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Depression and early experiences among young Japanese women: multiple facets of experiences and subcategories of depression

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Summary

The link between childhood experiences (before age of 16) and later onset of depression was examined among 98 young Japanese women who had all been newly employed by a company in Tokyo, Japan. We compared three groups: (a) 15 women who had reported a single episode of DSM-III-R Major Depression of less than two years duration (single episode; S.E.); (b) four women who had reported either more than one episode or any episode of two years or more duration meeting the criteria of Major Depression (recurrent or chronic; R.C.) and; (c) 53 women who had never experienced any major DSM-III-R Axis I disorders (normal control). The three groups did not differ significantly in terms of any parental loss experiences (either death or separation for 12 months or longer). The S.E. group perceived the father to be less affectionate than the other two groups. The R.C. group reported having been punched with a fist by the mother more frequently, and bullied at school. Among early life events (other than being bullied), parental divorce and own illness were reported more frequently by the R.C. group, and not being appointed as a "class leader" by the S.E. group. These findings suggest that early human experiences are linked to later depression and that single episode and recurrent/chronic depressions are discrete in their life history profiles. In order to screen women who need prevention and intervention (R.C. in particular) in community or school settings, it may be useful to tap their life history.

Keywords: Depression; classification; loss experience; child abuse; childhood life events.

Introduction

There has been ample evidence that the rate of depression is higher among women than among men. For example, Weissman et al. (1984) reported in a multicentre study of psychiatric disorders in the U.S. that lifetime prevalence of DSM-III Major Depression was 8.2% among women as compared with 3.8% among men. Recent reviews (Weissman et al., 1993; Kessler et al., 1993) also confirmed this sex difference. This trend is again found in Japan; Kitamura et al. (in print) reported 18.5% of lifetime prevalence of DSM-III-R Major Depressing among women and 7.3% among men.

Another interesting epidemiological issue of depression in women is higher prevalence among younger populations and lower age of onset in younger populations (Klerman, 1988; Wissman et al., 1984). Again in Japan, higher lifetime prevalence of DSM-III-R Major Depression among younger populations has been reported (Kitamura et al., in print; Tomoda et al., 1997).

The higher prevalence of depression among women may be explained by genetics, personality (Ruble et al., 1993), stressful life events (Cochrane and Stopes-Roe, 1981; Tennant, 1985) including childbearing (Bebbington et al., 1991), coping patterns, and hormonal characteristics (Halbreich and Lumley, 1993; Weissman and Klerman, 1985). The higher prevalence of depression among younger populations may be due to cultural changes of the society (Klerman, 1988) or methodological flaws. Nevertheless, a very high prevalence of depression among young women may require a policy focusing on prevention and intervention.

Early life experiences have been studied in association with later development of depression. They include early parental loss, perceived parenting, and negative life events during childhood. Among these, most extensively studied are early losses of parents

either by death or long term separation (Crook and Raskin, 1975; Kessler and Magee, 1993; Kitamura et al., 1993; Tennant et al., 1982; Tennant, 1988). However, not all the investigations supported this notion (Perris et al., 1986), and methodological flaws have been pointed out (Tennant et al., 1980; Tennant et al., 1981). It has recently been reported that the effects of early parental loss on adult depression may be reduced if the parenting style is taken into account (Harris et al., 1986; Oakely-Brown et al., 1995).

Poor parenting – low care and overprotection in particular – has been reported to be linked to adult depression in many countries (Bemporad and Romano, 1993; Eisemann et al., 1984; Parker, 1979, 1981, 1983; Parker and Hadzi-Pavlovic, 1992; Perris et al., 1985, 1986; Kitamura et al., 1993; Sato et al., 1997).

The link between physical and emotional child abuse experiences and adult depression has also been studied extensively (Carlin et al., 1994; Muenzenmaier et al., 1993; Straus, 1995; Straus and Kantor, 1994; Walling et al., 1994). Abused children are more likely to choose a violent dating partner (Smith and Williams, 1992) and become abusive parents (Wiche, 1992; Kaufman and Zigler, 1987).

