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Effects of child abuse history on borderline personality traits, negative life events, and depression: A study among a university student population in Japan

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ABSTRACT

To simultaneously examine the impact of childhood abuse history on borderline personality traits, negative life events, and depression, undergraduate students ($N=243$) were studied by questionnaire surveys with one week intervals. Neglect and emotional abuse as well as sexual maltreatment predicted borderline personality traits and baseline depression. Baseline depression as well as the impact of negative life events occurring the week prior predicted depression a week later. However, after considering the baseline depression level, child abuse history failed to predict the follow-up depression level. Borderline personality traits did not moderate these findings. Childhood emotional and sexual abuse history may influence the depression and borderline personality traits.

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1. Introduction

The clinical entity of borderline personality has been much debated. Since the invention of the concept of borderline personality disorder in DSM-III, links between borderline personality disorder and depression have often been reported (e.g., McGlashan, 1987). A large follow-up study on patients with DSM-III-R Borderline Personality Disorder has shown that comorbidity of Major Depressive Disorder is as high as 87%, but that it decreases over time (Zanarini et al., 2004).

The association between borderline personality disorder and childhood abuse, particularly sexual abuse, has been reported from clinical perspectives (Gunderson and Sabo, 1993). In a clinical population, the rate of childhood trauma has been reported to be higher in borderline patients than in control patients (Grilo et al., 1999; Helgeland and Torgersen, 2004; Sansone et al., 2005; Zanarini et al., 1997). In addition, this is the case in a community population (Johnson et al., 2001). Trauma history has included neglect (Helgeland and Torgersen, 2004; Zanarini et al., 1997), sexual abuse (Zanarini et al., 1997), physical abuse (Zanarini et al., 1997), and emotional (verbal) abuse (Johnson et al., 2001; Zanarini et al., 1997). Despite the abundance of reports on the association of childhood trauma history with clinical cases of borderline personality disorder, less has been reported on the association of childhood trauma history with

borderline traits of personality among non-clinical populations. The categorical criteria of borderline personality disorder diagnosis have been critically debated without a widely accepted consensus. Thus, it may be prudent to study the association of childhood abuse history with dimensions of borderline personality traits rather than the category of borderline personality disorder diagnosis.

Moreover, childhood abuse history has also been reported as a risk factor for depression. The types of child abuse related to adult depression include physical abuse (Bonomi et al., 2008; Coid et al., 2003; Kitamura et al., 2000a,b; Koopman et al., 2007; Stuewig and McCloskey, 2005; Teicher et al., 2006), emotional (verbal) abuse (Hankin, 2006; Teicher et al., 2006; Yamamoto et al., 1999), and sexual abuse (Bonomi et al., 2008; Hankin, 2006; Koopman et al., 2007; Luterek et al., 2004; McCauley et al., 1997; Steel et al., 2004; Teicher et al., 2006; Whiffen et al., 2000).

Despite the associations of childhood abuse history with borderline personality disorder and adult depression, these three variables have rarely been studied in the same population. Due to the long time lag between childhood abuse experiences and adult onset of depression, a variety of psychosocial mediators have recently been postulated. These include coping strategies (Steel et al., 2004), cognitive distortion (Browne and Winkelmann, 2007; Hankin, 2006; Gibb and Abela, 2008), low self-esteem (Finzi-Dottan and Karu, 2006), shame-proneness (Stuewig and McCloskey, 2005), interpersonal rejection sensitivity (Luterek et al., 2004; Maciejewski and Mazure, 2006), adult attachment styles (Browne and Winkelmann, 2007; Hankin, 2006) as well as other types of interpersonal problems (Whiffen et al., 2000), poor family environment (Bradley et al., 2005), and immature defense mechanisms (Finzi-Dottan and Karu, 2006).

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Another possible mediator of the links between these three variables is negative (stressful) life events. Although it is well known that the occurrence of negative (stressful) life events precedes depression, studies have indicated that such events, particularly interpersonal events, are more likely to occur in people with personality difficulties (Breslau et al., 1995; Champion et al., 1995; Daley et al., 1997, 1998; Davila et al., 1995; Pothoff et al., 1995; Saudino et al., 1997). Thus, we postulate that people with a childhood abuse history as well as those with borderline personality traits are more likely to experience greater life events.

