BMJ Open

Case–control study on clinical characteristics of child and adolescent psychiatric outpatients with child-to-parent violence

Yoshinori Sasaki ,[1,2] Masahide Usami,[2] Shoko Sasaki,[2] Hikaru Sunakawa,[2] Yusuke Toguchi,[2] Shuichi Tanese,[2] Kiyoshi Saito,[2] Rena Shinohara,[2] Toshinari Kurokouchi,[2] Kaori Sugimoto,[2] Yuki Hakoshima,[2] Kumi Inazaki,[2] Yuta Yoshimura,[2] Yuki Mizumoto,[2] Takayuki Okada[1]

¹Graduate School of Medical and Dental Sciences, Tokyo Medical and Dental University, Tokyo, Japan
²Department of Child and Adolescent Psychiatry, Kohnodai Hospital, National Center for Global Health and Medicine, Ichikawa, Japan

Correspondence to
Dr Yoshinori Sasaki;
ysfppsyc@tmd.ac.jp

ABSTRACT

Objectives To the best of our knowledge, no case–control study on child and adolescent psychiatric outpatients has investigated the clinical characteristics of patients with child-to-parent violence (CPV). The current study aimed to evaluate the clinical characteristics of child and adolescent psychiatric patients with CPV.

Setting and participants This research included child and adolescent psychiatric patients who were aged 10–15 years during their initial consultation. The participants were allocated to one of two groups: children with CPV (CPV group, n=109) and without CPV (non-CPV group, n=713).

Outcome measures This study analysed data including age, sex, diagnostic classification of the primary diagnosis, antisocial behaviour, suicidal attempt or self-harm and refusal to attend school. Moreover, a history of abuse by parents was investigated. Psychological rating scales such as the Spence Children's Anxiety Scale, Depression Self-Rating Scale for Children, Tokyo Autistic Behavior Scale, Attention-deficit/Hyperactivity Disorder-Rating Scale and Oppositional Defiant Behavior Inventory were used.

Results Of 822 patients who sought consultation in our department, 109 (13.26%) were included in the CPV group during the first consultation. Compared with the non-CPV group, the CPV group had significantly higher proportions of patients who experienced physical abuse, psychological abuse and who witnessed violence between parents. Meanwhile, the proportion of patients with neurodevelopmental disorders was significantly higher in the CPV group than in the non-CPV group. Regarding developmental characteristics, impulsivity might be correlated with CPV. Moreover, violence and behavioural problems outside of home were associated with CPV.

Conclusions In patients with CPV who sought consultation, the findings of the current study should be considered to understand invisible side and to facilitate the use of appropriate treatment approaches. However, a prospective study should be performed to investigate the causality between CPV and clinical characteristics.

Strengths and limitations of this study

► This research included child and adolescent psychiatric patients who were aged 10–15 years.
► The participants were allocated to one of two groups: children with child-to-parent violence (CPV) and without CPV.
► This study analysed data including age, sex, diagnostic classification of the primary diagnosis, antisocial behaviour, suicidal attempt or self-harm, refusal to attend school, a history of abuse and five psychological rating scales.
► CPV in this study did not include psychological violence and sexual abuse.
► This study only confirmed associations between CPV and psychobiological factors, not causality.

INTRODUCTION

Abuse among children has been extensively investigated.[1 2] However, data on child-to-parent violence (CPV) are limited. CPV is defined as repeated behaviours of physical, psychological or economic violence directed at parents.[3 4] The prevalence of CPV has not decreased. Recent epidemiological studies showed that the incidence rate of CPV has increased dramatically in western countries.[5] In Japan, the prevalence of CPV has been increasing annually since 2012,[6] despite a decline in the birth rate.[7] Identifying the actual prevalence of CPV is challenging because parents hesitate to ask for advice due to feelings of shame, guilt or fear. Hence, this is one of the reasons for the low number of studies regarding this issue.[8 9] Further, parents are more likely to put up with CPV as defiance or resistance toward authority during the so-called 'second phase of separation–individuation' process.[10] Because differentiating disrespectful from abusive behaviour was

difficult, a novel scoring procedure was developed.[11] Although there is a limited number of studies on this issue, CPV is considered detrimental for parents both physically and psychologically,[12] and it requires specific understanding and appropriate treatment measures.

There are several studies investigating CPV perpetrators in community groups. In a review study conducted in 2012, 15 studies examined the sociodemographic characteristics of CPV perpetrators. Older, white and male children were more likely to abuse their parents.[13] A systematic review and meta-analysis showed that child maltreatment or exposure to domestic violence was associated with a high risk of interpersonal violence.[14] Another meta-analytic review reported that the probability of developing CPV in children victimised by parents increased by 71% as compared with non-victimised children.[15] Receiving corporal punishment is related to perpetrating physical and psychological child-to-parent aggression in adolescents, regardless of the child's age or sex.[16] However, most studies focused on community, not patient, samples. Although patients with CPV could be managed and treated in clinics,[17] only few studies on the characteristics of CPV perpetrators were conducted in clinical settings. Whether the characteristics of clinical patients and community groups with CPV are similar remains unclear.