Being bullied at school (Whitney and Smith, 1993) and other childhood life events (Coddington, 1972; Kashani et al., 1981) are, however, little studied in their association with adult depression.

These different early experiences have been studied separately in their links with later depression and rarely in combination. However, they are likely to interact with each other in their effects on adult depression. For example, child abuse victims may be more likely to develop depression later if they are also victims of bullying at school. Studies on the effects of early life experiences combined may shed light on not only psychosocial aetiology and mediating effects (e.g. Aro, 1988; Aro et al., 1992; Ernst, 1988; Fine, 1986; Van Eerdewegh et al., 1982) but also possible means for early intervention and prevention of depression because some, if not all, life experiences are amendable in school or community settings.

Although modern operationalized criteria such as Research Diagnostic Criteria (RDC) (Spitzer et al., 1978) and Diagnostic and Statistical Manual of Mental Disorders 3rd edition (DSM-III; American Psychiatric Association, 1980) provided an explicit definition, depression is a heterogeneous condition and many researchers have proposed different classification systems of the illness. They include unipolar vs. bipolar; with or without melancholia; with or without psychotic features; seasonal vs. non-seasonal etc. (for review Ban, 1989; Furukawa et al., 1995). Among them, two classification systems – acute vs. chronic and single episode and recurrent – may be important in clinical as well as community service settings. Thus, chronic depression may require more intensive care and treatment and recurrent depression may require maintenance treatment and more preventive interventions. Blard et al. (1986) reported that the relatives of probands with recurrent depression were twice as likely to develop depression as those of non-recurrent depression probands.

We will report here a preliminary investigation on the association of different types of early life experiences with later onset of depressions of different subtypes.

Method

Invited participants of this study were 98 women who had been newly employed by a company of which headquarter was located in Tokyo. They were all the women who had entered into the company that year and were receiving initial job training just after their employment. This was the first job for all of them after graduating from university or leaving school. Their ages ranged between 19 and 25; their mean (S.D.) age was 22.1 (1.0) years. They were all unmarried. Written informed consent was given by each participant prior to the study interview; none declined to participate in the study. The participants were administered a set of questionnaires including the Parental Bonding Instrument (PBI; Parker et al., 1979). They were then interviewed by one of 20 trained interviewers. The interviewers were graduate and post-graduate students of psychology, business administration and related disciplines. A structured interview guide – Time Ordered Stress and Health Interview (Kitamura and Kijima, 1995) – had been developed specially for this study. This included psychiatric history designed to yield major DSM-II-R Axis I diagnoses, early parental loss, child abuse experiences, bullying and other life events.

Psychiatric diagnoses

The structured interview was arranged to yield present and past diagnoses of DSM-III-R Generalized Anxiety Disorder, Panic Disorder, Major Depressive Episode, Dysthymic Disorder, Manic Episode, Phobic Disorder, and Obsessive Compulsive Disorder. Any episodes of mental disorder failing to meet the diagnostic criteria of the above major psychiatric disorders were measured as Other Psychiatric Disorder. As discussed in Introduction, Major Depressive Episode was subdivided into (a) a single episode of less than two years duration (single episode; S.E.), and (b) either two or more episodes or any episode of two years or more of

duration (recurrent or chronic; R.C.). Those women who had never experienced any of the above seven Major Axis I disorders were categorized as normal controls.

Early loss of parents

Early parental loss was defined as death of or separation from either father or mother or both for 12 months or longer before the age of 16 (Brown et al., 1977).

