or which made you unhappy or sad. Estimate the impact that they had on you using a scale between 0 and 100,

where 0 means no negative effect and 100 means an extremely negative effect.'' A similar single-item scale to assess perceived stress has been used in several studies (e.g., Austin, Hadzi-Pavlovic, Leader, Saint, & Parker, 2005).

Adult attachment. The Relationship Questionnaire (RQ; Bartholomew & Horowitz, 1991) measures four categories (secure, fearful, preoccupied, and dismissing) of adult attachment, with four paragraphs describing each attachment style. The participants were required to rate the extent to which each description would correspond to his or her relationship with his or her romantic partner or close adult peers using a 7-point scale from 1 (*Does not apply to me at all*) to 7 (*Applies to me very much*). During the process of analysis, the 7-point scores were also recoded from 0–6. Matsuoka et al. (2006) reported the psychometric property of the Japanese version of the RQ and proposed a single-factor structure using the exploratory factor analysis. In the prior studies, total attachment score (TAS) was calculated by subtracting the fearful, preoccupied, and dismissing scores from the secure score, with a higher score indicating a more secure attachment style (Liu, Shono, & Kitamura, 2008; Matsuoka et al., 2006).

Statistical Analysis

We first examined the descriptive statistics and correlations of all variables. Next, to test the main effect and buffering models of the relation between adult attachment, life stress, and depression, we performed hierarchical multiple regression analysis. The criterion variable examined was T2 depression. We entered gender and age at the first step, and T1 depression at the second step. Then, we entered the main effects of life stress and attachment together at the third step as a test of the main effect model. Finally, we entered the interaction between life stress and attachment at the fourth step as a test of the buffering hypothesis. We performed these analyses using SPSS 14.0 (SPSS Inc., 2005).

Next, we designed two structural equation models. In one model, T2 depression was predicted by T1 depression, gender, adult attachment as well as life stress, and life stress was predicted by T1 depression and adult attachment. In another model for the simultaneous multiple-group analysis, T2 depression was predicted by T1 depression, gender as well as life stress, and then life stress was predicted by T1 depression. We used AMOS 6.0 (Arbuckle & Wothke, 2005) to perform this path analysis to obtain direct and indirect effects among all the variables. For inferential statistical evaluation of structural equation modeling (SEM), we calculated indices of goodness of fit, such as RMSEA, GFI, AGFI, and AIC. According to Schermelleh-Engel, Moosbrugger, and Müller (2003), a RMSEA $\leq .08$, a GFI $\geq .90$, and an AGFI $\geq .85$ indicate an acceptable fit, whereas a RMSEA $\leq .05$, a GFI $\geq .95$, and an AGFI $\geq .90$ indicate a good fit. A lower AIC shows a better fit among competing models.

Results

Descriptive and Bivariate Statistics

Descriptive data and correlation coefficients between all the variables are presented in Table 1. All the variables were mildly or moderately intercorrelated with each other, except for gender with perceived life stress and adult attachment. Examination of correlations also revealed a mild, but significant association between life stress and adult attachment. This relationship suggests that persons who reported insecure

Table 1

Pearson Correlations, Means, and Standard Deviations (Minimum, Maximum) of All the Variables

	1	2	3	4	*M*	*SD*
1 Gender						
2 LS	.079				35.5 (0, 100)	30.1
3 TAS	.015	−.114*			−3.1 (−18, 6)	4.3
4 SDS 1	.089*	.189***	−.248***		4.8 (0, 18)	3.4
5 SDS 2	.159**	.468***	−.284***	.557***	4.6 (0, 18)	4.4

Note. $N = 437$ for all variables. LS = life stress; TAS = total adult attachment score; SDS 1 = T1 depression; SDS 2 = T2 depression.
*$p < .05$. **$p < .01$. ***$p < .001$.

adult attachment were more likely to experience life stress from negative life events during the T1–T2 interval than persons with secure adult attachment. In addition, the *t* test was used to examine the gender difference among all the variables. Results demonstrated a significant sex difference in depression scores in each of the two waves (men $M = 4.2$, $SD = 2.9$; women $M = 5.0$, $SD = 3.6$; $t = 2.05$, $p = .04$ for T1 and men $M = 3.3$, $SD = 4.2$; women $M = 5.0$, $SD = 4.4$; $t = 3.36$, $p = .001$ for T2), but not in the perceived life stress or adult attachment scores. There was no significant correlation between age and any other variable.

