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FOLLOW-UP STUDY OF FEMALE DELINQUENT ADOLESCENTS IN A DETENTION CENTRE: EFFECTIVENESS OF PSYCHIATRIC INTERVENTION AS A MENTAL HEALTH SERVICE

MICHIO ARIGA, TORU UEHARA, KAZUO TAKEUCHI, YOKO ISHIGE, REIKO NAKANO & MASAHIKO MIKUNI

ABSTRACT

Background: Results of previous studies suggest that many female offenders have co-morbid psychiatric disorders, which require mental health services. However, few longitudinal studies examined subjects during incarceration or detention. This study compares depressive symptoms, abnormal eating behaviour and impulsivity before release from a detention centre and after incarceration, thereby indicating the effectiveness of psychiatric intervention in a Japanese detention centre.
Method: Of 64 young women, 36 were followed up. Self-report measures were used to assess depression, eating behaviour and impulsivity after incarceration and one month before release.
Results: Of the 36 participants, nine were diagnosed using the MINI-kids as needing mental health services. Those who received psychiatric intervention were diagnosed as having major depression and/or post-traumatic stress disorder. Significant main effects of intervention and effects of time were shown in the DSD. The EAT-26 score demonstrated the significance of the effects of time and interaction. In the BIS-11 scores, neither intervention nor time showed significant effects.
Conclusions: Results of this study showed that the time course and psychiatric intervention contributed to recovery of depression and therapeutic intervention. The time course might reduce eating problems. Psychiatric intervention might be necessary for female juvenile detainees, which presents an important issue for future studies.

Key words: delinquency, psychiatric disorder, depression, eating behaviour, impulsivity

INTRODUCTION

Results of previous studies suggest that many female offenders have co-morbid psychiatric disorders that require mental health services. Teplin (1997) indicated that nearly one fifth of the women in prison have severe psychiatric disorders; which is approximately double the rate among women of the general population and higher than the rate among male detainees. In particular, a recent study found that female juvenile offenders have been exposed more often than usual to

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traumatic experiences (Abram *et al.*, 2004; Cauffman *et al.*, 1998; Steiner *et al.*, 1997), among which witnessing violent crimes and confronting traumatic news were the most frequently reported traumas (Dixon *et al.*, 2005). We assert that delinquent activity in female juvenile offenders is associated with serious traumatic experiences and psychiatric symptoms related to trauma; we investigated the co-morbidity of psychiatric disorders in adolescent delinquent females (Ariga *et al.*, 2008). Results of this study show that these incarcerated young women showed high rates of psychiatric disorders related to trauma exposure: depression and abnormal eating behaviour. Although the studies suggested that child psychiatry and juvenile justice face continuing challenges in meeting the mental health needs of delinquents (Thomas & Penn, 2002), few longitudinal studies have been performed during incarceration or detention. We did find a few empirical studies of the programme provided to juvenile detainees (Leve & Chamberlain, 2005; 2007), however, these have investigated outcomes or effects on delinquency, not on psychiatric condition. On the other hand, the availability of mental health treatment in the US has been reviewed minutely (Goldstrom *et al.*, 2000). In fact, Teplin *et al.* (2005) reported that among detainees who had major mental disorders and associated functional impairments, 15.4% received treatment in the detention centre and 8.1% received treatment in the community. Significantly more girls than boys were detected and treated. Follow-up studies are expected for juvenile offenders who have a chance to receive psychiatric intervention.

For female adolescents with delinquency, it is reasonable to focus abnormal eating behaviours as a gender-specific manifestation related to impulsivity (Wonderlich *et al.*, 2004). In addition, main concerns should include depression based on previous findings (Pliszka *et al.*, 2000). The present study is intended to compare depressive symptoms, impulsivity and abnormal eating behaviours before release from the detention centre, with assessments made soon after incarceration. This is the first small-scale preliminarily study to examine how detained girls who need mental health treatment change their psychopathology. We preliminarily intended to evaluate the effectiveness of psychiatric intervention as a mental health service in a Japanese detention centre.

