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Effect of peer victimisation on adult onset of depression

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Abstract

A previous data set was reanalysed to investigate the relationships of peer victimisation and other early life events with adult onset of depression. A total of 220 community residents were interviewed to establish lifetime DSM-III-R diagnosis of Major Depressive Episode (MDE) and the incidence of various childhood life events, including peer victimisation and child abuse. The Eysenck Personality Questionnaire (EPQ) and the Parental Bonding Instrument (PBI) were also employed. Participants with a lifetime history of DSM-III-R MDE reported a greater number of experiences of being bullied and of suffering fracture or injury than those without it. However, the association of peer victimisation with adult onset of MDE lost statistical significance if confounding with paternal abuse was taken into account. Neuroticism score on the EPQ indicated that this personality trait did not serve as a mediator of the association between peer victimisation and adult onset of MDE.

1. Introduction

There is now ample evidence that some aspects of a child's early environment are risk factors for adolescent or adult onset of depression. They include the early loss of a parent, perceived parenting characteristics (rearing), and child abuse and neglect. Early parental loss has been studied intensively for its relationship with adult depression and disposition to suicide[1-3]. However, studying a large clinical population, Furukawa et al.[4] failed to find a substantial link between early parental loss and affective disorders. Perceived parenting is another feature of the early environment that has attracted the attention of many researchers on depression. Both low levels of care and overprotection by a parent have been reported as risk factors for the adult onset of depression[5-7]. Abuse and neglect by a parent are also reported as linked to a variety of mental health problems[8]. These studies of adverse childhood experiences are generally confined to the parent-child relationship. This may be due to the influence of psychoanalytic theories of personality development and psychopathology[9]. However, the psychosocial environments that children encounter become wider as they grow, and include a variety of relationships with people outside the home.

Peer victimisation (bullying) has long attracted the attention of educators, clinicians, and researchers[10]. It is known that peer victimisation has a substantial impact on the mental health of children and adolescents. Several investigators have reported that victimisation at school is related to internalising behaviour[11-12] and loneliness[13]. A dose-response relationship observed in these studies suggests a causal relationship between peer victimization and internalising behaviours. Despite the recognised importance of the impact of peer victimisation on children's *current* mental state, particularly depression, there appears

to be little information on the influence of peer victimisation on the adult onset of depression. Findings of an impact of several early environmental factors not only on children's current mental state and functioning but also on the adult onset of psychopathologies justify the proposition that peer victimisation also has a long-term influence on the onset of depression.

A number of issues are pertinent to the study of the impact of peer victimisation on adult onset of depression. Firstly, it should take in the broad perspective of a variety of life events[14]. Life events may be stressful or beneficial, and a study of their interaction may shed light on the possibility that some beneficial events reduce the negative impact of stressful life events.

Secondly, the long latent period from victimisation to the onset of adult depression may be explained by mediating factors. Personality traits may be candidates for this role. It is often reported that people with a history of depression score higher than those without[15-17] on the Neuroticism (N) scale of the Eysenck Personality Questionnaire (EPQ)[18]. There are possible links between early life experiences and later personality development[19-20]. Thus, we have speculated that high N may mediate the effects of peer victimisation on the onset of depression.

Finally, a finding of a significant association between childhood peer victimisation and adult onset of depression may be confounded by the reported increased co-occurrence of peer vicitimization in children who were abused. For example, while child abuse is often reported as a precedent of the adult onset of depression, abused children are also reported as more likely to be victims of peer bullying[21-22]. Shields & Cicchetti[23] claimed that parental maltreatment was a risk factor for peer victimisation.

To summarize our hypothesis, we assumed cascading influences from abusive home environment to vulnerability to peer victimisation, increased neuroticism, and finally (under negative life events) onset of depressive disorder.

In order to examine the possible effects of peer victimisation on adult depression, we reanalysed the data of a past investigation. These data were used previously to report on aspects of mental health other than peer victimisation. Using the interview data, we have published previously on the epidemiology of mental disorders[24-27], marital adjustment[28-29], and child abuse[30].

