**Title:** Psychological distress and violence towards parents of patients with schizophrenia

**Running title:** Distress and family violence

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**Abstract**

The present study investigated the relationship between violence and psychological distress experienced by parents of patients with schizophrenia. Questionnaire data from 379 parents were analyzed. A total of 151 parents (39.8%) had not experienced violence in the past year, whereas 96 (25.3%) and 132 (34.8%) had experienced psychological violence only or physical violence, respectively. A total of 216 (57.0%) of parents reported being psychologically distressed. Multiple logistic regression revealed that the risk of psychological distress significantly increased with the experience of psychological and physical violence, lower household income, greater family stigma, and the increasing age of patients.

**Keywords**: family caregivers, psychological stress, domestic violence, schizophrenia, Japan

## Introduction

Japan has traditionally featured the highest psychiatric bed ratio among developed countries (OECD, 2014). While new government policies have aimed to reduce unnecessarily lengthy hospital stays, with a focus towards deinstitutionalization, the insufficient availability of community mental health resources for discharged patients remains an issue (Oshima, Mino, & Inomata, 2007). In Japan, approximately 60% (Tokyo Metropolitan Government, 2014) to 85% (Chiba Prefecture Family Association of Persons with Mental Disorders, 2009) of patients with psychiatric disorders reside with family members. Acceleration of deinstitutionalization thus poses a far greater care burden on families in the daily support of their patient relatives.

The stress of providing care for a relative diagnosed with a severe mental illness is further compounded by the potentiality for violence. While individuals with mental illness demonstrate only a moderately elevated risk of violent behavior (Fazel, Gulati, Linsell, Geddes, & Grann, 2009; Walsh, Buchanan, & Fahy, 2002), the primary targets of violence tend not to be the general public (Angermeyer, 2000), but family members and friends (Arboleda-Florez, Holley, & Crisanti, 1998; Steadman et al., 1998). Furthermore, evidence indicates that those diagnosed with schizophrenia are indeed more likely to express violent behavior; and consequently, violence has even been

considered as part of the clinical picture of schizophrenia (Fleischman et al., 2014). For example, Imai, Hayashi, Shiina, Sakikawa, and Igarashi (2014) have reported that elements of schizophrenia itself, rather than antisocial traits, contribute to the violent behavior in Japanese patients with schizophrenia. Schizophrenia also demonstrates a stronger association with homicide than other psychiatric diagnoses (Fazel et al., 2009; Schanda et al., 2004). Moreover, nearly all victims of homicide by patients with schizophrenia are close family members (Gabrielsen, Gottlieb, & Kramp, 1992). Notably, 75% of Japanese psychiatric hospital inpatients under the age of 65 have been diagnosed with schizophrenia, schizotypal, and delusional disorders (Ministry of Health Labour and Welfare, 2012). With the progression of deinstitutionalization in Japan, families caring for a discharged relative with a psychiatric disorder may therefore experience a relatively higher risk of violence.

Family members frequently experience distress as a result of having a relative with schizophrenia (Martens & Addington, 2001), and several factors have been found to be associated with this phenomenon. Namely, distress has been associated with being the mother of a patient (Boyer et al., 2012; Caqueo-Urízar, Gutiérrez-Maldonado, & Miranda-Castillo, 2009), the burden of caring (Hanzawa et al., 2008), living with the patient (Boyer et al., 2012), having a low household income (Awad & Voruganti, 2008;

Caqueo-Urízar et al., 2014, 2009; Matsuyama, Morita, & Ogai, 2013), experiencing family stigma associated with mental illness (Awad & Voruganti, 2008; Chou et al., 2009), having a relative with a more recent illness onset (Martens & Addington, 2001; Matsuyama et al., 2013), having a relative with psychotic symptoms (Lee et al., 2006), and being subjected to violence by the patient (Matsuyama et al., 2013; Vaddadi, Soosai, Gilleard, & Adlard, 1997; Vaddadi, Gilleard, & Fryer, 2002). Particularly relevant to the present study is the strong relationship identified between distress and the experience of violence. For example, victims of child abuse or domestic violence are at a higher subsequent risk of mental illness, including depression, anxiety, or post-traumatic stress disorder (Golding, 1999; Lagdon, Armour, & Stringer, 2011). However, there has been limited research on the effects of family violence by patients with severe psychiatric disorders.