METHODS

Subjects

The subjects were 64 female adolescent offenders who had been selected from a consecutive sample at a young female detention centre (reformatory) in Japan as follows. During November 2004 – June 2006, 181 delinquent adolescents entered the detention centre. Among those offenders, we excluded candidates who had already been administered neuroleptics (major tranquilizers, anti-depressants, lithium, methylphenidate or anti-convulsants) or who were in a severe physical or psychiatric condition. This design was intended to avoid bias caused by medication that induces the reduction of symptoms. A structured interview was conducted for quantifying natural prevalence, to receive reliable informed consent and to consider physical situations under the burden of this investigation. Of the candidates, 17 cases were excluded based on medication. Thereby, 164 were in the pool used for selection; the final candidates were selected consecutively and randomly from the pool a week before the each investigator visited the centre. No subjects were excluded because of severe physical or psychiatric condition; subjects with only a psychiatric history were included in the study. Finally, 64 participants completed the initial screening interview and the reporting questionnaires.

Of these 64 female delinquents, 36 were released from the detention centre during the six months to January 2007. The subjects' ages were 16–19 years (*mean* = 17.2, *SD* = 1.0). The ethnicity of all participants was Japanese. Detailed information of the 36 follow-up subjects showed that, before incarceration, approximately one half (52.8%) of the women had been living away from their immediate family. Of these, 67% had dropped out of school before grade 10 (16 years old) and 28% had not been admitted to high school (15–18 years old). The other subjects were still enrolled in high school. One third of the young women had family-related problems (alcoholism, illegal drug use, domestic violence, etc). Of the young women, 14% were multiple offenders; approximately 60% had been arrested twice or more.

Procedures

This investigation was conducted as part of regular medical services for maintaining the mental health of the young women at the reformatory school. Written informed consent was obtained from all subjects. The institutional head and chief director of the correction centre (Haruna Joshi Gakuen, covered by the Tokyo Regional Office of Correction Bureau, Ministry of Justice, Japan) approved the study. All subjects were interviewed within approximately one month of their detention. During assessment, each interviewer was unaware of the subject's offence and socio-demographic information. Within a week of interview, the participants were given the self-rating questionnaires listed below.

After the initial interviews, we judged whether subjects required mental health services for severe psychiatric problems – e.g. severe depression, high risk of suicide attempt, psychosis related to substance uses, or severe traumatic symptoms including dissociation or self-injury. Psychiatric services included medication, supportive psychotherapy and psycho-education. These interventions were provided about once a month for each subject by the first author. Intensive and specialized approaches were inapplicable because this institution is prior to correctional education and is limited to conduct medical intervention. One month before release, the subjects were asked to complete the self-rating scales again. The length of time between the first and second assessments ranged from 310 to 380 days.

Measures

General

The interviewers assessed background characteristics of subjects related to their demographic information, history of illegal drug use and trauma exposure. Interviewers recorded information related to: age, criminal history, recidivism history, family composition, living conditions, history of psychiatric visits and admission to psychiatric hospital, family alcohol or drug problems, educational attainment, and intelligence quotient (IQ; already measured in a juvenile classification home).

Structured interviews

Consequently, a psychiatric diagnosis was determined using the Japanese version of the Mini-International Neuropsychiatric Interview for Children and Adolescents (MINI-kids). MINI-kids screens 23 axis-I *Diagnostic Statistical Manual for Mental Disorders (4th edition)* (DSM-IV) disorders. We obtained permission to use the official Japanese version from Dr Otsubo (Showa University, Japan), the translator of MINI-kids. Before the investigation, raters were trained using the standard manual of MINI-kids (Otsubo *et al.*, 2005). The overall inter-rater reliability of the

two interviewers (MA & TU) was over 95% on training interviews to three candidates prior to the investigation.

Self-rating questionnaires

Three questionnaires were used in the study: the Japanese version of the DSM Scale for Depression (DSD); the Barratt Impulsiveness Scale 11th version (BIS-11); and the Eating Attitudes Test 26 (EAT-26). DSD (Roberts *et al.*, 1995) was used to evaluate depressive symptoms dimensionally and diagnose major depressive episodes according to the DSM criteria. The questionnaire is based on 27 items to identify depression symptoms such as 'feel very sad'. EAT-26 (Garner *et al.*, 1982) assesses a broad range of symptoms and provides a total score for disturbed eating attitudes and behaviours. It includes the following three factors: dieting, bulimia and food preoccupation, and oral control. BIS-11 (Patton *et al.*, 1995) is a short questionnaire designed to measure impulsiveness. It has three factors (motor impulsivity, no planning, and inappropriate attention) and 30 items. The impulsiveness level is calculated by totalling the scores for each item. The respective Japanese versions had already been confirmed for reliability and validity (Doi *et al.*, 2001; Ujiie & Kono, 1994; Someya *et al.*, 2001).