Several studies have been conducted on the characteristics of CPV perpetrators, which have been carried out in clinical practice of psychiatric patients visiting hospitals. Among clinic-referred youths, aggressive youths display significantly more oppositional behaviour, have lower frustration tolerance, are less adaptable to stressful situations and are more demanding of their parents.[18] A study assessing risk and protective factors in clinical and judicial CPV cases showed that 89.4% of cases had narcissism, attitudes justifying violence, violence between parents and problems in the parents (such as mental disorders or drug abuse).[19] According to a case report, CPV was correlated with mental health problems such as depression and anxiety.[12] Adult psychiatric patients with CPV were investigated in 1986. Results showed that male patients were more likely to abuse their parents. Regarding diagnosis, only personality disorder was mentioned.[20] Further, his study was conducted more than 30 years ago. In another study, the longitudinal associations between depression and violent outcomes were observed in three cohorts of young individuals.[21] Autism spectrum disorder (ASD) and Attention-deficit/Hyperactivity Disorder (ADHD) are known to be associated with an increased risk of aggression and challenging behaviour.[22 23] In this way, there is limited research that specifically evaluates the clinical characteristics of child and adolescent psychiatric patients with CPV visiting hospitals.

The current study aimed to evaluate the clinical characteristics of child and adolescent psychiatric patients with CPV. Based on the findings of a previous research, the hypothesis of this study was that child and adolescent psychiatric patients with CPV are likely to have abuse history, depression or developmental disorders, compared with those without CPV.

METHODS

Participants

The current study comprised Japanese patients who visited the Department of Child and Adolescent Psychiatry, Kohnodai Hospital, National Center for Global Health and Medicine, between April 2016 and March 2020. There were 1757 patients of which 999 (56.9%) were boys, and the average age was 10.6 years (SD 3.1 years). That is clinical groups who require medical care and who differed from local groups. Kohnodai Hospital allowed consultation of patients aged under 15 years during the initial visit.

Instruments/measures

CPV was defined as continuous and repetitive physical violence against parents living together or damages to property. The definition did not include psychological violence, such as use of abusive words and sexual abuse, including sexual assault that was different from the definition provided in the introduction. The in-charge psychiatrists interviewed patients and parents individually, as needed, to evaluate for CPV. After hearing both sides of the story, the psychiatrists decided whether the patients' behaviour was indicative of CPV.

The diagnostic classification that could best explain clinical symptoms was described according to the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5).[24] For clinical efficacy, diagnostic classifications rather than each diagnosis were the focus considering that psychiatric disorders often coexist and overlap.[25] Moreover, this study focused on patients who engaged in illegal activities, such as smoking, drinking or injury as having 'antisocial behaviour'. In Japan, smoking and drinking are legal after the age of 20 years. Our department worked with local child protection services. Hence, information about abused children were often available before the initial consultation. In addition, in-charge psychiatrists interviewed parents and patients separately to identify abused children as needed. These efforts were made to immediately identify abused children and to avoid missing abused children. Refusal to attend school was defined as absence from school for 30 days or more during the school year because of refusal to attend classes owing to psychological, emotional, physical or social factors.[26]

The Spence Children's Anxiety Scale (SCAS)[27]: This questionnaire can evaluate the symptoms of various anxiety disorders, particularly social phobia, obsessive–compulsive disorder, panic disorder/agoraphobia and other types of anxiety. The 38-question test can be filled out by a child or parent. Each item is scored from 0 to 3. Higher scores indicate greater anxiety levels of the child, with 114 being the most severe condition.[27] The internal consistency and test–retest reliability were satisfied in

Japanese children and adolescents. Cronbach's α coefficients of the SCAS total scores were 0.94 in children and 0.92 in adolescents. Test–retest reliability coefficients of the SCAS total scores were 0.76 in children and 0.86 in adolescents.[28] A cut-off score of 42 can be used to indicate the risk of anxiety disorders.[29]

Depression Self-Rating Scale for Children (DSRS)[30]: This is a self-rating scale for depression in childhood. The 18-item self-rating scale was established based on a 37-item inventory associated with major depressive syndromes. Each item is scored from 0 to 2. Higher scores indicate higher levels of depression, with 36 being the most severe condition.[30] Denda investigated Japanese children and adolescents, and results showed that Cronbach's alpha coefficient for the DSRS was 0.84, indicating good internal consistency. Correlations between each item and total score ranged from 0.28 to 0.66, all of which were significant ($p<0.001$). Mean DSRS Score of Japanese elementary and middle-school children aged 6–15 years was high at 8.75±5.66. A cut-off score of 15 can be used to indicate the risk of depression.[31]