2. Method

2.1. Participants

Five hundred and eight inhabitants, aged 18 or more, of Town A in the city of Kofu, the capital of Yamanashi Prefecture, were invited to participate in an interview: 220 (43%; 96 men and 124 women) agreed and were successfully interviewed. Their mean (S.D.) age was 53.9 (16.6) years with a range of 18 to 91 years, and was not significantly different for men and women. The samples of interviewed and uninterviewed people did not differ

significantly in gender representation and age. All the participants gave informed consent in a written form after being explained the purpose and content of the study. They were informed that this would be an interview on the "mental health of community residents" thus they were aware that they would be psychiatrically interviewed.

2.2. Instruments and Procedure

2.2.1. Psychiatric Diagnosis

The interview procedure, "Time-Ordered Stress and Health Interview"[31], was developed from a Japanese draft of the Composite International Diagnostic Interview[32] and the Schedule for Affective Disorders and Schizophrenia (SADS)[33] to comply with the DSM-III-R diagnoses of seven major mood and anxiety disorders. For the present population, lifetime prevalence was 1.8% for Generalized Anxiety Disorder, 0.9% for Panic Disorder, 13.6% for Major Depressive Episode (MDE), 2.3% for Dysthymia, 0.9% for Manic Episode, 20.5% for Phobic Disorder (PHOB) (Agoraphobia, Social Phobia and Simple Phobia), and 3.6% for Obsessive Compulsive Disorder. Seventy-four participants (33.6%) had a history of at least one DSM-III-R disorder in their lifetime. All those with a history of mental disorders were excluded from further analysis, except in the case of PHOB, for which it is often difficult to set the threshold between normal fear and pathological phobia, with the result that PHOB tends to be overestimated. The remaining 176 participants (80%) formed the control group, and were compared with 30 participants with a history of MDE.

2.2.2. Early Life Events

Under interview, each participant was asked if he or she had experienced any of 18 different life events (Table 1). This list was composed of positive and negative events that we thought appropriate in the Japanese sociocultural context. The participant was asked how many times each item was experienced. A factor analysis was not attempted because these life events did not necessarily reflect underlying factors; it is not statistically assumed that a unobservable factor is reflected in a number of life events[34].

2.2.3. Personality

The Japanese version of the EPQ[18] was made available by Professor S. Iwawaki (personal communication). It comprises 100 items, each rated either yes (1) or no (0). The EPQ contains three subscales neuroticism (N), extraversion (E), and psychoticism (P). In this analysis, we utilized only the N score, which is based on 23 items and measures emotional instability.

2.2.4. Perceived Parenting

The Japanese version[35] of the Parental Bonding Instrument (PBI)[36] was used to measure retrospectively the participants' remembered perception of each parent's attitudes towards them. It has 25 items for each parent, each with a 4-point scale (very unlikely (0) to very likely (3)), and two subscales care and overprotection.

2.2.5. Child Abuse

Participants were questioned as to their experience of five types of abusive behaviour: scolding, slapping, punching with a fist, hitting with an object, and burning[30]. If the participant answered "yes" to any of these five categories of child abuse, a further question was asked to identify the maximum frequency of the behaviour on a 5-point scale (never (1); several times a year (2); several times a month (3); several times a week (4); and almost every day (5)). We added the frequency scores of the five categories for the father and mother, respectively, to create two composite measures. These two variables were strongly positively skewed, and therefore were log transformed for use in further analyses.

2.2.6. Interview

A total of 25 interviewers–interviewed the participants and identified the lifetime prevalence of DSM-III-R disorders and early life events. The interview took place in 1992 to 1993 either at the participant's home or in the Yamanashi Prefectural Mental Health and Welfare Centre according to the participant's preference. All the participants gave written informed consent prior to the interview. The Ethical Committee of the National Centre of Neurology and Psychiatry (where the senior author used to work while conducting the present investigation) proved this project.

3. Results

3.1. MDE and Early Life Events

The MDE group was significantly younger than the control group (M = 48.5 years, SD = 17.1 years, compared with M = 56.7 years, SD = 16.4 years) at the time of the interview.

The frequencies of the investigated life events did not differ for men and women. However, women had a significantly higher lifetime prevalence of MDE: 20.0% of the women reported having experienced an episode of MDE, compared with only 7.7% of the men (Fisher exact probability test $P = .013$).

A one-way analysis of variance (ANOVA), controlling for the effects of age and sex, was performed on the frequencies of each life event in the two diagnostic groups, MDE and control (Table 1). It was found that the MDE group reported having been bullied by peers and having experienced fracture or injury significantly more frequently than the control group. No other life event differed significantly between the two groups. Because we included individuals only with lifetime prevalence of PHOB under the category of the control group, we examined whether this would affect the results. We repeated the same analysis excluding individuals only with lifetime prevalence of PHOB from the control group. Despite the reduction of the number of the participants, we obtained virtually the same results.