Hierarchical Multiple Regression Analysis

Hierarchical multiple regression analysis was conducted to compare the main effects and buffering models of the relation between life stress, adult attachment, and daily depression.

The result demonstrated that the following variables were predictive of T2 depression: gender, T1 depression, life stress between T1 and T2, and adult attachment (Table 2). Analysis of variance revealed that the regression model was significant, $F(6, 430) = 63.736$, $p < .001$, and accounted for 47% of the variance of the criterion variable. The main effects of life stress and adult attachment together explained approximately 15% of the variance in T2 depression ($\Delta R^2 = .148$). Furthermore, examination of β weights for predictor variables revealed that both main effects of life stress and adult attachment were significantly related to T2 depression in the multivariate models. This suggests that life stress and adult attachment are univariately associated with T2 depression. To examine the buffering model in the present sample, we introduced the interaction variable (life stress × adult attachment) in step 4. However, this interaction variable did not contribute significantly to the explanation of the dependent variable in the present study (Table 2). This finding suggests that the impact of life stress or adult attachment on depression was not contingent upon the other's presence.

Analysis of Structure Equation Modeling

To examine the causality of all the variables, we built a structure equation model based on the results of the above correlation analysis and hierarchical multiple regression analysis (Fig. 1). The results of the path coefficients calculated by AMOS are shown in Fig. 1.

Table 2
Summary of Hierarchical Multiple Regression Analysis of T2 Depression

Variables	R^2	Adjusted R^2	R^2 increase	β	P
Step 1	.026	.021	.026		.004
Gender				.088*	
Age				−.001	
Step 2	.322	.317	.296		.000
SDS1				.448***	
Step 3	.471	.464	.148		.000
LS				.371***	
TAS				−.148**	
Step 4	.471	.463	.000		.710
LS × TAS				.023	

Note. LS = life stress; TAS = total adult attachment score; SDS 1 = T1 depression.
*$p < .05$. **$p < .01$. ***$p < .001$.
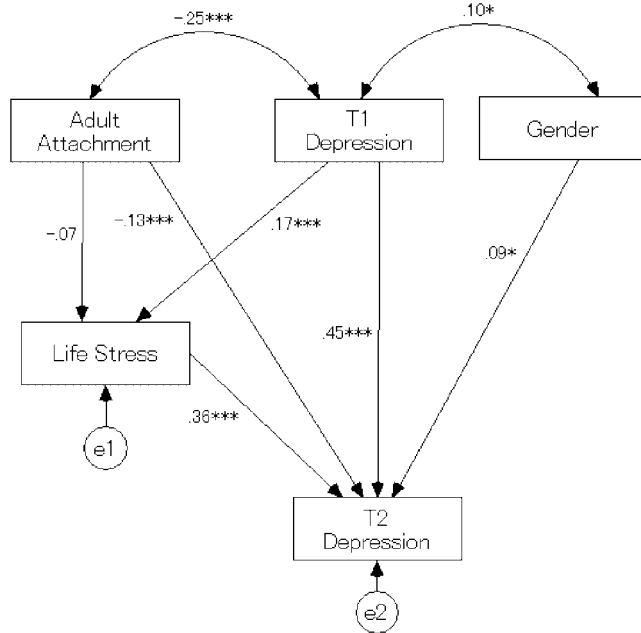
Figure 1. The structural equation model for gender, attachment, life stress, and depression. *$p < .05$; **$p < .01$; ***$p < .001$.

A good fit of the model was obtained: RMSEA = .000, GFI = .998, AGFI = .987. Only the path coefficient (.07) of adult attachment to perceived life stress was not significant ($p = .137$). Other path coefficients were substantially significant ($p < .001$) except for that relating gender to T2 depression ($p < .05$). According to the SEM model, the result consistent with the hierarchical multiple regression analysis was that T2 depression was predicted by gender, T1 depression, life stress, and adult attachment. Moreover, life stress was predicted by T1 depression, but not by adult attachment.