Among the few studies conducted, Vaddadi et al. (1997, 2002) demonstrated a significant correlation between the degree of distress (measured by the General Health Questionnaire) and the severity of violence experienced. In Japan, Matsuyama et al. (2013) reported a significant association between distress (measured by the Kessler (K) 10) and experience of verbal abuse. Taken together, these studies suggest that violence experienced by the family members of those with serious mental illness (SMI) is

significantly related to distress. However, these three studies had some limitations, including small sample sizes (N's = 101, 101, and 109, respectively), no adjustment for diagnosis and treatment, and, in Matsuyama et al.'s (2013) study, an undefined period of violence. In order to clarify the relationship between the violence experienced by caregivers and distress, several factors related to family violence or general violence among patients with SMI need to be controlled. These include years since illness onset (Imai et al., 2014), regularity of visits to a psychiatrist and adherence to prescribed medication (Swan & Lavitt, 1988; Tsigebrhan, Shibre, Medhin, Fekadu, & Hanlon, 2014), sex and age of patients (Corrigan & Watson, 2005; Fleischman et al., 2014), number of hospitalizations (Arboleda-Florez et al., 1998; Fleischman et al., 2014; Swan & Lavitt, 1988), rehabilitation use (Tsigebrhan et al., 2014), and the comorbidity of alcohol and drug addiction (Fazel et al., 2009).

In Japan, the primary caregivers of patients with SMI are mostly parents, the majority of whom have been diagnosed with schizophrenia (Tokyo Metropolitan Government, 2014). The present study therefore aimed to clarify the relationship between violence toward parents by patients with schizophrenia and parents' psychological distress. This has important implications for the discharge planning process and the prevention of family violence by, for instance, support provided by

nurses in clinical and community practice settings.

## Materials and Methods

*Study sample and data collection*

The present analysis is a part of a larger study, "Japanese Family Violence and Mental Illness"(Kageyama et al., 2015). The larger study aimed to examine the prevalence of familial violence and related factors among caregivers and siblings in 866 households belonging to 27 affiliate family groups under a prefectural-level family group association in Japan.

Questionnaires were distributed to 768 of the 866 households in the association. The judgment of questionnaire distribution was made by group leaders. Questionnaires were not distributed to 118 households due to health conditions and family issues. Of the 482 returned caregiver questionnaires (from 350 households), 463 were valid (346 households). Invalid questionnaires included those that were over 50% incomplete (n = 7), cases in which respondents had provided multiple copies of the same questionnaire (one with less missing items was chosen) (n = 9), and cases in which questionnaires were returned for two different patients by two different parents in the same household (the questionnaire from the 'primary caregiver' was selected for further analyses) (n =

3). Over 60% of respondents were the mothers of patients, of whom 80% were aged between 60-70 years old. Of the total respondents, over 70% featured an annual income of under US$40,000 (conversion of 100 JPY to US$1). The basic characteristics of this sample do not largely differ among members of family groups in other areas in Japan (Zenkaren, 1997, 2006).

The present analyses focused on caregiver questionnaires completed by parents of patients with schizophrenia. The sample size for these analyses was 379 after the exclusion of respondents with regard to patients who had been diagnosed with illnesses other than schizophrenia (n = 39), respondents other than parents (n = 21), and missing data (n = 34) (given overlap, n = 84 excluded).

*Measures*

The K6, a short screening questionnaire of six items, was developed as a screening scale for non-specific psychological distress (Kessler et al., 2002). It has been since used as an indicator of mood/anxiety disorders (Sakurai et al., 2011) and was used to assess the psychological distress of parents in the present study. The reliability and validity of the Japanese version of the K6 has previously been evaluated; the best cut-off point has been estimated as 4/5, featuring 100% sensitivity and 68.7% specificity for the screening of mood/anxiety disorders (Furukawa et al., 2008). The screening

performance of the Japanese version is comparable to that of the Center for Epidemiologic Studies-Depression Scale (Sakurai et al., 2011). Cronbach's alpha in this study was 0.90. The K6 score was used to categorize participants into two groups: high ($K6 \geq 5$) and low ($K6 \leq 4$) distress.