Perceived parenting

The questionnaires contained the Parental Bonding Instrument (PBI; Parker et al., 1979) which was a measure of retrospective recall of parental attitudes towards the subject before the age of 16. It consists of 25 items with a 4-point scale (very unlikely – 0 to very likely – 3). Its two subscales are care and overprotection measuring affectionate behaviour and overprotective (not respecting child's autonomous decision) rearing respectively. The validity of the PBI has been reported for English (Parker, 1983) and Japanese (Kitamura and Suzuki, 1993) versions. Because of unreliability of self-reporting of perceived parenting by women who had lost a parent either by death or separation, only those without loss of that particular parent were used for further analyses of this instrument. Due to incomplete responses to the PBI, four were missing for the paternal care score, six for the paternal overprotection score, three for the maternal care score, and 10 for the maternal overprotection score.

Childhood abuse experiences

In the interview, the participant was enquired whether she had experienced any of seven categories of abusive behaviours from the father or the mother before the age of 16: They include (a) emotional neglect; e.g. saying "you are not my child"; (b) threat; e.g. of not giving meals and destroying cherished pets or toys; (c) shamed; e.g. scolding cruelly and making fun of the child in front of others; (d) slapping; (e) punching with a fist; (f) kicking; (g) hitting with an object; e.g. a club; and (h) burning; e.g. with a cigarette. Each abusive behaviour was rated for its frequency (when it was most frequent) from both parents separately with a 5-point scale; never – 1, once in the lifetime – 2, several times a year – 3, several times a month – 4, and several times a week – 5. Since all the items were positively skewed, they were log transformed before being used for statistical analyses. For the same reason as in the perceived parenting, only women without loss of the particular parent were used for further analyses.

Bullied experiences

The participant was enquired whether she had been bullied at school before the age of 16 in terms of (a) bullying in general; (b) ignored by peers; (c) made fun of or laughed at; (d) own properties hidden; (e) put out of the peer circle; (f) threatened verbally; (g) money or things stolen; (h) physically abused; and (i) others. Each bullying was rated for its frequency from never – 1 to several times a week – 5. Since these items were positively skewed, they were log transformed.

Childhood life events

The participant was enquired whether she had experienced any of 22 categories of life events before the age of 16. We measured the number of times each event was experienced. However we did not ask the subjective impact of experienced events. The list of early life events covered not only negative (e.g. own illness) but also positive (e.g. the first prize in art) events. We speculated that positive events might be linked to reduced lifetime prevalence of depression due to its effects on increased self-esteem of the child. Because many of the event numbers were positively skewed, they were also log transformed.

Social desirability

Because the recall of past experiences may be subject to the response style of the subject towards socially acceptable bias, the Social Desirability Scale (Crowne and Marlowe, 1960; Kitamura and Suzuki, 1986) was administered as a part of the questionnaire. The PBI subscores, abuse experience scores, and the number of life events experiences showed little or modest correlations with SDS scores (-0.19 to 0.14 all Ps non-significant) except for paternal care which showed significantly *positive* correlation (0.26) with the SDS score.

Statistical analyses

The S.E., R.C., and normal control groups were compared in terms of each early experience by chi-squared test or one-way analysis of variance (ANOVA) with Scheffe's post hoc comparison as appropriate. Using early experiences that showed significant association with later onset of depression in bivariate analyses, a discriminant function analysis was performed to determine the variables significantly contributing to the adult depression. A stepwise method for minimizing Wilks' lambda was used where the best discriminator was entered stepwise until all variables with significant contribution were entered. The dependent (criterion) variable was the membership of subject – the S.E., C.R., and control groups. Values of missing independent variables were substituted by their mean values. Statistical analyses were performed on the SPSS-X programme (SPSS Inc., 1986).

Results

Of the 98 women, 2 (2.0%) had experienced at least one episode meeting the criteria of DSM-III-R Generalized Anxiety Disorder; 2 (2.0%), Panic Disorder; 19 (19.4%), Major Depressive Episode; 2 (2.0%), Dysthymic Disorder; 2 (2.0%), Manic Episode; 27 (27.6%), Phobic Disorder; and 11 (11.2%), Obsessive Compulsive Disorder. A total of 53 women had never experienced any episode meeting the criteria of the above major Axis I disorders (control group). Of the 19 women with Major Depression Episode, 15 were categorized as the S.E. group and 4 as the R.C. group. All four of the R.C. women had reported two episodes of depression and one also reported that one of them had lasted more than two years. Only

two women were having Major Depressive Episode at the time of interviewing; one from the S.E. and another from C.R.