Table 1. Frequencies of early life events in MDE and control groups

No	Early life event	Participants		ANOVA F of main effect of diagnosis
		M.D.E. (n = 30)	Control (n = 176)	
1	changed school (other than leaving school)	0.17 (0.38)	0.15 (0.52)	0.10
2	was elected as a class leader	0.27 (1.11)	0.40 (0.98)	0.99
3	the best academic achievement in the class	0.10 (0.40)	0.14 (0.59)	0.33
4	first prize in athletic games	0.57 (1.30)	0.66 (1.78)	0.12
5	first prize in art, calligraphy, music etc	0.33 (0.61)	0.54 (1.34)	0.92
6	was bullied	0.40 (1.65)	0.08 (0.27)	4.53 *
7	was betrayed by a close friend	0.00 (0.00)	0.04 (0.22)	1.21
8	death of a close friend	0.03 (0.18)	0.04 (0.20)	0.00
9	had serious disease (school non-attendance for 2 weeks +)	0.13 (0.57)	0.14 (0.40)	0.08
10	was hospitalised	0.07 (0.25)	0.07 0.25)	0.17
11	suffered fracture/injury	0.37 (0.72)	0.12 (0.34)	9.5 **
12	relocated	0.17 (0.38)	0.23 (0.62)	0.07
13	frequent rows between parents	0.07 (0.25)	0.06 (0.30)	0.00
14	divorce of parents	0.00 (0.00)	0.01 (0.08)	0.02
15	foster care for a short time	0.00 (0.00)	0.05 (0.22)	1.07
16	foster care or adoption	0.00 (0.00)	0.01 (0.11)	0.12
17	death of a sibling	0.07 (0.25)	0.07 (0.29)	0.08
18	other	0.03 (0.18)	0.19 (0.78)	0.43

F value is for ANOVA after controlling for effects of age and sex; * $P < .05$; ** $P < .01$; *** $P < .001$

There may be a possible bias of the current MDE on the recall of past life events. In this study there were only three people who met the criteria of MDE at the time on interview. As compared to the remaining people, these three individuals did not differ in terms of the frequencies of each life event.

Another possible bias is the effects of the onset of MDE before adult age on the link between peer victimization and

MDE. There were two participants whose onset of MDE was before 20 of age. However, after excluding these two cases, the results were virtually the same.

3.2. Personality as a Mediator

Contrary to expectations, N scores did not differ between the two groups (Table 2), and neither was the N score

significantly correlated with the frequency of being bullied by peers or the experience of fracture/injury (Table 3). The

hypothesis of mediation through high N was therefore not supported.

Table 2. Personality and parenting in MDE and control groups

Early life event	Participants		ANOVA F of main effect of diagnosis
	M.D.E. (n = 30)	Control (n = 176)	
EPQ N	9.22 (4.97)	7.42 (4.68)	0.00
father care	23.0 (7.2)	24.0 (6.7)	0.41
father overprotection	12.3 (6.9)	11.2 (5.8)	0.15
mother care	24.9 (6.3)	28.2 (6.1)	2.40
mother overprotection	9.1 (6.3)	10.0 (5.9)	0.18
paternal abuse	17.8 (7.6)	16.1 (2.9)	5.00 *
maternal abuse	18.1 (10.8)	15.4 (1.6)	10.0 **

F value is of ANOVA after controlling for the effects of age and sex; * $P < .05$; ** $P < .01$; *** $P < .001$

3.3. Parental Style as a Confounder

The association between life events of being bullied and fracture/injury and adult onset of MDE may be confounded by aspects of perceived parenting such as child abuse. While PBI subscale scores did not differ between the groups, the paternal abuse and maternal abuse scores were significantly higher in the MDE than in the control group (Table 2). In addition, the paternal abuse score were correlated significantly with the frequency of being bullied by peers and the maternal abuse score with the frequency of fracture/injury (Table 3). It was therefore possible that paternal abuse would confound the effect of being bullied

and that maternal abuse would confound the effect of fracture/injury. To investigate this possibility, a discriminant function analysis was performed with group membership as the dependent variable. The variables of sex and age were entered first, followed by the abuse scores, and finally the two life event scores. The standardised discriminant function coefficients were .65 for sex, .18 for age, .46 for paternal abuse score, .49 for maternal abuse score, and .49 for fracture/injury. Being bullied by peers was no longer a significant predictor of experience of MDE.