The type of violence parents experienced was assigned as the independent variable, which was constructed in three steps. Firstly, 14 items (No. 1-14, Table 1) were used to measure the frequency of violence experienced by parents in the past year. No standard measurement of family violence exists; therefore, these 14 items were created from preliminary qualitative data of parent interviews regarding their experience of violence and how they coped with it. The frequency of the listed behaviors in the past year was selected from the following options: "never," "1-4 times," or "5 times or more." In cases where responses were only made when violence was present, we replaced the missing data with "never" in order to avoid an overestimation of violence. Secondly, the operational definitions of violence experiences were specified by reference to definitions in the literature regarding intimate partner violence (Breiding, Basile, Smith, Black, & Mahendra, 2015). In the current study, psychological violence was defined as the use of verbal or non-verbal communication to cause another person mental or emotional harm. Physical violence was defined as the use of physical force with the

potential for causing death, disability, injury, or harm. Based on these definitions, as shown in Table 1, the 14 items were categorized into psychological (No.1-6) and physical violence (No.7-14). Thirdly, responses were separated into three types of violence: “no violence” (no experience of violence recorded in either category), “psychological violence only” (only psychological violence), and “physical violence” (any physical violence).

Based on the extant literature and interviews with parents of patients with schizophrenia, the control variables of parents’ and patients’ factors were identified. Parental factors included their relationship to the patient, being the primary caregiver employed as an indication of care burden, cohabitation with the patient, household income, family stigma, and age as a basic attribute. As no specific scales exist in Japanese for the assessment of family stigma, an English subscale of the Caregiver’s Burden Scale by Song (1999), whose accuracy was confirmed by back-translation into English, was used. Scale reliability and validity have been evaluated in China and found to be acceptable (Song, 1999). The subscale features two items: “having a family member with mental illness makes my family feel ashamed” and “having a family member with mental illness makes me feel ashamed” with response categories being a 5-point Likert scale (1 = never, 5 = always). The resulting scores range from 2-10,

whereby higher scores indicate a higher level of stigma. Cronbach's alpha in the present study was 0.95.

Patients' factors included sex, age, years from illness onset, regularity of visits to a psychiatrist, adherence to prescribed medication, number of hospitalizations, and rehabilitation use. The comorbidity of alcohol and drug addiction was not collected in the present study, as a previous study in Japan demonstrated no significant correlation between substance abuse and acts of violence by patients with schizophrenia (Imai et al., 2014). Moreover, no evidence of patient comorbidity was identified in preliminary interviews with the parents, while the current literature indicates that only 2% of patients with schizophrenia feature comorbid addiction disorders in Japan (Umeno, Ito, Umezu, & Bunjima, 2008).

*Analysis*

Initially, the frequency distribution of K6 scores and violence-related items were confirmed. Next, the background characteristics of high and low-distress groups were compared using t-tests, $\chi^2$ tests, or Fisher's exact tests. Finally, to examine the association between distress and violence, multiple logistic regression was applied, with the high and low-distress groups of K6 scores as the dependent variable, the type of violence experienced as the independent variable, and all other factors as control

variables after confirming variance inflation factors due to possible multicollinearity among variables. All analyses were conducted using SAS Version 9.4 (SAS Institute Inc.).

*Ethical considerations*

This study was approved by the Research Ethics Committee, the Faculty of Medicine, the University of Tokyo (February 24th, 2014; No. 10415). Agency contact information was provided for those seeking help regarding violence.

## Results

*Demographic data*

The demographic data obtained from parents and their patient relatives is displayed in Table 2. The majority of respondents was mothers (67.8%), primary caregivers (68.6%), lived with the patient (84.3%), and received an annual income of US$20,000 to 40,000 (53.2%). The average age of these respondents was 69 years old. The majority of patients were male (64.0%), took medication as instructed (94.1%), and stayed at home most of the time without rehabilitation (53.5%). Their average age was 38.8 years old.