The S.E., R.C., and control groups did not differ in terms of any parental loss experiences (Table 1).

Of the four PBI subscores, only paternal care showed a significant difference. It was the lowest among the S.E. group (Table 2). Schaffe's post hoc comparison, however, showed that no two groups were significantly different at the 0.05 level.

The R.C. group reported significantly more frequent experiences of being punched with a fist by the mother than the control and S.E. groups (Table 3).

As compared to the control group, the R.C. group reported more frequent bullied experiences at school (Table 4), but when each subcategory of bullying was examined separately, only physical bullying showed a significant difference between the R.C. and control groups.

Of the early life events (other than being bullied), the S.E. group reported significantly less frequently being appointed as a "class leader" (Table 5). The R.C. group had reported significantly more frequent parental divorce and own illness than the S.E. and control groups.

Before conducting a discriminant function analysis, we carried out the above bivariate analyses once again by combining the S.E. and R.C. groups as a single entity because real difference might have been hidden by the division of individuals with depression. If this were the case, it would be expected to observe significant differences in some of those variables that

Table 1. *Early parental loss and depression*

	Control (n = 53)	S.E. (n = 15)	R.C. (n = 4)	P
Paternal				
death	1 (1.9)	1 (6.7)	0 (0.0)	N.S.
separation	9 (17.0)	4 (26.7)	1 (25.0)	N.S.
any loss	10 (18.9)	4 (26.7)	1 (25.0)	N.S.
Maternal				
death	0 (0.0)	0 (0.0)	0 (0.0)	N.S.
separation	3 (5.7)	0 (0.0)	0 (0.0)	N.S.
any loss	3 (5.7)	0 (0.0)	0 (0.0)	N.S.

S.E. single episode depression; *R.C.* recurrent/chronic depression; *P* value for X^2 (2).

Table 2. *Perceived early parenting and depression*

	Control	S.E.	R.C.	P
Paternal				
care	27.4 (6.8)	20.9 (10.3)	29.7 (1.5)	<0.05
overprotection	9.4 (5.5)	14.2 (8.0)	9.0 (2.0)	N.S.
Maternal				
care	31.2 (5.2)	28.4 (7.2)	31.7 (3.1)	N.S.
overprotection	11.3 (7.5)	9.5 (4.0)	10.0 (7.0)	N.S.

P value for one-way ANOVA.

Table 3. *Early child abuse experience and depression*

	Control	S.E.	R.C.	P
Father's emotional abuse				
emotional neglect	0.09 (0.33)	0.33 (0.56)	0.46 (0.80)	N.S.
threat	0.13 (0.36)	0.13 (0.42)	0.00 (0.00)	N.S.
shamed	0.08 (0.31)	0.00 (0.00)	0.00 (0.00)	N.S.
Father's physical abuse				
slapping	0.30 (0.49)	0.49 (0.49)	0.37 (0.63)	N.S.
punching with a fist	0.09 (0.33)	0.10 (0.33)	0.37 (0.63)	N.S.
kicking	0.08 (0.28)	0.20 (0.44)	0.00 (0.00)	N.S.
hitting with an object	0.03 (0.17)	0.00 (0.00)	0.00 (0.00)	N.S.
Mother's emotional abuse				
emotional neglect	0.15 (0.43)	0.18 (0.49)	0.62 (0.73)	N.S.
threat	0.18 (0.42)	0.24 (0.50)	0.27 (0.55)	N.S.
shamed	0.15 (0.39)	0.00 (0.00)	0.27 (0.55)	N.S.
Mother's physical abuse				
slapping	0.42 (0.54)	0.41 (0.53)	0.55 (0.63)	N.S.
punching with a fist	0.03 (0.20)	0.05 (0.18)	0.55 (0.63)	<0.001
kicking	0.07 (0.29)	0.15 (0.39)	0.00 (0.00)	N.S.
hitting with an object	0.09 (0.29)	0.05 (0.18)	0.27 (0.55)	N.S.