Although a descriptive approach to borderline personality has been applied in empirical studies, Kernberg's (1970, 1975) psychoanalytic theory that a personality structure consists of three layers, neurotic, borderline, and psychotic, has been widely accepted in psychotherapeutic settings. Thus, borderline personality organization can be characterized by (1) non-specific manifestation of ego weakness, such as lack of anxiety tolerance, lack of impulse control, and lack of developed sublimatory channels, (2) a shift towards primary-process thinking, (3) specific defensive operations, such as splitting, primitive idealization, early forms of projection and projective identification, denial, and omnipotence and devaluation, and (4) pathology of internalized object relationships. These concepts have been used in case studies. Kernberg and colleagues have developed a self-report measure of personality organization. Their instrument, the Inventory of Personality Organization (IPO: Clarkin et al., 2001), assesses three domains: primitive psychological defenses, reality testing, and identity diffusion (Lenzenweger et al., 2001). The authors have added two supplementary scales, aggression and moral value.

Few researchers have studied the topic of the association between early life experiences, personality structure, and depression using Kernberg's theory of borderline personality structure. Herein is a preliminary report on this issue using graduate students in Japan.

2. Methods

2.1. Participants

Students from two universities in Kumamoto were solicited to participate in the questionnaire surveys. These students completed a survey every week for nine weeks. The weekly surveys are hereafter referred to as Waves. Each wave involved a different set of questionnaires, including the Inventory of Personality Organization (IPO; Clarkin et al., 2001) (Wave 7, $n = 456$) and the Child Abuse and Trauma Scale (CATS; Sanders and Becker-Lausen, 1995) (Wave 2, $n = 397$). During each Wave, depressed mood and the impact of life events that occurred in the previous week were also measured. The number of students who missed a class varied for each Wave, but the total number of students who reported a usable data set for all of the variables used for the present analyses was 243, which included 45 men and 198 women. The mean (S.D.) age was 19.0 (1.4) years old with the range between 18 and 35. The men ($M = 19.8$, $S.D. = 2.8$) were slightly, but significantly ($t = 2.4$, $P < .05$), older than the women ($M = 18.8$, $S.D. = 0.7$).

2.2. Measurements

2.2.1. Early life experiences

CATS (Sanders and Becker-Lausen, 1995) is a self-report measure of the experiences of sexual abuse, neglect, and punishment (physical abuse). It consists of 38 items on a 5-point scale (0 = never, 4 = always). In the present population, we performed exploratory factor analysis with Promax rotation. The number of items was determined via the scree test and interpretability of the data (Supplementary table on the web). After confirming the factor structure of the Japanese version of the CATS, we calculated the subscale scores by adding the scores of items belonging to each factor. The Japanese version of the CATS consists of five subscales: (1) Neglect and Emotional Abuse (14 items), (2) Punishment and Scolding (10 items), (3) Sexual Maltreatment, (6 items), (4) Authoritarianism (5 items), and (5) Marital Disharmony (3 items). The mean values were substituted for missing items when at least 31 of the 38 items were answered.

2.2.2. Borderline personality organization

IPO (Clarkin et al., 2001) is a self-report measure based on the central dimension of Kernberg's (1970, 1975) personality organization model. It consists of 83 items on a 5-point scale from "never true = 1" to "always true = 5." Kernberg's dimensions are measured by the three primary scales of the IPO: Primitive Defenses (16 items), Identity Diffusion (21 items), and Reality Testing (20 items). Clarkin et al. (2001) added

two additional scales, which are Aggression (18 items) and Moral Values (8 items with 2 Primitive Defense items and 1 Identity Diffusion item). The psychometric properties of the original IPO have been reported (Critchfield et al., 2004). With the original author's permission, the IPO was translated into Japanese (TK). To verify the accuracy of the Japanese translation, the Japanese version was then back translated into English by a translator unfamiliar with the original document. Igarashi et al. (2009) have conducted a psychometric study and reported five factor structures of the Japanese version of the IPO, which consists of the same subscales of the original IPO, but with fewer items for each subscale. These subscales are Primitive Defenses (4 items), Identity Diffusion (9 items), Reality Testing (11 items), Aggression (6 items), and Moral Value (7 items).