*K6 scores*

The average K6 score of the 379 respondents was 6.46 (SD 5.31). A total of 216 parents

(57.0%) featured K6 scores of over 5 (high-distress group), while 163 (43.0%) reported scores of 4 or less (low-distress group). The high-distress group featured a significantly lower household income ($p$ = .006) and a higher level of family stigma ($p$ < .001) compared to the low-distress group (see Table 2). Respondents in this group were also significantly more likely to be caring for patients who did not regularly visit a psychiatrist ($p$ = .005), were non-adherent to prescribed medication ($p$ = .006), and generally stayed at home without benefit of rehabilitation ($p$ = .027).

*Family violence*

As displayed in Table 1, the two categories of violence experienced by primary caregivers in the past year were “psychological violence” (58.1%) and “physical violence” (34.8%). As shown in Table 3, these scores were used to measure three types of violent experiences: “no violence” (151 parents), “psychological violence only” (96 parents), and “physical violence” (132 parents). The frequency distribution of types of violence was significantly different between the high and low-distress groups with regard to K6 score ($p$ < .0001).

*Risk factors related to K6 scores*

Variance inflation factors were all 3.0 or less. A multiple logistic regression was conducted with K6 scores as the dependent variable, and type of violence experienced

as the independent variable. Experience of violence was significantly greater in the high-distress group, both psychological violence only (OR = 1.99; 95% CI 1.07-3.69) and physical violence (OR = 4.54; 95% CI 2.36-8.75). Parents in the high-distress group were also significantly more likely to have a low household income, either less than US$20,000 (OR = 3.27; 95% CI 1.47-7.29) or US$20,000 to 40,000 (OR = 2.91; 95% CI 1.53-5.53) (using over US$40,000 as the reference). Family stigma was significantly greater in the high-distress group (OR = 1.32; 95% CI 1.17-1.50) per score increment. The markers of parents' distress (K6 score) increased by 1.32 with a one-point increase in family stigma. Patients' age was significantly increased in the high-distress group, either 30-39 years old (OR = 3.60; 95% CI 1.33-9.75) or 40-49 (OR = 3.70; 95% CI 1.04-13.22) (using under 30 years old as the reference category) (see Table 4).

## Conclusions

### *Relationship between K6 scores and family violence*

Among the parents of patients with schizophrenia in the current study, 220 (58.1%) parents had experienced psychological violence; while 132 (34.8%) had experienced physical violence in the previous year. The rate of physical violence obtained in the current study is consistent with the 20-35% estimation of family violence by patients

with SMI in the past 6 to 12 months reported by Labrum and Solomon (2015).

In the present study, the average K6 score among respondents was 6.46 (SD 5.31). A total of 216 (57.0%) of parents featured a K6 score of over 5, which is higher than in the general population (3.6, SD 3.9) (Sakurai et al., 2011). In a previous study of parents of patients with SMI, a K10 score of 10 or more (sensitivity: 100.0%; specificity: 73.5%) was reported in 59% of parents (Matsuyama et al., 2013), using a scale that has demonstrated similar screening performance to K6 (4/5). This is comparable to our findings. Parents of patients with schizophrenia appear to demonstrate a higher level of distress than the general population.

Both psychological only (OR = 1.99) and physical (OR = 4.54) family violence were significantly higher in the high-distress group. The current study revealed a significant correlation between the psychological distress of parents and the perpetration of violence by a patient relative. This study therefore expands the theoretical research base in terms of Pearlin's stress process model, specifically extending the sources of stress, one of the three domains of the model, the other two being mediators of stress and manifestations of stress (Pearlin, Menaghan, Lieberman, & Mullan, 1981). This model has been previously applied to caregiving of family members with a relative with SMI (e.g., Solomon & Draine, 1995). However, the sources of stress for families of a

relative with mental illness commonly focus on problematic behaviors, functional stability, and the severity of symptoms (Ohaeri, 2003), but do not always include threats or experiences of violence as a problematic behavior. In order to control these problematic behaviors families often resort to high levels of emotional expression, including over-involvement, hostility and coercion, which increase environmental stress and may be a precipitant of violent behavior on the part of the relative with SMI (Ohaeri, 2003). Therefore, these findings offer direction in terms of nursing care, in addition to future research, by including threats and experiences of violence within the category of problematic behaviors.