The frequency of each experience was log transformed.
No women reported having been burnt.
P value for one-way ANOVA.

Table 4. *Early experience of being bullied and depression*

	Control (n = 53)	S.E. (n = 15)	R.C. (n = 4)	P
Bullied generally	0.26 (0.49)	0.30 (0.40)	0.90 (0.61)	<0.05
ignored by peers	0.32 (0.51)	0.31 (0.47)	0.55 (0.63)	N.S.
scorned	0.33 (0.54)	0.46 (0.62)	0.75 (0.66)	N.S.
belongings hidden put out of circle	0.26 (0.49)	0.18 (0.49)	0.17 (0.35)	N.S.
menaced	0.03 (0.18)	0.00 (0.00)	0.17 (0.35)	N.S.
physically bullied	0.00 (0.00)	0.07 (0.28)	0.17 (0.35)	<0.05

The frequency of each experience was log transformed.
Nobody reported having money stolen by peers.
P value for one-way ANOVA.

Table 5. *Early life events and depression*

	Control (n = 53)	S.E. (n = 15)	R.C. (n = 4)	P
Appointed as "class leader"	0.89 (0.68)	0.26 (0.57)	0.72 (0.52)	<0.01
Own illness	0.03 (0.13)	0.18 (0.32)	0.00 (0.00)	<0.05
Parental divorce	0.01 (0.10)	0.00 (0.00)	0.17 (0.35)	<0.05

The frequency of each experience was log transformed.
P value for one-way ANOVA.

Table 6. *Standardized canonical discriminant function coefficients predicting the subcategory of depression*

Predictor variables	Function 1	Function 2
PBI care score of the father	0.19	0.55
Punched with a fist by the mother	0.91	−0.06
Physically bullied	0.60	−0.19
Appointed as a "class leader"	−0.27	0.54
Own illness	0.10	−0.57
Parental divorce	0.66	0.20

did not show a significant difference between the three groups. On the other hand, if the S.E. and R.C. groups were, as hypothesized in this study, discrete, then it would be expected to observe a reduced number of variables showing significant differences between the combined depression and normal groups due to "dilution" effects. Of the seven variables that showed significant difference by one-way ANOVA – paternal care score, mother's punching with a fist, bullied generally, physically bullied, appointed as a "class leader", own illness, and parental divorce – four (paternal care score, physically bullied, appointed as a "class leader", and own illness) retained significant differences while the remaining three lost it. Only one variable newly reached to the significance level. This was the father's emotional neglect; control M = 0.09 SD = 0.33, depressed M = 0.36 SD = 0.59, $p < 0.05$. Thus, the possibility of the lack of significant findings due to the subdivision of major depression cases may be refuted.

In a discriminant function analysis to predict the subject's membership in the depression subcategory, seven early experience variables were entered into the analysis. They were: the PBI care score of the father, emotional neglect by the father; punched with a fist by the mother; being physically bullied, appointed as a "class leader", parental divorce, and own illness. Six variables appeared to the significant predictors (Table 6). Because there were three categories of the membership (the S.E., R.C., and control groups), there were two discriminant functions. The group centroid of the S.E. group was −0.19 for function 1 and −1.22 for function 2; that of the R.C. group 3.37 for function 1 and 0.60 for function 2, and; that of the control group −0.32 for function 1 and 0.30 for function 2. Thus, function 1 signifies the possibility of the R.C. group whereas function 2 of the S.E. group (reverse function). The variables with high standardized canonical discriminant function coefficients for function 1 were: punched with a fist by mother (0.91); parental divorce (0.66); and being physically bullied (0.60). The variables with high standardized canonical discriminant func-

tion coefficients for function 2 were: own illness (−0.57), appointed as a "class leader" (0.54), and PBI care score of the father (0.53). The canonical correlations were 0.69 and 0.54 for functions 1 and 2, respectively.