2.2.3. Depression

The Self-rating Depression Scale (SDS-Z; Zung, 1965) is a widely employed self-report of depression, and consists of 20 items rated on a 4-point scale from a little of the time (0) to most of the time (3). The Japanese version of the SDS-Z (Fukuda and Kobayashi, 1973) is available. In the present study, six items, which showed high factor loadings, were extracted from the SDS-Z on the first factor in a large scale ($N = 28,588$) factor analytic study of the instrument in Japanese university students (Kitamura et al., 2004). These items reflect irritability, depressed affect, fatigue, crying spells, psychomotor agitation, and tachycardia.

2.2.4. Negative life events

A single item was used to inquire about the worst thing experienced in the previous week. Each participant was asked to rate this experience from 0 (no adverse effect) to 100 (the worst imaginable effect).

2.3. Statistical analysis

We initially calculated the mean and S.D. of each variable used in this study, and then the correlation coefficients between any pair of variables were determined. Next we constructed a path model using structural equation modelling, which posited that (1) the five subscales of the IPO are derived from the latent construct of Borderline Personality, (2) all the subscales of the CATS predict the latent construct of Borderline Personality, Wave 7 depression (when the IPO was distributed), Wave 8 depression, and the impact of negative life events occurring during the week between the two Waves, (3) the Borderline Personality and Wave 7 depression predict both Wave 8 depression and the impact of negative life events occurring for the week in between the two Waves, (4) the impact of negative life events occurring for the week between the two Waves predicts Wave 8 depression, (5) all the CATS subscales share a covariance, and (6) the error variables of the IPO and Wave 7 depression share a covariance. These assumptions are from our hypotheses that (1) childhood abuse history underlies the development of borderline personality traits, depression, and negative life events, (2) borderline personality traits along with the occurrence of negative life events lead to depression, and (3) borderline personality traits and depression observed simultaneously may influence one another or share a covariance. It is noteworthy that AMOS does not permit a covariance between two endogenous variables; thus, we posited covariances between the error variables of the IPO and Wave 7 depression. We presumed that variables other than childhood abuse history also shape both borderline personality traits and depression, and that these error variables may share covariance to a certain degree.

The fit of the model with the data was examined in terms of chi-squared (CMIN), goodness-of-fit index (GFI), adjusted goodness-of-fit index (AGFI), comparative fit index (CFI), and root mean square error of approximation (RMSEA). According to conventional criteria, a good fit would be indicated by $CMIN/df < 2$, $GFI > .95$, $AGFI > .90$, $CFI > .97$, and $RMSEA < 0.05$, while $CMIN/df < 3$, $GFI > .90$, $AGFI > .85$, $CFI > .95$, and $RMSEA < 0.08$ demonstrate an acceptable fit (Schermelleh-Engel et al., 2003).

Because it was feasible to hypothesize that Borderline Personality would moderate rather than mediate the effects of childhood abuse experiences on depression as well as the effects of negative life events on depression, we divided the students into two groups based on the results of cluster analysis (SPSS QUICK CLUSTER) with the number of clusters set at two. Using these two groups of students, we performed a multisample simultaneous structural equation analysis. This path model was exactly the same as Fig. 1, except for the borderline personality trait and the paths going or leaving it were absent.

All statistical analyses were conducted using the Statistical Package for Social Science (SPSS) version 14.0 and Amos 6.0.

This project was approved by the Ethical Committee of Kumamoto University Graduate School of Medical Sciences.

3. Results

As expected, all the CATS subscale scores, except for the pairs between Sexual Maltreatment and Authoritarianism and between Sexual Maltreatment and Marital Disharmony, were significantly correlated with each other. Additionally, all the IPO subscale scores were significantly correlated. Except for the pairs between Identity Diffusion and Sexual Maltreatment and between Identity Diffusion and Authoritarianism, all the IPO subscale scores were significantly