*Implications for practice*

Risk factors for parents' psychological distress were determined to be violence, low household income, family stigma, and the patient's age. In order to reduce parent distress, these risk factors need to be lowered wherever possible. Firstly, the assessment of violence and strategies to prevent violence in the home environment should be considered in hospital discharge plans and in community treatment plans for patients with schizophrenia. For instance, psychiatric nurses are in a good position to educate parents to develop preventative coping strategies and methods for de-escalating rather than exacerbating conflicts so as to prevent violence and protect themselves. However,

these strategies require awareness, skills, and motivation on the part of psychiatric nurses that may require further education in this domain.

Secondly, the economic burden of families should be seriously considered. For 75% of our sample, household income was less than US$40,000. One survey study reported that 67% of families of patients with SMI felt an economic burden due to caring for a relative with SMI (Ibaragi family groups association on mental illness, 2007). The availability of alternative living arrangements other than with parents might help to reduce the parents' economic burden and prevent family violence.

Thirdly, our study has identified a strong link between family stigma and risk of distress. A recent review determined that the public stigma surrounding mental illness is stronger in Japan than in Taiwan or Australia (Ando, Yamaguchi, Aoki, & Thornicroft, 2013). In the present study, over 25% of parents had been blamed by the patients for their illness. Psychiatric nurses could potentially offer educational resources to help reduce such beliefs, and families' self-blame which may alleviate family stigma and the risk of distress.

Furthermore, the patients' age was significantly related to the risk of distress of parents. As parents age, they frequently feel uneasy about patients' future after their death (Lefley, 1987; Rose, Mallinson, & Gerson, 2006). In one study, 30-40% of parents

reported that they had no hope that other family members would care for patients after their death (Chiba Prefecture Family Association of Persons with Mental Disorders, 2009). Housing options for patients financially supported through public assistance and service interventions by mental health staff might help to alleviate these worries, and subsequent reduce caregivers' distress.

*Limitation and further research*

The study features several limitations. Firstly, the study sampled households that belonged to a family group association, which likely included parents who were intensely worried about patients with severe disability under their care. Therefore, respondents might have experienced a heavier caregiving burden than other parents of patients with schizophrenia. However, patients with such a severe disability may well be representative of the primary subjects of deinstitutionalization. Therefore, these results might be useful in informing and developing strategies for deinstitutionalization. Next, the prevalence of substance abuse in patients with schizophrenia was not assessed, because as noted previously, this comorbidity has not been identified in Japan, likely due to the rate of hospitalization. However, with the recent transition towards deinstitutionalization, it is important that researchers begin to include measures of comorbid substance abuse in their research.

## Conflicts of interest

The authors declare no conflicts of interest with respect to the research and/or publication of this article.

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Table 1. Violence experienced by parents of patients with schizophrenia in the past year

n = 379

| No. item or category | | never | 1-4 times | ≥5 times |
|---|---|---|---|---|
| Type of violence | | n (%) | n (%) | n (%) |
| 1 | Shouting | 184 (48.6) | 121 (31.9) | 74 (19.5) |
| 2 | blaming ‘my illness is your fault’ | 275 (72.6) | 71 (18.7) | 33 (8.7) |
| 3 | swearing and insulting | 239 (63.1) | 91 (24.0) | 49 (12.9) |
| 4 | saying ‘I will kill you’ | 337 (88.9) | 34 (9.0) | 8 (2.1) |
| 5 | gesturing of punching or kicking | 293 (77.3) | 56 (14.8) | 30 (7.9) |
| 6 | threatening with knife | 363 (95.8) | 13 (3.4) | 3 (0.8) |
| psychological violence (1-6) | | 220 (58.1) (≥1 time) | | |
| 7 | destroyed property | 267 (70.4) | 86 (22.7) | 26 (6.9) |
| 8 | pushing | 319 (84.2) | 43 (11.3) | 17 (4.5) |
| 9 | punching and kicking | 306 (80.7) | 55 (14.5) | 18 (4.8) |
| 10 | choking | 373 (98.4) | 3 (0.8) | 3 (0.3) |
| 11 | throwing property | 328 (86.5) | 42 (11.1) | 9 (2.4) |
| 12 | beating with property | 359 (94.7) | 13 (3.4) | 7 (0.9) |
| 13 | injured with knife | 376 (99.2) | 1 (0.3) | 2 (0.5) |

| | | | | |
|---|---|---|---|---|
| 14 | visited physician for injury | 371 (97.9) | 8 (2.1) | 0 (0.0) |
| physical violence (7-14) | | 132 (34.8) (≥1 time) | | |