Simultaneous Multiple-Group Analysis

In the prior study of Armsden and Greenberg (1987), a categorization based on the quality of attachment was used to examine individual differences in attachment across types of relationships. Similarly, to further examine the influence of adult attachment on the relationship of life stress and depression, all participants were distributed into three groups of low (96), medium (247), and high attachment (94) based on the one standard deviation (*SD*) from the mean of TAS. The result of one-way ANOVA showed that there were significant differences in T1 and T2 depression levels as well as the perceived stress among the three groups, $F(2, 434) = 7.751$, $p < .001$; $F(2, 434) = 11.493$, $p < .001$; and $F(2, 434) = 3.310$, $p = .037$, respectively. The results of a post hoc test indicated that there were significant differences for depression levels of T1 and T2 ($p < .001$, both) and perceived stress ($p = .031$) between low and high attachment groups, and a significant difference of T2 depression level ($p = .006$) between medium and high attachment groups. Next, three similar path diagrams (see Figures 2, 3, and 4) were built to examine the heterogeneity of the corresponding path coefficients between the three groups using a multiple-group analysis.

The model in which parameters were left unaltered showed a better fit than that in which every parameter was equalized between the three corresponding groups (GFI = .995, AGFI = .952, RMSEA = .031, AIC = 58.239; and GFI = .972, AGFI = .923, RMSEA = .058, AIC = 65.026, respectively). Only the three diagrams of the model in which parameters were left unaltered are provided here (see Figures 2, 3, and 4). Hence, the result indicated that there was heterogeneity within the same path diagram among the low, medium, and high attachment groups. Furthermore, due to the results of examining the corresponding path coefficients among three diagrams, only the differences of path coefficients between T1 and T2 depression among low, medium, and high attachment groups were significant ($Z > |1.96|$). Therefore, it was indicated that the securer attachment the participants had, the less their T2 depression was influenced by T1 depression, and that the influences between
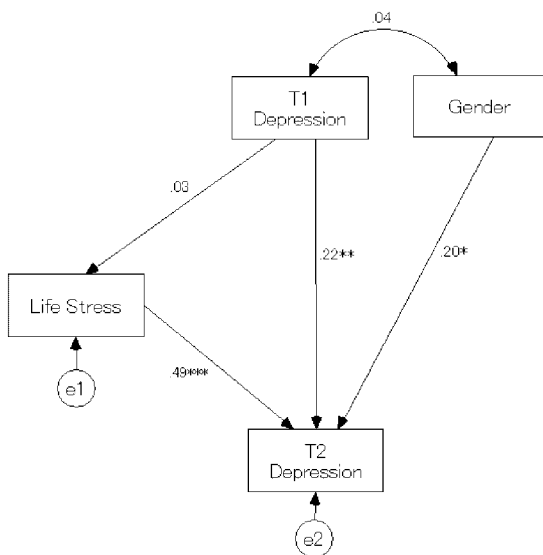

Figure 2. The simultaneous multiple-group analysis for high adult attachment. $^*p < .05$; $^{**}p < .01$; $^{***}p < .001$.
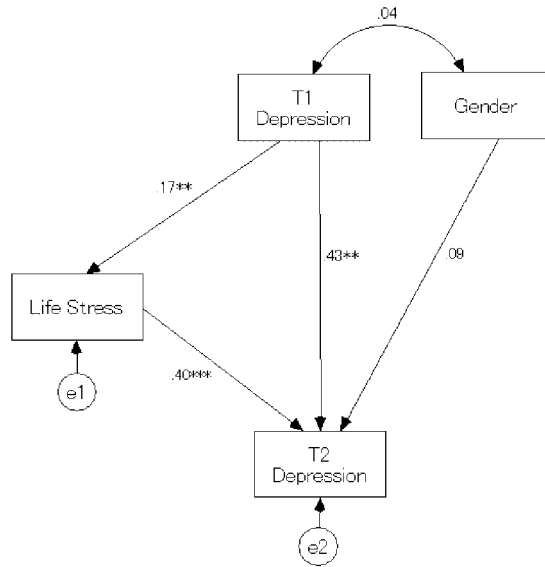
Figure 3.   The simultaneous multiple-group analysis for medium adult attachment. $^*p < .05$; $^{**}p < .01$; $^{***}p < .001$.
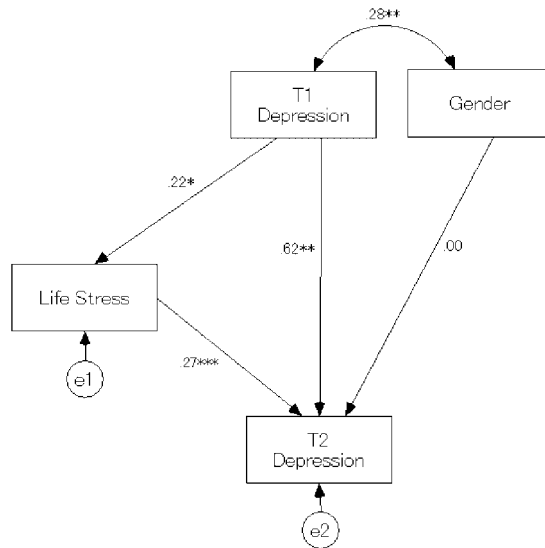