Statistical analysis

We used descriptive statistics, Fisher's exact probability test, to compare the categorical scores of the respective factors, and two-way repeated measures analysis of variance (ANOVA) to investigate alterations of the respective dimensional factors according to incarceration and intervention. We analyzed two effects and their interactions including time (the first and second assessment) and intervention to influence the change of each assessment. A probability level of 0.05 or less was inferred as indicating significance (two-tailed). We used computer software for statistical analyses (Japanese version, SPSS; SPSS Japan, Inc).

RESULTS

Characteristics of subjects

Using MINI-kid, nine of 36 participants were diagnosed as needing mental health services. Table 1 displays a comparison of socio-demographic data, trauma experience, multiple illegal drug use, and psychiatric diagnoses for the nine subjects receiving intervention and the others. The average length of incarceration of subjects of the intervention group was significantly longer than that of the no-intervention group. We found no significant differences between these two groups based on their background characteristics (although trauma exposure tended to be higher in the intervention group than the others).

The nine subjects were diagnosed as having major depression ($n = 2$), post-traumatic stress disorder (PTSD) ($n = 1$), and both ($n = 6$). Using the screening interview for the no-intervention group, 11 could have depression and/or PTSD symptoms. However, they received only correctional education because they were diagnosed as sub-clinical conditions by their consecutive psychiatric interviews. No subjects in this group showed a deterioration of psychiatric conditions so as to need special treatment during the investigation.

Table 1
Comparison of background factors of subjects with and without psychiatric intervention

Factors	Intervention group (n = 9)	No-intervention group (n = 27)	Statistics
			t
Mean of age	17.3 (SD = 1.0)	17.1 (SD = 0.9)	0.7
Mean of IQ	87.8 (SD = 17.8)	87.3 (SD = 13.5)	0.09
Average length of incarceration (days)	358 (SD = 44.2)	326 (SD = 38.9)	2.0*
			χ^2
Criminal history			
First offence	4 (44.4%)	11 (40.7%)	0.04
Repeated offences	5 (55.6%)	16 (59.3%)	0.04
Education			
Enrolled below grade 10	1 (11.1%)	9 (33.3%)	1.7
Enrolled or completed grade 10	1 (11.1%)	1 (3.7%)	0.71
Dropped out before grade 10	7 (77.8%)	17 (63.0%)	0.67
Family composition			
Intact	7 (77.8%)	13 (48.1%)	2.4
Single parent	2 (22.2%)	13 (48.1%)	1.9
Other relatives	0	1 (3.7%)	0.34
Residential/Foster/Refuge	0	0	–
History of psychiatric visits and admission to psychiatric hospital	2 (22.2%)	4 (14.8%)	0.27
Experience of trauma	9 (100%)	19 (70.4%)	3.4
Multiple use of illegal drugs	2 (22.2%)	8 (29.6%)	0.19