Table 2. Demographic data of parents from the high and low-distress groups

| | | | All | Low-distress group (K6 ≤ 4) | High-distress group (K6 ≥ 5) | |
|---|---|---|---|---|---|---|
| | | | n = 379 | n = 163 | n = 216 | |
| | | n | n (%)<br>Mean±SD | n (%)<br>Mean±SD | n (%)<br>Mean±SD | *P* |
| Parents' factors | | | | | | |
| Relationship | Father | 379 | 122 (32.2%) | 57 (35.0%) | 65 (30.1%) | .314 |
| | Mother | | 257 (67.8%) | 106 (65.0%) | 151 (69.9%) | |
| Age (years) | Average | 366 | 69.0±7.5 | 69.0±6.9 | 69.0±7.8 | .979 |
| | under 60 | | 37 (10.1%) | 14 (9.0%) | 23 (11.0%) | .858 |
| | 60-69 | | 155 (42.3%) | 68 (43.6%) | 87 (41.4%) | |
| | 70-79 | | 140 (38.3%) | 61 (39.1%) | 79 (37.6%) | |
| | 80 or older | | 34 (9.3%) | 13 (8.3%) | 21 (10.0%) | |
| Primary caregiver | Yes | 372 | 255 (68.6%) | 105 (66.0%) | 150 (70.4%) | .368 |
| | No | | 117 (31.4%) | 54 (34.0%) | 63 (29.6%) | |
| Cohabitation | Yes | 375 | 316 (84.3%) | 137 (84.6%) | 179(84.0%) | .889 |

| | | | | | | |
|---|---|---|---|---|---|---|
| with patient | No | | 59(15.7%) | 25 (15.4%) | 34 (16.0%) | |
| Household income[1)] | Less US$20,000 | 372 | 84 (22.6%) | 28 (17.5%) | 56 (26.4%) | .006 |
| | US$20,000 to 40,000 | | 198 (53.2%) | 81 (50.6%) | 117 (55.2%) | |
| | Over US$40,000 | | 90(24.2%) | 51(31.9%) | 39(18.4%) | |
| Family stigma | | 374 | 4.8±2.2 | 4.1±1.9 | 5.3±2.3 | <.001 |
| Patients' factors | | | | | | |
| Sex | Male | 372 | 238 (64.0%) | 104 (63.8%) | 134 (64.1%) | .951 |
| | Female | | 134 (36.0%) | 59 (36.2%) | 75 (35.9%) | |
| Age (years) | Average | 372 | 38.8±7.9 | 38.5±7.9 | 39.1±8.0 | .503 |
| | Under 30 | | 43 (11.6%) | 23 (14.2%) | 20 (9.5%) | .462 |
| | 30-39 | | 157 (42.2%) | 66 (40.7%) | 91 (43.3%) | |
| | 40-49 | | 144 (38.7%) | 63 (38.9%) | 81 (38.6%) | |
| | 50 or older | | 28 (7.5%) | 10 (6.2%) | 18 (8.6%) | |
| Years since onset | | 371 | 18.4±8.4 | 18.0±8.4 | 18.7±8.4 | .420 |
| Psychiatrist visit | Regularly | 377 | 334 (88.6%) | 153 (93.9%) | 181 (84.6%) | .005 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | Not regularly | | 43 (11.4%) | 10 (6.1%) | 33 (15.4%) | |
| Medication as prescribed | Yes | 376 | 354 (94.1%) | 157 (98.1%) | 197 (91.2%) | .006 |
| | No | | 22 (5.9%) | 3 (1.9%) | 19 (8.8%) | |
| Number of hospitalizations | Average | 377 | 2.3±2.9 | 2.2±2.4 | 2.4±3.1 | .455 |
| | 0 | | 75 (19.9%) | 27 (16.7%) | 48 (22.3%) | |
| | 1-2 | | 181 (48.0%) | 86 (53.1%) | 95 (44.2%) | .191 |
| | 3 or more | | 121 (32.1%) | 49 (30.0%) | 72 (33.5%) | |
| Rehabilitation | Yes | 374 | 174 (46.5%) | 85 (53.1%) | 89 (41.6%) | .027 |
| | No | | 200 (53.5%) | 75 (46.8%) | 125 (58.4%) | |