Discussion

This study demonstrated that major psychiatric disorders were prevalent among young Japanese women. Of the Axis I disorders, Major Depressive Episode, Phobic Disorder and Obsessive Compulsive Disorder were frequently observed. Due to the small number of the subjects in this study and continuous nature of psychopathology particularly in phobia and obsessive compulsive condition, it should be cautious to conclude. However, the lifetime prevalences of these Axis I disorders are generally not inconsistent with reports from the Western countries and may be interpreted as alarming for the Japanese society. Arguably, the high prevalences of Phobic and Obsessive Compulsive Disorders may be due to a lower threashold of these disorders adopted by the present interviewers who were not medically trained. This is, however, not disadvantageous because our main aim was to compare those subjects with present or past episode of depression with those without any Axis I disorders so that wider definition of non-depressive Axis I disorders would make the control group more homogeneous.

The link between early parental loss and adult depression has been controversial (e.g. Brown et al., 1977; Tennant et al., 1980; Harris et al., 1986; Oakley-Brown et al., 1995). Our study did not support a significant link between the two. Rather, low care given by the father was significantly associated with later S.E. depression among the women who had not lost the father before the age of 16. The mother's low care or overprotection was not associated with later depression. Women may be more vulnerable to the reduced affection of the opposite sex parent. Although further studies using male subjects may be warranted, our results seem to be consistent with Kitamura et al. (1995)'s finding that better marital adjustment could be predicted by the reduced perceived care by the opposite-sex parent but was not associated with the pattern of parenting of the same-sex parent. If the perceived care of the opposite-sex parent were associated not only with the marital adjustment but also with the adjustment with the boyfriend or lover among these young women as well as the social adjustment in general, it might be hypothesized that higher care of the opposite-sex parent would lead to better adjustment skills so that depression could be avoided in the face of adversities in adult life.

Both immediate effects (Salzinger et al., 1991, 1993; Taitz and King, 1988) and long term consequences of child abuse have been studied extensively. Many investigations have reported a substantial link between child abuse and adult (or adolescent) depression. However, few studies used operationalized diagnostic criteria of depressive illness, and most used symptom questionnaires or interview guides without operationalized criteria (Wind and Silvern, 1994). They were therefore cross-sectional or difficult to compare in measuring depression. It is inconceivable that we should detect a link between child abuse and later depression cross-sectionally because depression can occur at any time point of the subject's life and its prevalence rate depends on how it is measured. Our study is unique in using diagnostic criteria of depression (i.e. DSM-III-R) and lifetime determination of diagnosis so that it may be more likely to detect existing links. We reported elsewhere that child abuse was no less prevalent in Japan (Kitamura et al., 1995), but the present study further suggested an association between physical abuse and later onset of a single episode of depression. Childhood abuse histories were also reported to be linked with other psychiatric disorders such as alcohol use disorders (Holmes and Robins, 1987; Strauss and Kantor, 1994), borderline personality disorder (Brown and Anderson, 1991; Gunderson and Sabo, 1993), dissociative disorders (Berger et al., 1994; Saxe et al., 1993), delinquency and violent crime (Straus, 1991; Vissing and Strauss, 1991), eating disorders (Waller, 1991, 1992) and posttraumatic stress disorder (Wind and Silvern, 1994). Further studies should shed more light on the specific relationship between types of abuse experiences and types of later psychopathology (e.g. Briere and Runtz, 1990). Of another importance is cultural difference of the effects of child abuse on psychopathology.

Like child abuse, bullying at school has attracted attention of many investigators as well as clinicians. Despite substantial educational and clinical interest, we are little aware of studies examining its long term consequences. Our study showed that bullying and physical violence by peers in particular were associ-

ated with later depression. This finding should be confirmed by a replication.