Figure 4.   The simultaneous multiple-group analysis for low adult attachment. $^*p < .05$; $^{**}p < .01$; $^{***}p < .001$.

perceived stress and depression of T1 and T2 were not significantly different among the three attachment groups.

Discussion

As expected from previous research adopting different samples such as community women (Bifulco et al., 2006), adolescents (Armsden et al., 1990; Sund & Wichstrom, 2002), and undergraduates (Roberts, Gotlib, & Kassel, 1996), the results of the

present study of Japanese university students confirmed that poor adult attachment was related to higher depression scores.

The first aim of the present study was to investigate insecure adult attachment (defined by the RQ) at one time point as a possible predictor of daily depression. After controlling for gender, T1 depression, and life stress in regression analysis, insecure attachment did predict depression at follow-up. Hierarchical multiple regression is a useful approach for understanding the variation in depression because it encourages the investigator to test a particular hypothesis and enter variables in a carefully controlled manner (Leech, Gliner, Morgan, & Harmon, 2003). Therefore, we conducted hierarchical multiple regression analysis to examine two models— main effect and buffering—that purport to explain the relationship between life stress, adult attachment, and depression. The results of our hierarchical regression analysis supported the main effects model due to the significant independent contribution of life stress and insecure adult attachment to T2 depression, but it revealed no significant contribution of the interaction between the two variables (Life Stress × Insecure Adult Attachment). This finding suggests that the impact of adult attachment on depression is not contingent on the presence of perceived life stress. Even in the absence of life stress during the T1–T2 interval, insecure attachment was associated with higher T2 depression. Furthermore, the same result about two models of main effect and buffering was also derived using the analysis of simultaneous multiple-group analysis that relationships between perceived stress and depression were not significantly different among the low, medium, and high attachment groups.

The present results contrast with past reports that supported the buffering model, such as findings that adolescents with insecure attachment to their primary caretaker were found to be more vulnerable to depression in the face of adverse life events than adolescents with secure attachment (Hammen, 1992; Kraaij et al., 2003). The contrary findings of our study may be due to the different targets of attachment— adult attachment to one's romantic partner or his or her close adult peers was assessed in the present study, whereas in prior studies attachment to the primary caretaker was examined. Therefore, further studies comparing the effects of adult attachment to different targets on negative life events and depression are needed.

Perceived life stress seems to play an important role in the onset of depressive conditions, as described in the beginning of this article. These results demonstrated that the correlations of perceived stress with depression at T1 and T2 differed obviously. Although it may be due to the measurement of how recent negative life events influenced the T2 depression, the possibility that asking participants to remember recent negative life events inflated T2 depression cannot be excluded. Therefore, further research should be conducted to eliminate this confusion. Although both life stress and adult attachment were univariately correlated with depression in the present study, the hierarchical multiple regression analyses indicated that the standard value of β weight of life stress to depression was larger than that of attachment. Structural modeling also demonstrated that life stress contributes more to depression than adult attachment. These findings suggest that the perceived stress from stressful life events during the T1–T2 interval were more strongly associated with and played a significantly greater role in daily depressive mood than did adult attachment style. For clinical practice, this result implied that to prevent the onset or relapse of depression, the treatment would have to be modified to include the specific techniques to negotiate stress.

Structural equation modeling also indicated that perceived life stress during the T1–T2 interval was predicted by T1 depression, but not by adult attachment. Many previous investigations have demonstrated that depressive symptoms predispose individuals to experience more negative life events (Hammen, 1991; Potthoff, Holanhan, & Joiner, 1995). This view also was supported by the present study. However, the present study gave no support to the view that that attachment style plays a role in the stress generation process (Bottonari et al., 2007; Hankin et al., 2005). This lack of contribution of adult attachment to negative life events may be due to the different ways of assessing life events, as described in the introduction and to the short 3-week interval, which probably allowed for more transient and unimportant events than life changing events. Therefore, a longer interval between assessments and different measurements for life events should be evaluated in future research.