1): Conversion of 100 JPY to US$1

*P* values were calculated for the differences between high- and low-distress groups using the t-test, $\chi^2$ test, or fisher's exact test.

SD: Standard deviation

Table 3. Types of family violence experienced by parents in the high and low-distress groups

| | All | Low-distress group (K6 ≤ 4) | High-distress group (K6 ≥ 5) | |
|---|---|---|---|---|
| | n = 379 | n = 163 | n = 216 | |
| | n (%) | n (%) | n (%) | *P* |
| Type 1: No violence | 151 (39.8) | 91 (55.8) | 60 (27.8) | |
| Type 2: Psychological violence only | 96 (25.3) | 38 (23.3) | 58 (26.9) | <.0001 |
| Type 3: Physical violence | 132 (34.8) | 34 (20.9) | 98 (45.4) | |

*P* values were calculated using the $\chi^2$ test.

SD: Standard deviation

Table 4. Risk factors for parents with high-distress (K6 ≥ 5)

| | | OR | 95% CI | *P* |
|---|---|---|---|---|
| Type of family experienced violence | | | | |
| Type1: No violence | | 1.00 | reference | |
| Type2: Psychological violence only | | 1.99 | 1.07-3.69 | .003 |
| Type3: Physical violence | | 4.54 | 2.36-8.75 | <.001 |
| Parents' factors | | | | |
| Relationship | Father | 1.00 | reference | |
| | Mother | 1.55 | 0.69-3.46 | .290 |
| Age (years) | under 60 | 1.00 | reference | |
| | 60-69 | 0.39 | 0.14-1.11 | .078 |
| | 70-79 | 0.33 | 0.10-1.20 | .092 |
| | 80 or older | 0.51 | 0.10-2.55 | .412 |
| Primary caregiver | Yes | 0.77 | 0.34-1.72 | .519 |
| | No | 1.00 | reference | |
| Cohabitation | Yes | 1.18 | 0.53-2.63 | .683 |
| with patient | No | 1.00 | reference | |

| | | | | |
|---|---|---|---|---|
| Household income† | Less US$20,000 | 3.27 | 1.47-7.29 | .004 |
| | US$20,000 to 40,000 | 2.91 | 1.53-5.53 | .001 |
| | Over US$40,000 | 1.00 | reference | |
| Family stigma | (1-increment) | 1.32 | 1.17-1.50 | <.001 |
| Patients' factors | | | | |
| Sex | Female | 1.00 | reference | |
| | Male | 1.15 | 0.67-1.99 | .618 |
| Age (years) | Under 30 | 1.00 | reference | |
| | 30-39 | 3.60 | 1.33-9.75 | .012 |
| | 40-49 | 3.70 | 1.04-13.22 | .044 |
| | 50 or older | 4.16 | 0.68-25.46 | .123 |
| Years since onset | (1-increment) | 0.99 | 0.94-1.04 | .638 |
| Psychiatrist visit | Regularly | 1.00 | reference | |
| | Not regularly | 1.78 | 0.61-5.22 | .291 |
| Medication as instructed | Yes | 1.00 | reference | |
| | No | 3.12 | 0.74-13.17 | .121 |
| Number of hospitalizations | 0 | 1.00 | reference | |
| | 1-2 | 0.56 | 0.29-1.10 | .092 |

| | | | | |
|---|---|---|---|---|
| | 3 or more | 0.66 | 0.31-1.41 | .281 |
| Rehabilitation | Yes | 1.00 | reference | |
| | No | 1.19 | 0.69-2.05 | .538 |

†Conversion of 100 JPY to US$1

CI: Confidence interval