It was revealed in this study that parental divorce was associated with later R.C. depression. Divorce has long been a focus of psychological studies, showing that it could inflict a substantial impact on children (Jellinek and Slovik, 1981; Wallerstein, 1987; Wallerstein and Kelly, 1995). The finding that later depression was not associated with early long term parental separation but with parental divorce suggests that it is not the separation (due to divorce) from either parent or parental abscence but the circumstances related to divorce (e.g. Berman and Turk, 1981) that have an impact on later development of psychopathology. Kitamura et al. (1997) reported that the perceived care would be reduced following parental (particularly paternal) separation, but this cannot explain the link between the parental divorce and later depression because our study showed that low care of the father was associated with single episode of Major Depression whereas a parent divorce was associated with recurrent/chronic Major Depression. The parenting style and divorce, though possibly related, may have differential impacts on the development of later depression.

Of another uniqueness of our study was its subdivision of depression into single episode and recurrent/chronic. In the early life experience profile, these two differ substantially. The S.E. depression subjects had perceived the father to be less caring, and were more likely to have suffered from illness and less likely to have been appointed as a "class leader", whereas the R.C. depression subjects were more likely to have been punched with a fist by the mother, bullied at school, and have experienced parental divorce. This was also confirmed by a discriminant function analysis. Our preliminary study may be criticized for its small number of subjects, with the R.C. group being particularly small. However, the different early life experience profiles of the two groups derived from the discriminant function analysis may indirectly support our subdivisions. Other support may come from the findings that combining the S.E. and R.C. groups yielded loss of significant difference from the normal control in some of the life history variables and only one variable (paternal emotional neglect) gaining significance in the difference from the normal control.

Studying preadolescent children for a few years, Nolen-Hoeksema et al. (1992) reported that the first onset of depression could be predicted by negative life events but subsequent onsets of depression could be predicted by the "depressive" causal attributional style. Studying different types of patients with depression in relation to precedent life events, Perris (1984) reported that patients with recurrent depression had experienced fewer events than those with single episode depression. This may mean that the first episodes of which some are only episodes in their lifetime are more situation specific whilst multiple episodes (i.e. recurrent episodes) are more cognitive style specific. Low care and overprotection has been reported to be linked to not only depression but many other psychiatric disorders (e.g. Bernardi et al., 1989; Parker, 1981; Parker et al., 1982) as well as marital adjustment (Kitamura et al., 1995). Thus low care of the opposite-sex parent may be a non-specific correlate of *general* vulnerability to different types of mental health problems with depression being only one of them. Not being appointed as a "class leader" may be a cause of later S.E. depression but also may be caused by the subject's behavioural characteristics attracting less attention of peers and teachers due to some vulnerability (e.g. ways of relating others) following low care or overprotection. The finding that the canonical correlation was slightly lower for function 2 may indicate more room for many causal factors other than early life experiences to evoke S.E. depression. If R.C. depression were associated with attributional style, then it may be explained in this line that child abuse, parental divorce, and bullied experience would lead to much lowered self-esteem and distorted cognitive style to attribute adversities to the subjects themselves.

Implication

Our findings suggest that much could be achieved to prevent the onset and recurrence of depression in a school or community setting as well as clinically. Despite affluence of pharmacotherapy and psychotherapy for depression, clinical treatment may be useful only when those individuals suffering from the illness seek professional help. However, epidemiology of major psychiatric disorders shows that only a small portion of sufferers do so. It is here where lies the importance of preventive and interventive health services in a non-clinical setting.