Some methodological considerations have to be taken into account. The ethnicity and SES of the participants were not surveyed because in Japan this information is regarded as personal and if the questionnaire included items about this kind of information, the survey could not be approved by the ethical committee. Nevertheless, the 2007 national census in Japan indicates that 99.5% of the population had Japanese passports. Thus, ethnicity may not arouse a serious concern about this study. However, the current study was based on a convenience sample. Only the students attending the course were solicited, therefore, the sex ratio of participants could not reflect that of Japanese college students on the whole and the age of participants appeared to cluster very closely. Moreover, the survey was voluntary and required the student to provide a nickname. Thus students might attend some waves of the survey but neglect others, and if a student forgot or provided an incorrect nickname, we could not make sure that every questionnaire belonged to the proper student. Therefore, issues related to missing data could not be evaluated. Regarding the survey process, although there was a 3-week interval between the fifth wave and sixth wave, a longer interval between the two waves should be used in future studies. In addition, it should be acknowledged that a subjective assessment using a single question was used to rate stressful life events. Subjective ratings could confound the assessment of stressor severity with other risk factors because it depends on the personality and behavior of the individual. Therefore, conclusions should be drawn carefully.

Despite these limitations, the present study suggests that adult attachment is significantly associated with depression, though this association was somewhat weak in practical terms. The other important findings are that adult attachment can influence depression independently from negative life events and that securely attached individuals can be less impacted by depression than insecurely attached ones. Thus, using the RQ as a potential screening instrument, it may be possible to undertake preventative work with individuals who were highly insecurely attached. Moreover, the study suggests that evaluating adult attachment may be helpful in mental health intervention and may be helpful when it comes to preventing and treating depression.

References

Agrell, B., & Dehlin, O. (1989). Comparison of six depression rating scales in geriatric stroke patients. Stroke, 20, 1190–1194.

Ainsworth, M.D.S. (1989). Attachments beyond infancy. American Psychologist, 44, 709–716.

Arbuckle, J.L., & Wothke, W. (2005). Amos 6.0 User's Guide. Chicago, IL: SmallWater.

Armsden, G.C., & Greenberg, M.T. (1987). The Inventory of Parent and Peer Attachment: Individual differences and their relationships to psychological well-being in adolescence. Journal of Youth and Adolescence, 17, 427–454.

Armsden, G.C., McCauley, E., Greenberg, M.T., Burke, P.M., & Mitchell, J.R. (1990). Parent and peer attachment in early adolescent depression. Journal of Abnormal Child Psychology, 18, 683–697.

Astin, A.W. (1993). What matters in college? Four critical years revisited. San Francisco: Jossey-Bass.

Austin, M.-P., Hadzi-Pavlovic, D., Leader, L., Saint, K., & Parker, G. (2005). Maternal trait anxiety, depression and life event stress in pregnancy: Relationships with infant temperament. Early Human Development, 81, 183–190.

Bartholomew, K., & Horowitz, L.M. (1991). Attachment styles among young adults: A test of a four-category model. Journal of Personality and Social Psychology, 61, 226–244.

Beatson, J., & Taryan, S. (2003). Predisposition to depression: The role of attachment. Australian and New Zealand Journal of Psychiatry, 37, 219–225.

Belsky, J., & Cassidy, J. (1994). Attachment: Theory and evidence. In M. Rutter & D. Hay (Eds.), Development through lives: A handbook for clinicians (pp. 373–402). Oxford: Blackwell Scientific Publication.

Bifulco, A., Kwon, J., Jacobs, C., Moran, P.M., Bunn, A., & Beer, N. (2006). Adult attachment style as mediator between childhood neglect/abuse and adult depression and anxiety. Social Psychiatry and Psychiatric Epidemiology, 41, 796–805.

Bifulco, A., Moran, P.M., Ball, C., & Bernazzani, O. (2002). Adult attachment style. I: Its relationship to clinical depression. Social Psychiatry and Psychiatric Epidemiology, 37(2), 50–59.

Biggs, J.T., Wylie, L.T., & Ziegler, V.E. (1978). Validity of the Zung Self-Rating Depression Scale. British Journal of Psychiatry, 132, 381–385.