Tokyo Autistic Behavior Scale (TABS)[26]: This tool is rated by a child's caretaker to assess the behaviour of children with autism. It comprises 39 items that are provisionally grouped in four areas, which are as follows: interpersonal–social relationship, language–communication, habit–mannerism and others. Each item is provided with a score from 0 to 2, and the highest score is 78. When the score is higher, the current autistic characteristics are stronger. Test–retest reliability was satisfactory (ie, r for total score was 0.94). Among the six DSM-III diagnostic groups, the infantile group showed a significantly higher total TABS Score than the other five groups, and the taxonomic validity coefficient was 0.54. The r for total TABS Score and Childhood Autism Rating Scale-Tokyo Version was 0.59.[32] A cut-off score of 16 can be used to indicate the risk of ASD.[33]

ADHD-Rating Scale (ADHD-RS)[34]: This is an 18-item tool used by a child's caretaker to assess ADHD symptoms.[34] Takayanagi et al standardised the Japanese version of the ADHD-RS, which has two factors: hyperactivity/impulsiveness and inattention. Each item is provided with a score from 0 to 3. Higher scores indicate that current ADHD characteristics are stronger. A score of 54 indicates the most severe condition. The ADHD-RS confirmed a two-factor model (inattention and hyperactivity-impulsivity) and internal consistencies (Comparative Fit of Index (CFI)=0.968; Root Mean Square Error of Approximation (RMSEA)=0.049; Standardized Root Mean square Residual (SRMR)=0.030; α=0.86). The ADHD-RS showed high accuracy (Area Under the Curve (AUC)=0.955; sensitivity=89.13%; Positive Predictive Value (PPV)=46.59%).[35] A cut-off score of 16 can be used to indicate the risk of ADHD.[36]

Oppositional Defiant Behavior Inventory (ODBI)[37]: This comprises 18 questions covering the DSM-IV-TR diagnostic criteria for ADHD, Oppositional Defiant

Inclusion criteria

child and adolescent psychiatric patients aged 10–15 years during the initial visit with complete data

Exclusion criteria

moderate to severe intellectual disability
organic brain disease
drug-induced psychiatric disease
traumatic brain injury
genetic syndromes

Figure 1 Inclusion and exclusion criteria.

Disorder (ODD) and conduct disorder. Each item is scored from 0 to 3 points. The higher the score, the more severe the symptoms, with 54 being the most severe. Participants with ODBI Scores >20 are considered to have ODD. Cronbach's α coefficient of the ODBI was 0.925. The correlation coefficient between test and retest was 0.820 ($p<0.0001$).[37] A cut-off score of 20 can be used to indicate the risk of ODD.[38]

Procedure

Psychologists and psychiatrists established the initial interview forms, which included the demographic characteristics of the patients and clinical characteristics. We then constructed questionnaires using SCAS, DSRS, TABS, ADHD-RS and ODBI. Psychiatrists specialising in child and adolescent psychiatry diagnosed and treated all patients according to DSM-5. Patients with moderate-to-severe intellectual disability according to the DSM-5, organic brain disease, drug-induced psychiatric disease, traumatic brain injury and genetic syndromes were referred to other medical institutions and were excluded from this study (figure 1).

Based on the definition of adolescence,[39] this study included participants aged 10–15 years during the initial consultation, which totaled 1065 out of 1757 (figure 1). A retrospective case–control study was performed to evaluate the relationships between CPV and clinical characteristics. Participants were allocated to one of two groups: children with (CPV group) and without CPV (non-CPV group). Of 822 patients with complete data, 109 (13.26%) were included in the CPV group (figures 1 and 2). Data including age, sex, diagnostic classification of the primary diagnosis, antisocial behaviour, suicidal attempts or self-harm and refusal to attend school were collected. Moreover, participants were investigated for history of abuse by their parents, which included subcategories, such as physical abuse, psychological abuse, witnessing violence between parents, neglect and sexual abuse. Psychological rating scales such as the SCAS, DSRS, TABS, ADHD-RS and ODBI were used. A total of 17 variables were evaluated.
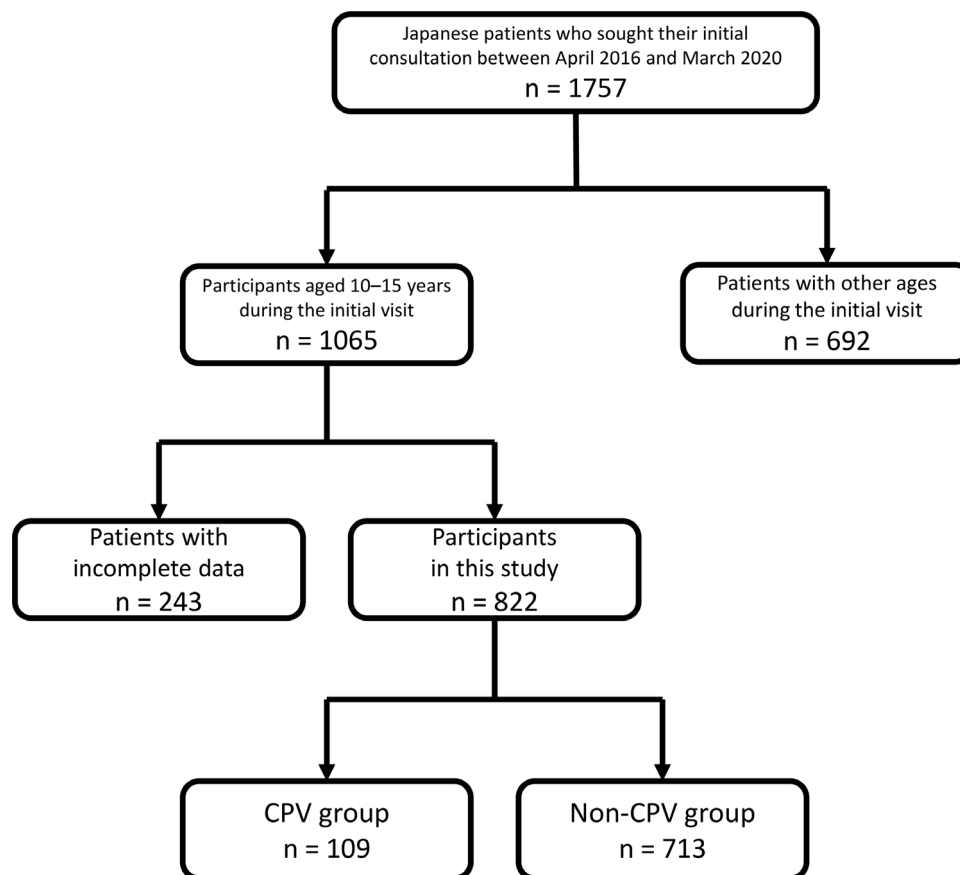
Figure 2 Flowchart for case and control groups. CPV, child-to-parent violence.