We reported elsewhere that child abuse is not infrequent in Japan (Kitamura et al., 1995). The present and other studies demonstrated that child

abuse might exert long term psychological influences. Since child rearing is a matter inside the house, child abuse is difficult to detect and intervene from outside. Perinatal as well as general public education on the prevalence, risk factors, and available professional help (e.g. emergency telephone numbers, child guidance centres, educational counselling centres, and specialised clinics) may effectively reduce the rate of child abuse. Unlike the U.S. system (see Sagatun and Edward, 1995), in the present legislative and administrative system in Japan, little could be done if there were a sign of a child being seriously abused. There are no qualified officers with decisive authority who can investigate such cases and interrogate the people involved. Furthermore, although the head of the child guidance centre of each Prefecture has legislative power delegated by the Prefectural Governor to give abused children temporary shelter in the centre or to transfer them to the Family Court, no medical, social welfare, police, or administrative professionals are immune to the claim of defamation from those investigated unless a child abuse is reported or accused as a crime such as assault and battery. Even in the U.S., the Juvenile Court cannot prevent the recurrence of child abuse (Murphy et al., 1992). Consequently, many suspected cases of child abuse are left unintervened in Japan. Empirical studies may prompt law reform (Wald, 1975).

Bullying at school has attracted much public attention. The Japanese government recently decided to dispatch school councellors (usually psychology graduates with clinical training). School councellors and teachers should pay more care to the psychological development of bullying victims and, with liaison with parents, should try to reinforce self-esteem of the victims.

In a community study, Kessler and Magee (1993) reported a significant link between parental divorce and later depression. The divorce rate has been increasing in Japan (Akiyama et al., 1991). Yet, there seems no official or systematized mental health services for the children of divorced parents. Parental styles of divorced parents are likely to change (usually this is an undesirable change); so are living circumstances (e.g. home moves, school is changed etc.). Parents, teachers, school councellors, health visitors and lawyers may have a conference to discuss the best care for the children of divorced parents.

Limitations of this study should be considered. Firstly, this is a preliminary study with a very small number of women. More studies are needed before reaching a conclusion. However, our study is advantageous in that we used a non-clinical population so as to avoid help-seeking bias, and used lifetime diagnosis rather than a cross-sectional assessment of mental state so as to identify the onset of depression in a long time period as well as to exclude those "gray" subjects from the control group.

Secondly, our women overrepresented young adults. The links we found in this study may be specific to this cohort. Thus, future studies should involve middle-aged and older populations.

Thirdly, our study was based on retrospective recall which may be subject to bias and social desirability. We claim, however, that young adult subjects may be less likely to forget or "beautify" past experiences.

We had no male controls. Men may have different patterns of association between early life experiences and later depression. Sex difference is an important issue in depression research. The two sexes have been reported to be different in many psychological variables. The present study focussed only on women due to reported high prevalence of depression and the more difficult life situations women are allocated in Japan.

The subcategorisation of depression may also be biased. Since all the subjects were still young, their diagnosis may be altered if they are followed for some time. However, this alteration would be cases of S.E. depression being rediagnosed as R.C. depression. Our cases of S.E. depression may contain a portion of those who would become R.C. cases. Thus the results we obtained in this study concerning the comparison between the S.E. and normal groups might have been "diluted" rather than augmented.

Our list of childhood experiences was not exhaustive. For example, child abuse (Finkelhor, 1988) consists of physical abuse, emotional or psychological abuse (Brassard et al., 1993), neglect, and sexual abuse (Baker and Duncan, 1985; Cahill et al., 1991; Lanktree et al., 1991). We studied only physical and emotional abuse experiences, but this does not mean that neglect and sexual abuse is rare or unimportant in Japan. We also paid attention to major (and relatively frequent) life events during childhood. However, minor events may have equally significant long term effects. Furthermore, childhood events and experiences do not spring out of the blue. Their causes should be discussed and investigated (Belsky, 1980,

1984; Claussen and Crittenden, 1991; Straus, 1979; Straus and Gelles, 1986).

In conclusion, despite its preliminary nature, our study indicated the possibility that early human life experiences can exert influences on later development of depression and that single episode and recurrent/chronic depressions have different life history correlates and thus a different psychosocial aetiology.

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