Table 3. Correlations between MDE, two life event frequencies, personality, and parenting styles in the MDE and control groups combined

	MDE	1	2	3	4	5	6	7	8
1 was bullied	.17 *	—							
2 suffered fracture/ injury	.21 **	.03	—						
3 EPQ N	.13	.07	.10	—					
4 father care	.05	.21 **	.01	.22 **	—				
5 father overprotection	.07	.17 *	.00	.29 ***	.52 ***	—			
6 mother care	.19	.13	.12	.14	.53 ***	.27 **	—		
7 mother overprotection	.05	.03	.09	.20 *	.34 **	.51 ***	.60 ***	—	
8 paternal abuse	.15 *	.52 ***	.02	.05	.37 ***	.22 **	.12	.02	—
9 maternal abuse	.21 **	.05	.27 ***	.04	.07	.14	.22 *	.28 ***	.08

* P < .05; ** P < .01; *** P < .001

4. Discussion

Of 18 different early life events of a positive or negative nature, only two—being bullied and suffering injury—emerged as predictors of adult onset of MDE. Pines et al.[14] reported that life events in adolescence predict MDE in adulthood. However, their study amalgamated a variety of events to create a single score, without examining the effects of each type of event independently. The association between early experience of fracture or injury and adult onset of MDE was unexpected. Some cases of such injuries may have been caused by peers. Because, however, we did not ask such a question directly to the participant, this remains to be investigated in future studies.

It was further demonstrated in this study that these associations are not mediated by the N score of the EPQ. It

would be possible that the N score is still a mediator if we take into account a relative small number of participants. We have to be careful in interpreting the results because people with such a personality style may perceive bullying as intimidation and child abuse as threatening thus causing a response set which makes spurious results. Furthermore, this need not imply a direct effect of peer victimisation on the adult onset of MDE. Other personality traits may mediate the association, and further study is required.

A further finding of interest is the confounding effect of abuse by the father on the association between peer victimisation and adult onset of MDE. Child abuse is a robust risk factor for adult MDE and, in this study, a risk factor for peer victimisation. This is consistent with the past investigations that indicated the link between the child abuse and peer victimization[21-23]. It may be that an abused

child shows attitudes and behaviours in a classroom in such a way that they would elicit bullying from peers. Alternatively a child's temperament, for example timidity, elicits abuse from father at home and bullying in a classroom. There may be even more mediating factors. This topic may be worth investigating in the future. This suggests that preventive strategies for MDE must involve close attention to parenting behaviour which may (based on these findings) reduce the risk for peer victimization and adult depressive disorder.

Our finding requires caution because of the small number of participants and reliance on their retrospective recall of psychological symptoms. The data are thus subject to memory bias. Although Brewin et al.[37] noted that the recall of past events is reliable, self-report of past episodes of affective disorders is not stable.

Furthermore, all the data were collected from the participants themselves and it is possible, for example, that those who were currently depressed or had a life history of Major Depression were more likely to recall negative life events, such as peer victimisation during childhood. There are no direct validation studies on the self-report of early life events, child abuse, and peer victimization that we used in this study. Future studies should seek independent evidence such as reports of the participants elder siblings, and school teachers' reports in longitudinal follow-up designs.

The participants had all been informed that they would be interviewed for their "mental health" thus they were very likely to be aware of the psychiatric interview. This may be a source of reporting biases; for example people who wished to report past experiences of psychiatric disorders agreed to participate in the study. The high attrition rate in this study made it difficult to compare this with prior epidemiological studies. Kawakami et al.'s[38] report is a rare example of epidemiological study of psychiatric disorders in a Japanese community population. Interviewing about 1000 people, they reported the life time prevalence of 3% for MDE. Therefore, selection bias due to this knowledge is a possibility.

5. Conclusion

Despite methodological cautions, this study may be regarded as a preliminary report by which future studies on the relationship between early peer victimization and adult onset of depression is warranted. In such studies we should be cautious about possible confounders (such as child abuse) as well as mediators (such as personality traits).

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