This study involved patients with no burden of the intervention assessed by patients as this was a retrospective case–control study. Data from the Registry Study of Child and Adolescent Mental Health in Japan (http://www.ncgm-kohnodai.go.jp/subject/100/200/opt10018111401.pdf) were used for this study. The purpose and methods of the study and details regarding refusal to participate were posted in the hospital's outpatient clinic and website's homepage. In addition, research data were anonymised because patient correspondence was not necessary during the study period. The results of this study were not disseminated directly to study participants.

Data analysis or similar

The Pearson's χ^2 test was used to compare the proportions of binary variables between the two groups, and the Mann-Whitney U test was used to compare continuous variables between the two groups, considering the possibility that the population does not show normal distribution. The OR and 95% CI were calculated using the univariate logistic regression models. In addition to basic variables such as age and sex, those with a significant difference ($p<0.05$) in terms of the primary outcome were included in the multivariate logistic regression analysis. This study selected appropriate variables based on the hypothesis to prevent overfitting and misspecification. Specifically, for abuse, only history of abuse was included in the multivariate logistic regression analysis. This is

because subcategories, such as physical abuse, psychological abuse, witnessing violence between parents, neglect and sexual abuse were included in history of abuse. As mentioned in the Instruments section in the Methods section, neurodevelopmental disorders and TABS and neurodevelopmental disorders and ADHD-RS are strongly correlated, and when selecting parameters for multivariate logistic regression analyses, we selected TABS and ADHD-RS from the viewpoint of multicollinearity. In addition, ODBI was excluded from the multivariate logistic regression analysis because it was closely linked to CPV. All statistical tests were two-tailed, and a p value of <0.05 was considered statistically significant. Analyses were performed using the Easy R Package V.1.40.[40]

Patient and public involvement

No patient involved.

RESULTS

The clinical characteristics of the participants are presented in table 1. In terms of clinical characteristics, the TABS, ADHD-RS and ODBI Scores, proportion of male participants and those with antisocial behaviour, history of abuse, experience with physical abuse, psychological abuse and witnessing violence were significantly higher in the CPV group than in the non-CPV group. No significant differences were observed in terms of age,

Table 1 Clinical characteristics of the participants

	CPV, % (n=109)	No CPV, % (n=713)	OR	Effect size	95% CI	P value	χ^2
Age (mean±SD)	12.31±1.36	12.53±1.46	–	0.15	–	0.115	–
Male sex (%)	70.6 (n=77)	51.8 (n=369)	2.24	–	1.45 to 3.47	p<0.001	12.84
Antisocial behaviour	44.0 (n=48)	11.5 (n=82)	6.06	–	3.89 to 9.43	p<0.001	72.75
Suicidal attempt or self-harm	15.6 (n=17)	10.8 (n=77)	1.53	–	0.86 to 2.70	0.192	1.70
Refusal to attend school	45.0 (n=49)	46.6 (n=332)	0.94	–	0.63 to 1.41	0.833	0.044
Abuse history	32.1 (n=35)	10.8 (n=77)	3.91	–	2.45 to 6.23	p<0.001	34.70
Abuse—physical abuse	16.5 (n=18)	4.9 (n=35)	3.83	–	2.08 to 7.05	p<0.001	19.23
Abuse—psychological abuse	16.5 (n=18)	6.5 (n=46)	2.87	–	1.59 to 5.16	p<0.001	11.97
Abuse—witnessing violence between parents	11.0 (n=12)	2.2 (n=16)	5.39	–	2.48 to 11.7	p<0.001	19.49
Abuse—neglect	7.3 (n=8)	4.2 (n=30)	1.8	–	0.80 to 4.04	0.228	1.45
Abuse—sexual abuse	0.9 (n=1)	0.8 (n=6)	1.09	–	0.13 to 9.15	0.999	<0.001
SCAS Score	32.15±20.09	34.88±22.40	–	0.12	–	0.321	–
DSRS Score	15.61±6.51	15.79±7.38	–	0.02	–	0.906	–
TABS Score	18.80±10.99	12.96±10.01	–	0.57	–	p<0.001	–
ADHD-RS Score	22.94±12.43	14.41±11.29	–	0.72	–	p<0.001	–
ODBI Score	36.32±13.32	19.47±13.62	–	1.56	–	p<0.001	–