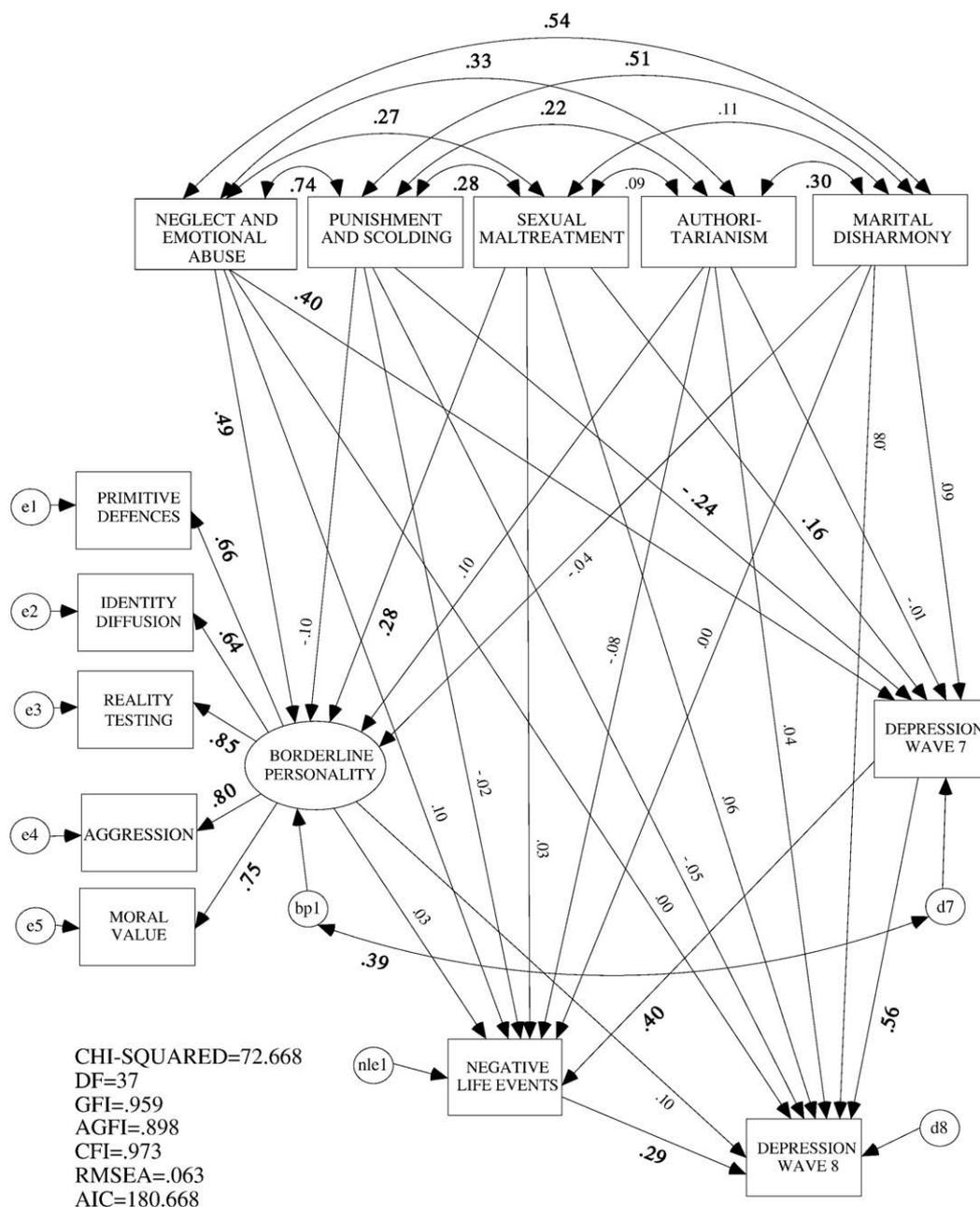


Fig. 1. Path model.

correlated with all the CATS subscale scores. Depression scores for Waves 7 and 8 were correlated with each other as well as with all the CATS subscale scores and all the IPO subscale scores (Table 1).

The original model showed an acceptable goodness-of-fit: chi-squared/df = 2.0, GFI = .959, AGFI = .898, CFI = .973, and RMSEA = 0.063 (Fig. 1). Among the CATS subscales, Neglect and Emotional Abuse as well as Sexual Maltreatment predicted Borderline Personality and Wave 7 Depression. Wave 7 Depression was also significantly, but *negatively* predicted by Punishment and Scolding. Furthermore, the error variables of Borderline Personality and Wave 7 Depression shared a significant covariance. Wave 7 Depression significantly predicted Wave 8 Depression as well as the Impact of Negative Life Events occurring for the week. Moreover, the Impact of Negative Life Events, in turn, predicted significantly Wave 8 Depression.