Bottonari, K.A., Roberts, J.E., Kelly, M.A., Kashdan, T.B., & Ciesla, J.A. (2007). A prospective investigation of the impact of attachment style on stress generation among clinically depressed individuals. Behavior Research and Therapy, 45, 179–188.

Bowlby, J. (1969). Attachment and loss: Vol. 1. Attachment. New York: Hogarth Press.

Bowlby, J. (1973). Attachment and loss: Vol. 2. Separation. New York: Basic Books.

Bowlby, J. (1980). Attachment and loss: Vol. 3. Loss, sadness and depression. New York: Basic Books.

Brown, G., & Harris, T. (1978). Social origins of depression: A study of psychiatric disorder in women. London: Tavistock.

Christensen, E.M., Gjerris, A., Larsen, J.K., Bendtsen, B.B., Larsen, B.H., Rolff, H., et al. (2003). Life events and onset of a new phase in bipolar affective disorder. Bipolar Disorders, 5, 356–361.

Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. Journal of Health and Social Behavior, 24, 385–396.

Friis, R.H., Wittchen, H.U., Pfister, H., & Lieb, R. (2002). Life events and changes in the course of depression in young adults. European Psychiatry, 17(5), 241–253.

Gabrys, J.B., & Peters, K. (1985). Reliability, discriminant and predictive validity of the Zung Self-Rating Depression Scale. Psychological Reports, 57(3 Pt 2), 1091–1096.

Hammen, C. (1991). Generation of stress in the course of unipolar depression. Journal of Abnormal Psychology, 100, 555–561.

Hammen, C. (1992). Life events and depression: The plot thickens. American Journal of Community Psychology, 20, 179–193.

Hammen, C.L., Burge, D., Daley, S.E., Davila, J., Paley, B., & Rudolph, K.D. (1995). Interpersonal attachment cognitions and prediction of symptomatic responses to interpersonal stress. Journal of Abnormal Psychology, 104, 436–443.

Hankin, B.L., Kassel, J.D., & Abela, J.R. (2005). Adult attachment dimensions and specificity of emotional distress symptoms: Prospective investigations of cognitive risk and interpersonal stress generation as mediating mechanisms. Personality and Social Psychology Bulletin, 31, 136–151.

Hazan, C., & Shaver, P.R. (1987). Romantic love conceptualized as an attachment process. Journal of Personality and Social Psychology, 52, 511–524.

Hazan, C., & Shaver, P.R. (1990). Love and work: An attachment theoretical perspective. Journal of Personality and Social Psychology, 59, 270–280.

Hazan, C., & Shaver, P.R. (1994). Attachment as an organizational framework for research on close relationships. Psychological Inquiry, 5, 1–22.

Kandel, D.B., & Davies, M. (1986). Adult sequelae of adolescent depressive symptoms. Archives of General Psychiatry, 43, 255–262.

Kanner, A.D., Coyne, J.C., Schaefer, C., & Lazarus, R.S. (1981). Comparison of two modes of stress measurement: Daily hassles and uplifts versus major life events. Journal of Behavioral Medicine, 4, 1–39.

Kendler, K.S., Kessler, R.C., Neale, M.C., Heath, A.C., & Eaves, L.J. (1993). The prediction of major depression in women: Toward an integrated etiologic model. American Journal of Psychiatry, 150, 1139–1148.

Kendler, K.S., Kessler, R.C., Walters, E.E., MacLean, C., Neale, M.C., Heath, A.C., et al. (1995). Stressful life events, genetic liability, and onset of an episode of major depression in women. American Journal of Psychiatry, 152, 833–842.

Kenny, M.E., Lomax, R., Brabeck, M., & Fife, J. (1998). Longitudinal pathways linking adolescent report of maternal and paternal attachment to psychological wellbeing. Journal of Early Adolescence, 18, 221–243.

Kessing, L.V., Agerbo, E., & Mortensen, P.B. (2004). Major stressful life events and other risk factors for first admission with mania. Bipolar Disorders, 6, 122–129.

Kessler, R.C. (1997). The effects of stressful life events on depression. Annual Review of Psychology, 48, 191–214.

Kitamura, T., Hirano, H., Chen, Z., & Hirata, M. (2004). Factor structure of the Zung Self-Rating Depression Scale in first-year university students in Japan. Psychiatry Research, 128, 281–287.