Score ranges: Age: 10–15 years old; SCAS: 0–114 points; DSRS: 0–36 points; TABS: 0–78 points; ADHD-RS: 0–54 points; ODBI: 0–54 points.
ADHD-RS, Attention-deficit/Hyperactivity Disorder-Rating Scale; CPV, child-to-parent violence; DSRS, Depression Self-Rating Scale for Children; ODBI, Oppositional Defiant Behavior Inventory; SCAS, Spence Children's Anxiety Scale; TABS, Tokyo Autistic Behavior Scale.

SCAS and DSRS Scores, proportion of individuals who had suicidal attempt or self-harm and who refused to attend school and experienced neglect and sexual abuse between the two groups (table 1).

The diagnostic classifications of the primary diagnosis are depicted in table 2. About diagnostic classifications, the proportion of neurodevelopmental disorders was significantly higher in the CPV group than in the non-CPV group. No significant differences were observed in terms of the proportion of trauma-related and stressor-related, anxiety and depressive disorders between the two groups. The diagnostic categories with less than five patients with CPV were grouped together as 'Others' and were excluded from the statistical analysis (table 2).

Table 3 shows the results of multivariate logistic regression analyses adjusted for age, sex, antisocial behaviour, TABS, ADHD-RS Scores and history of abuse between cases and controls. Multivariate logistic regression analyses revealed that antisocial behaviour, ADHD-RS Score and abuse history were independently associated with CPV after adjusting for five parameters. Considering multicollinearity and to make the statistics more rigorous, continuous variables, such as ADHD-RS and TABS Scores, were selected in table 1, rather than neurodevelopmental disorder, which is a binary variable, which was selected in table 2 (table 3).

DISCUSSION

To the best of our knowledge, this case–control study first examined the clinical characteristics of child and adolescent psychiatric patients with CPV.

With regard to our hypothesis, children with CPV were more likely to have been abused by their parents as shown in

Table 2 Diagnostic classifications of the primary diagnosis according to the DSM-5

	CPV, % (n=109)	No CPV, % (n=713)	OR	95% CI	P value	χ^2
Neurodevelopmental disorders	67.0 (n=73)	48.5 (n=346)	2.15	1.41 to 3.29	p<0.001	12.14
Trauma-related and stressor-related disorders	10.1 (n=11)	8.1 (n=58)	1.27	0.64 to 2.50	0.617	0.25
Anxiety disorders	6.4 (n=7)	13.2 (n=94)	0.45	0.20 to 1.00*	0.065	3.41
Depressive disorders	4.6 (n=5)	8.6 (n=61)	0.51	0.20 to 1.31	0.218	1.51
Others	11.9 (n=13)	21.6 (n=154)	–	–	–	–

*The value increased to 1.00 after rounding up of the third decimal place.
CPV, child-to-parent violence; DSM-5, Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition.

Table 3 Multivariate logistic regression analyses

	Multivariate adjusted OR	95% CI	P value	B	Wald	SE
Age	0.98	0.84 to 1.14	0.751	−0.025	0.100	0.079
Male sex	1.56	0.96 to 2.54	0.075	0.444	3.176	0.249
Antisocial behaviour	**3.27**	2.00 to 5.36	p<0.001	1.185	22.156	0.252
TABS Score	1.01	0.99 to 1.04	0.414	0.011	0.669	0.013
ADHD-RS Score	**1.03**	1.01 to 1.06	**0.018**	0.030	5.641	0.012
Abuse history	**2.64**	1.57 to 4.45	p<0.001	0.973	13.396	0.266

Each parameter was adjusted for age, sex, antisocial behaviour, TABS and ADHD-RS Scores and abuse history. Statistically significant values were boldface.
ADHD-RS, Attention-deficit/Hyperactivity Disorder-Rating Scale; TABS, Tokyo Autistic Behavior Scale.

table 1, but statistically, were not more likely to have depression as shown in table 2. The proportion of abused children was significantly higher in children with CPV than those without. This indicates an association between CPV and child abuse. Interestingly, the CPV group had significantly higher proportions of patients who experienced physical abuse, psychological abuse and who witnessed violence between parents. However, there was no significant difference in terms of those who experienced neglect or sexual abuse. In a community group study, violence between parents was considered a predictor of CPV among male individuals.[41] Power-assertive parental discipline and partially punitive strategies were associated with CPV.[42] Based on previous studies, physical abuse, psychological abuse and witnessing violence between parents were considered predictors of CPV in clinical and community groups. Daily experiences of impulsive behaviours such as physical and verbal violence might lead to CPV later in life. Abuses such as neglect and sexual abuse might not appear as the inappropriate form like CPV because the relationships was either abandoned or pressed down by overwhelming force. When patients with CPV sought consultation, the risk for physical abuse, psychological abuse and witnessing violence between parents should be assessed.