The possibility that Borderline Personality moderates the effects of childhood abuse experiences on the onset of depression was

examined. Cluster analysis with the preset number of clusters at two yielded groups of 88 and 155 students. The gender ratio did not differ between the two groups (17% and 19% of men in the two groups, respectively, chi-squared = .075, NS). Students in the first group were scored significantly ($P < .001$) higher in all the IPO subscales, except for Identify Diffusion. The best fit was obtained for multisample analysis when all the paths were restricted. Thus, the possibility that borderline personality *moderated* the effects of childhood abuse experiences on depression was refuted.

4. Discussion

This study demonstrates that both borderline personality organization and depression are predicted by two types of abuse history – Neglect and Emotional Abuse and Sexual Maltreatment. These findings echo the literature. However, the link between Punishment

Table 1
Correlations between as well as means and S.D.s of all the variables used in this study.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 Neglect and Emotional Abuse	–														
2 Punishment and Scolding	.74 ***	–													
3 Sexual Maltreatment	.27 ***	.28 ***	–												
4 Authoritarianism	.33 ***	.22 ***	.09	–											
5 Marital Disharmony	.54 ***	.52 ***	.11	.30 ***	–										
6 Primitive defense	.34 ***	.23 ***	.30 ***	.18 **	.20 **	–									
7 Identity Diffusion	.33 ***	.19 **	.07	.08	.15 *	.50 ***	–								
8 Reality Testing	.40 ***	.27 ***	.35 ***	.23 ***	.15 *	.54 ***	.57 ***	–							
9 Aggression	.40 ***	.27 ***	.29 ***	.22 **	.21 **	.50 ***	.53 ***	.66 ***	–						
10 Moral Value	.39 ***	.29 ***	.36 ***	.15 *	.19 **	.49 ***	.37 ***	.65 ***	.64 ***	–					
11 Negative Life Events Wave 8	.21 **	.12	.14 *	.00	.11	.21 **	.25 ***	.21 **	.17 **	.20 **	–				
12 Depression Wave 7	.31 ***	.14 *	.21 **	.11	.20 **	.37 ***	.42 ***	.43 ***	.36 ***	.32 ***	.44 ***	–			
13 Depression Wave 8	.32 ***	.16 *	.26 ***	.14 *	.24 ***	.34 ***	.34 ***	.44 ***	.36 ***	.34 ***	.58 ***	.77 ***	–		
14 Age	.08	.22 **	–.03	–.02	.03	–.09	–.14 *	–.13 *	–.08	–.11	–.05	–.09	–.13 *	–	
15 Gender (men 1; women 2)	.10	.01	–.07	–.05	.07	–.02	.14 *	–.04	.03	.05	.20 **	.15 *	.13 *	–.27 ***	–
M	10.7	6.6	0.2	7.5	1.5	7.5	24.6	18.9	10.5	11.1	36.9	4.9	4.8	19.0	1.8
S.D.	9.4	6.8	1.1	3.9	2.1	3.0	7.3	7.2	4.6	4.5	31.9	4.8	4.7	1.4	0.4

* $p < .05$; ** $p < .01$; *** $p < .001$.

and Scolding and the IPO subscales disappeared, and a *negative* association between Punishment and Scolding and depression seems to have appeared. Similar to previous literature, bivariate correlations demonstrate *positive* links between physical abuse history and both depression and borderline personality traits. We observed moderate correlations between physical abuse and emotional and sexual abuse histories. After controlling the influences of sexual abuse, the impact of physical abuse lost its predictive power in terms of borderline personality traits and reversed direction in terms of depression. These findings warn against the interpretation of investigations studying only the association between childhood physical abuse history and borderline personality traits or adult depression and conclude the two are *positively* linked because they may be spurious and misleading. However, the possible mediation of the effects of childhood abuse history on the development of borderline personality traits and depression remains to be clarified. Although this question is beyond the scope of this report, it is worth attention (e.g., Arntz et al., 1999). Moreover, it should be noted that the findings herein do not suggest that physical abuse creates better environments for children as physical abuse may lead to psychological maladjustments other than depression.