Kraaij, V., Garnefski, N., Wilde, E.J.D., Dijkstra, A., Gebhardt, W., Maes, S., et al. (2003). Negative life events and depressive symptoms in late adolescence: Bonding and cognitive coping as vulnerability factors? Journal of Youth and Adolescence, 32, 185–193.

Lazarus, R.S. (1984). Puzzles in the study of daily hassles. Journal of Behavioral Medicine, 7, 375–389.

Lazarus, R.S., DeLongis, A., Folkman, S., & Gruen, R. (1985). Stress and adaptational outcomes: The problem of confounded measures. American Psychologist, 40, 770–785.

Leech, N.L., Gliner, J.A., Morgan, G.A., & Harmon, R.J. (2003). Use and interpretation of multiple regression. Journal of American Academy of Child and Adolescent Psychiatry, 42, 738–740.

Lin, N., Dean, A., & Ensel, W. (1978). Social support, life events, and depression. New York: Academic.

Liu, Q., Shono, M., & Kitamura, T. (2008). The effects of perceived parenting and family functioning on adult attachment: A sample of Japanese university students. The Open Family Studies Journal, 1, 1–6.

Marcus, R.F., & Betzer, P.D.S. (1996). Attachment and antisocial behavior in early adolescence. Journal of Early Adolescence, 16, 229–248.

Matsuoka, N., Uji, M., Hiramura, H., Chen, Z., Shikai, N., Kishida, Y., et al. (2006). Adolescents' attachment style and early experiences: A gender difference. Archives of Women's Mental Health, 9, 23–29.

Mazure, C.M. (1998). Life stressors as risk factors in depression. Clinical Psychology: Science and Practice, 5, 291–313.

Monroe, S.M., & Simons, A.D. (1991). Diathesis-stress theories in the context of life stress research: Implications for the depressive disorders. Psychological Bulletin, 110, 406–425.

Papini, D.R., & Roggman, L.A. (1992). Adolescent perceived attachment to parents in relation to competence, depression and anxiety: A longitudinal study. Journal of Early Adolescence, 12, 420–440.

Passik, S.D., Lundberg, J.C., Rosenfeld, B., Kirsh, K.L., Donaghy, K., Theobald, D., et al. (2000). Factor analysis of the Zung Self-Rating Depression Scale in a large ambulatory oncology sample. Psychosomatics, 41, 121–127.

Paykel, E.S. (2001). The evolution of life events research in psychiatry. Journal of Affective Disorders, 62, 141–149.

Petersen, A.C., Sarigiani, P.A., & Kennedy, R.E. (1994). Adolescent depression: Why more girls? Journal of Youth and Adolescence, 20, 247–269.

Potthoff, J.G., Holanhan, C.J., & Joiner, T.E. (1995). Reassurance seeking, stress generation and depressive symptoms: An integrative model. Journal of Personality and Social Psychology, 68, 664–670.

Roberts, J.E., Gotlib, I.H., & Kassel, J.D. (1996). Adult attachment security and symptoms of depression: The mediating roles of dysfunctional attitudes and low self-esteem. Journal of Personality and Social Psychology, 70, 310–320.

Rosenfarb, I.S., Becker, J., & Khan, A. (1994). Perceptions of parental and peer attachments by women with mood disorders. Journal of Abnormal Psychology, 103, 637–644.

Schermelleh-Engel, K., Moosbrugger, H., & Müller, H. (2003). Evaluating the fit of structural equation models: Test of significance and descriptive goodness-of-fit measures. Methods of Psychological Research Online, 8, 23–74.

SPSS Inc. (2005). SPSS 14.0 for Windows. Chicago, IL: Author.

Stone, A.A., Kessler, R.C., & Haythornthwaite, J.A. (1991). Measuring daily events and experiences: Decisions for the researcher. Journal of Personality, 59, 575–607.

Sund, A.M., & Wichstrom, L. (2002). Insecure attachment as a risk factor for future depressive symptoms in early adolescence. Journal of American Academy of Child and Adolescent Psychiatry, 41, 1478–1485.

Tennant, C., & Andrews, G. (1978). The pathogenic quality of life event stress in neurotic impairment. Archives of General Psychiatry, 35, 859–863.

Zung, W.W. (1965). A self-rating depression scale. Archives of General Psychiatry, 12, 63–70.