No significant differences were observed in major depressive symptoms between children with CPV and those without CPV as measured by DSRS. This result meant that children with CPV did not necessarily have major depressive symptoms. This result was different from what was expected as per previous studies. That is, the DSRS Scores of the CPV and non-CPV groups were quite high (15.61±6.51 and 15.79±7.38, respectively), and this is different from that of the general population. The DSRS Score of child and adolescent psychiatric patients going to our department was quite high. This result may be attributed to the difference between psychiatric patients and community samples, study designs such as case–control studies and case reports, and the presence of CPV alone and so-called general violence.

The second interesting result was that the proportion of patients with neurodevelopmental disorders was significantly higher in the CPV group than in the non-CPV group. Further, the results of the logistic analysis in table 3 showed that ADHD characteristics, rather than autistic characteristics, were more likely to be associated with CPV. Subaverage

Intelligence Quotient (IQ), language deficits and neurodevelopmental delay may be underlying factors for externalising behaviours such as defiance, impulsivity, disruptiveness, aggression and antisocial features, in adolescents.[43–45] The significant difference in TABS and ADHD-RS Scores in this study supports these findings. High ADHD characteristics of children with CPV led to a significantly higher proportion of neurodevelopmental disorders in the CPV group in this study. Among the developmental characteristics, impulsivity led to CPV rather than inflexible adherence or deficits in social communication. CPV may be prevented by conducting psychoeducation and by teaching proper involvement to parents from early childhood because addressing emotional and behavioural problems in extremely young children with developmental disorders is important later in life.[46] Moreover, appropriate parental supervision, discipline and attitude lead to less behavioural problems in mid-to-late adolescence.[47]

Explanations about some findings are added at the end of the Discussion section. Regarding suicidal attempt or self-harm, CPV was not associated with suicidal attempts or self-harm because CPV was the violence toward the outside rather than inside.

CPV was associated with violence and behavioural problems outside of home. In a large longitudinal study, impulsivity was considered the best predictor of the early onset of delinquent behaviour.[48] Children with high impulsiveness may present with impulsive behaviours both inside and outside of the house. When a patient with CPV sought consultation in a clinic, clinicians should collaborate with the school and police to obtain information about antisocial behaviour. Then, clinicians should consider CPV in patients with antisocial behaviour.

CPV was not significantly correlated with refusal to attend school. In 2008, approximately 1.69% of elementary and junior high school students refuse to attend school,[26] and there are about 45.0% and 46.6% patients with and without CPV, respectively, who refuse. CPV was not correlated with refusal to attend school because it occurs due to various psychological, emotional, physical and social factors.

Study limitation

This study had some limitations that must be considered. First, measurement bias might have existed due to several

reasons. Ascertainment bias affected this study as this study could not completely define CPV. The final judgement as to whether the action was CPV was based on psychiatrists' discretion without operability. We should keep in mind that CPV in this study was different from that reported in previous studies because CPV in this study did not include psychological violence and sexual abuse. Moreover, reporting bias existed in this study. Most data about CPV and abused children were based on self-reports or reports from parents. In addition, the data were registered after the initial consultation. Additional information regarding CPV and abused children may be obtained after further examinations. Inaccuracies exist in the detection of CPV and abused children because data were not immediately obtained or remained hidden consecutively.

Second, this study might have been affected by selection bias due to several reasons. There were only 109 participants who had a history of CPV. Due to the small sample size, the results might be subject to random errors. Further, a small sample size might contribute to no significant differences in the proportion of individuals who experienced neglect or sexual abuse. The clinical characteristics of patients with CPV might differ between men and women, and change by extending the target age range to 19 years as defined by WHO. Furthermore, different results may be obtained with comparisons between sex. Moreover, the types of abuse were mixed together, and new findings might have been obtained if they were divided by types. This study did not represent the general situation associated with child and adolescent psychiatric patients with CPV because it was conducted in a single district.

Finally, the results of this study confirmed the associations between CPV and psychobiological factors, not causality. The factors assessed in this study were mentioned in previous studies, but there may be other unknown factors related to CPV.