The paths from Neglect and Emotional Abuse and Sexual Maltreatment towards Wave 8 depression were reduced to non-significance. This may be because Wave 8 depression was moderately influenced by Wave 7 depression. The depressed mood, which this study assessed, may consist of trait and state components. After controlling for the stable component of mood (trait depression), the other component of depression, which may be mainly determined by reactions to immediate environmental changes, was not directly influenced by childhood adversity. These findings suggest that trait depression, but not state depression, is influenced by childhood trauma history.

We hypothesized in the path model that the impact of negative life events inflicted on the students during the week is influenced by childhood abuse history as well as borderline personality traits. However, regardless of the type, all childhood abuse history failed to predict the impact of negative life events that occurred afterwards. This may be because the life events measured in this study were likely minor ones. Major life events such as the death of a loved one, moving to a new town, and major financial loss are unlikely to happen in one week. It is plausible that a

significant path from borderline personality traits to the impact of negative life events may have been found if the follow-up period was longer and included more major life events. Alternatively people with borderline personality traits may be more likely to feel depressed, and the feeling of depression may lead to greater subjective judgement of the impact of negative life events.

This study has some limitations. First, the data of childhood trauma relies on self-report only, which may be subject to recall bias (Brewin et al., 1993; Fogarty and Hemsley, 1983; Hepp et al., 2006). Nevertheless, in a sample of patients with a borderline personality disorder before and after 27 months of intensive treatment, the mean number of reported sexual, physical, and emotional trauma events did not change following treatment (Kremers et al., 2007). In addition, self-report of childhood sexual abuse has been verified by objective evidence such as the confession of the perpetrator (Herman and Schatzow, 1987). Using data from court-substantiated cases of child abuse and neglect that were prospectively followed-up for about 20 years, Widom and Shepard (1996) have found that although those who were physically abused substantially underreported it, the current self-report has good discriminant validity. It has also been reported that sexual abuse history is underreported, and the accuracy of sexual abuse history is higher among women than men (Widom and Shepard, 1997).

Because the CATS does not differentially measure childhood abuse inflicted by fathers or mothers, there may be a gender effect on the link between childhood abuse and later psychopathology (Yamamoto et al., 1999). Hence, further studies should examine the gender of the parents and the gender of the child when interpreting research results.

Another drawback of this study is the use of depressed mood as an indicator of depression. We measured only six depression items: irritability, depressed affect, fatigue, crying spells, psychomotor agitation, and tachycardia. Hence, this study is not an indicator of clinical depression such as DSM-IV Major Depressive Disorder. The depression we measured likely covered a wider range of depressive syndromes. Furthermore, depression is just one of the psychological maladjustments that may be preceded by childhood abuse history. Self-mutilation and suicidality could also be examined because people with borderline personality traits are very likely to engage in such behaviors. Hence, a future study should use a longer follow-up period as well as the clinical definition of depression and other psychopathology.

Within the framework of childhood precursors of borderline personality traits, childhood abuse is only one of many factors, including attachment styles, temperament, rearing, loss of parental figures, family conflict, and school environments (e.g., Graybar and Boutilier, 2002). Therefore, these should be simultaneously studied along with childhood abuse history before concluding the effects of childhood abuse history on the development of borderline personality traits.

The borderline personality traits we measured were based on the self-report of non-clinical students. Therefore, extrapolation into clinical settings requires caution. However, the links between borderline personality traits and childhood emotional and sexual abuse history in this study suggest that the origin of non-clinical borderline traits must be carefully investigated in developmental antecedents.

Finally, the links between borderline personality traits and childhood abuse history may not be specific. For example, Tyrka et al. (2009) reported that child abuse experiences are non-specific risk factor of a broad array of personality outcomes. Other types of personality traits should be studied in relation to childhood abuse history.

The number of the participants was some 200. This was relatively small. This requires caution in interpreting the result of this study. Replication with a large number of participants is needed to verify the interpretation.

In summary, the present preliminary study suggests that childhood emotional and sexual abuse histories influence trait depression and borderline personality traits.

Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at doi:10.1016/j.psychres.2010.04.029.

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