CONCLUSION

This study first examined the clinical characteristics of child and adolescent psychiatric patients with CPV in clinical settings. Children with CPV were more likely to be abused, but not depressed. Further, the CPV group had significantly higher proportions of patients who experienced physical abuse, psychological abuse and witnessed violence between parents. However, there was no significant difference in terms of the proportion of patients who experienced neglect or sexual abuse. Next, the proportion of individuals with neurodevelopmental disorders was significantly higher in the CPV group than in the non-CPV group. In terms of developmental characteristics, impulsivity was associated with CPV. Finally, CPV was found to be correlated with violence and behavioural problems outside of home. In patients with CPV who sought consultation, understanding the invisible side and the treatment approach spread is possible by considering the abovementioned findings. However, our study explained associations, not causality. Therefore, in the future, a prospective study should be conducted to investigate the causality between CPV and clinical characteristics.

ORCID iD
Yoshinori Sasaki http://orcid.org/0000-0002-0816-4355

REFERENCES

1. Ministry of Health, Labour and Welfare. Annual report on number of cases disposed about child abuse from child guidance centers in 2018. Available: https://www.mhlw.go.jp/content/11901000/000533886.pdf
2. United Nations Children's Emergency Fund. *Hidden in plain sight*. New York, NY: United Nations Children's Emergency Fund, 2014. https://www.unicef.org/publications/files/Hidden_in_plain_sight_statistical_analysis_Summary_EN_2_Sept_2014.pdf
3. Arias-Rivera S, García H V. Theoretical framework and explanatory factors for child-to-parent violence. A scoping review. *Anales de Psicología* 2020;36:220–31.
4. Pereira R, Loinaz I, del Hoyo-Bilbao J, *et al*. Proposal for a definition of filio-parental violence: consensus of the Spanish Society for the study of Filio-Parental violence (SEVIFIP). *Papeles del Psicólogo* 2017;38:216–23.
5. Calvete E, Orue I, Gámez-Guadix M. Child-to-parent violence: emotional and behavioral predictors. *J Interpers Violence* 2013;28:755–72.
6. White paper on crime 2018, an annual publication of the Ministry of Justice, Japan. Available: http://hakusyo1.moj.go.jp/jp/65/nfm/n65_2_3_1_4_1.html

7 Ministry of Health, Labour and Welfare. Annual report of vital statistics in 2017. Available: https://www.mhlw.go.jp/toukei/saikin/hw/jinkou/kakutei17/dl/03_h1.pdf

8 Kennair N, Mellor D. Parent abuse: a review. *Child Psychiatry Hum Dev* 2007;38:203–19.

9 Edenborough M, Jackson D, Mannix J, *et al*. Living in the red zone: the experience of child-to-mother violence. *Child Fam Soc Work* 2008;13:464–73.

10 Blos P. *The adolescent passage*. New York: International Universities Press, 1979.

11 Simmons ML, McEwan TE, Purcell R, *et al*. The abusive behaviour by Children- indices (ABC-I): a measure to discriminate between normative and abusive child behaviour. *J Fam Violence* 2019;34:663–76.

12 Clarke K, Holt A, Norris C, *et al*. Adolescent-to-parent violence and abuse: parents' management of tension and ambiguity-an interpretative phenomenological analysis. *Child Fam Soc Work* 2017;22:1423–30.

13 Hong JS, Kral MJ, Espelage DL, *et al*. The social ecology of adolescent-initiated parent abuse: a review of the literature. *Child Psychiatry Hum Dev* 2012;43:431–54.

14 Hughes K, Bellis MA, Hardcastle KA, *et al*. The effect of multiple adverse childhood experiences on health: a systematic review and meta-analysis. *Lancet Public Health* 2017;2:e356–66.

15 Gallego R, Novo M, Fariña F, *et al*. Child-to-parent violence and parent-to-child violence: a meta-analytic review. 2019;11:51–9.

16 Hoyo-Bilbao JD, Gámez-Guadix M, Calvete E. Corporal punishment by parents and child-to-parent aggression in Spanish adolescents, Anales de Psicología 2018;34:108–16.

17 Sun G-C, Hsu M-C. Effects of nurse-led child- and parent-focused violence intervention on mentally ill adult patients and victimized parents: a randomized controlled trial. *Int J Nurs Stud* 2016;60:79–90.

18 Nock MK, Kazdin AE. Parent-directed physical aggression by clinic-referred youths. *J Clin Child Adolesc Psychol* 2002;31:193–205.

19 Loinaz I, AMd S. Assessing risk and protective factors in clinical and judicial child-to-parent violence cases, psy intervention 2019;12:43–51.

20 Charles AV. Physically abused parents. *J Fam Violence* 1986;1:343–55.

21 Yu R, Aaltonen M, Branje S, *et al*. Depression and violence in adolescence and young adults: findings from three longitudinal cohorts. *J Am Acad Child Adolesc Psychiatry* 2017;56:652–8.

22 Hofvander B, Bering S, Tärnhäll A, *et al*. Few differences in the Externalizing and criminal history of young violent offenders with and without autism spectrum disorders. *Front Psychiatry* 2019;10:911.

23 Billstedt E, Anckarsäter H, Wallinius M, *et al*. Neurodevelopmental disorders in young violent offenders: overlap and background characteristics. *Psychiatry Res* 2017;252:234–41.

24 American Psychiatric Association. *Diagnostic and statistical manual of mental disorders*. 5th edn. Washington, DC: American Psychiatric Association, 2013.

25 Ronald A, Simonoff E, Kuntsi J, *et al*. Evidence for overlapping genetic influences on autistic and ADHD behaviours in a community twin sample. *J Child Psychol Psychiatry* 2008;49:535–42.

26 Ministry of Education, Culture, Sports, Science, and Technology. Survey on various issues in guiding students with problem behavior and school refusal (in Japanese). Available: http://www.mext.go.jp/a_menu/shotou/seitoshidou/1302902.htm

27 Spence SH. A measure of anxiety symptoms among children. *Behav Res Ther* 1998;36:545–66.

28 Ishikawa S-ichi, Sato H, Sasagawa S. Anxiety disorder symptoms in Japanese children and adolescents. *J Anxiety Disord* 2009;23:104–11.

29 Muris P, Schmidt H, Merckelbach H. Correlations among two self-report questionnaires for measuring DSM-defined anxiety disorder symptoms in children: the Screen for Child Anxiety Related Emotional Disorders and the Spence Children's Anxiety Scale. *Pers Individ Dif* 2000;28:333–46.

30 Birleson P. The validity of depressive disorder in childhood and the development of a self-rating scale: a research report. *J Child Psychol Psychiatry* 1981;22:73–88.

31 Denda K, Kako Y, Kitagawa N, *et al*. Assessment of depressive symptoms in Japanese school children and adolescents using the Birleson depression self-rating scale. *Int J Psychiatry Med* 2006;36:231–41.

32 Kurita H, Miyake Y. The reliability and validity of the Tokyo autistic behaviour scale. *Jpn J Psychiatry Neurol* 1990;44:25–32.

33 Tachimori H, Takahashi M, Osada H. Utility as a diagnostic support measure of pervasive developmental disorder of Tokyo autistic behavior scale (TABS). *Japanese J Clin Psych* 2000;29:529–36.

34 DuPaul GJ, Power TJ, Anastopoulos AD. *ADHD rating Scale-IV: checklists, norms, and clinical interpretation*. New York: The Guilford Press, 1998.

35 Takayanagi N, Yoshida S, Yasuda S, *et al*. Psychometric properties of the Japanese ADHD-RS in preschool children. *Res Dev Disabil* 2016;55:268–78.

36 Yamazaki K, Kimura T, Koishi S. Research on the preparation of measure for evaluation of attention dificit/hyperactivity disorder and the discriminant ability. standard value of the ADHD rating Scale-IV Japanese edition, annual report of the research on nervous and mental disorders 2002:23–35.

37 Burns GL, Desmul C, Walsh JA, *et al*. A multitrait (ADHD-IN, ADHD-HI, ODD toward adults, academic and social competence) by multisource (mothers and fathers) evaluation of the invariance and convergent/discriminant validity of the child and adolescent disruptive behavior inventory with Thai adolescents. *Psychol Assess* 2009;21:635–41.

38 Harada Y, Saitoh K, Iida J, *et al*. Establishing the cut-off point for the Oppositional Defiant behavior inventory. *Psychiatry Clin Neurosci* 2008;62:120–2.

39 Sawyer SM, Azzopardi PS, Wickremarathne D, *et al*. The age of adolescence. *Lancet Child Adolesc Health* 2018;2:223–8.

40 Kanda Y. Investigation of the freely available easy-to-use software 'EZR' for medical statistics. *Bone Marrow Transplant* 2013;48:452–8.

41 Ibabe I, Jaureguizar J. To what extent is child-to-parent violence bi-directional? An Psicol 2011;27:265–77.

42 Ibabe I. Family predictors of child-to-parent violence: the role of family discipline. An Psicol 2015;31:615–25.

43 Achenbach TM, Edelbrock CS. The classification of child psychopathology: a review and analysis of empirical efforts. *Psychol Bull* 1978;85:1275–301.

44 Salvatore JE, Aliev F, Bucholz K, *et al*. Polygenic risk for externalizing disorders: gene-by-development and gene-by-environment effects in adolescents and young adults. *Clin Psychol Sci* 2015;3:189–201.

45 Hinshaw SP. Externalizing behavior problems and academic underachievement in childhood and adolescence: causal relationships and underlying mechanisms. *Psychol Bull* 1992;111:127–55.

46 Herring S, Gray K, Taffe J, *et al*. Behaviour and emotional problems in toddlers with pervasive developmental disorders and developmental delay: associations with parental mental health and family functioning. *J Intellect Disabil Res* 2006;50:874–82.

47 Murray J, Farrington DP. Risk factors for conduct disorder and delinquency: key findings from longitudinal studies. *Can J Psychiatry* 2010;55:633–42.

48 Tremblay RE, Pihl RO, Vitaro F, *et al*. Predicting early onset of male antisocial behavior from preschool behavior. *Arch Gen Psychiatry* 1994;51:732–9.