* = $p < 0.05$

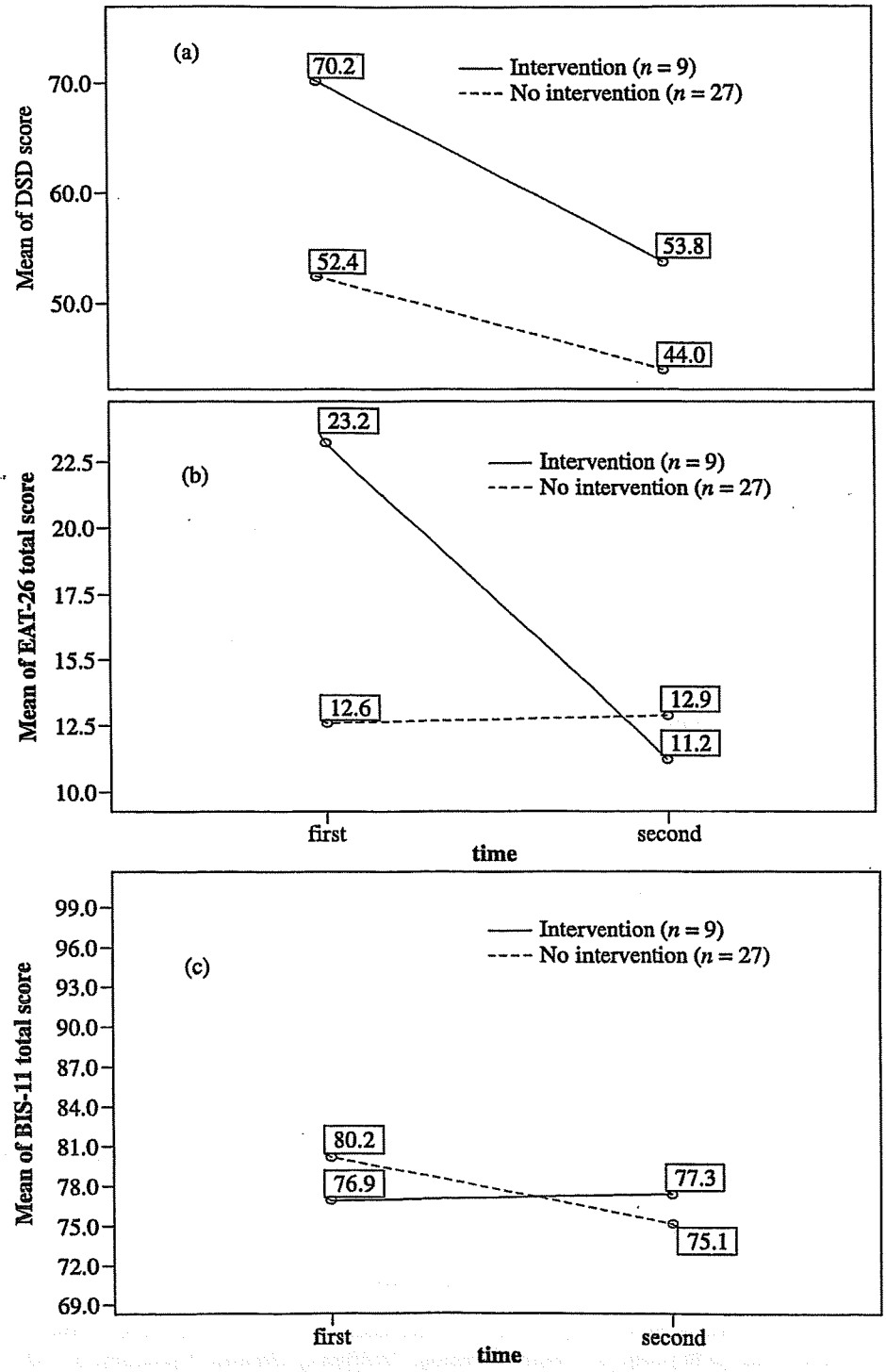
Comparisons between the initial and second evaluations

Figure 1 shows a comparison of mean scores of the self-rating questionnaires (DSD, EAT-26 & BIS-11) between the two evaluations within a month after incarceration and before release using two-way (psychiatric intervention by time) repeated measures ANOVA.

Significant main effects of intervention ($F(1,34) = 5.2$, $p < 0.03$) and effects of time ($F(1,34) = 22.5, p < 0.001$) were apparent in the DSD results. Intervention by time interaction was not statistically significant ($F(1,34) = 2.3, p < 0.14$). The EAT-26 score showed significance on the effects of time ($F(1,34) = 5.3, p < 0.03$) and interaction ($F(1,34) = 5.8, p < 0.02$). However, the main effect (intervention) was not significant ($F(1,34) = 1.0$, $p < 0.34$). Regarding the BIS-11 scores, neither the intervention nor time showed significant effects ($F(1,34) = 0.01, p < 0.92, F(1,34) = 1.7$, $p < 0.21$, respectively). A significant interaction (intervention by time) was not indicated by analysis ($F(1,34) = 2.4, p < 0.13$).

DISCUSSION

Through this study, it was found that the young delinquent women who were treated by psychiatrists had more diagnoses with depression or PTSD than others. This result indicated that symptoms of



Changes of the mean scores for the three self-rating scales: (a) DSD, (b) EAT-26, and (c) BIS-11. Significant main effect of intervention ($p < 0.03$) and effect of time ($p < 0.001$) were indicated by the DSD results. For the EAT-26, nine subjects who received intervention showed the highest scores at the first assessment among others ($p < 0.03$).

Figure 1. Comparison of dimensional scores for the two assessments

depression or PTSD rendered these young women averse to engagement in correctional education and rehabilitation programmes. In addition, it is suspected that co-morbid depression and PTSD prolong the length of incarceration at a detention centre.

Comparison of the DSD scores according to psychiatric intervention underscored the importance of mental health services for adolescent offenders. We found that both the time course and psychiatric intervention contributed to recovery from depression. This finding is consistent with those of previous studies; Birmaher *et al.* (1998) indicated that psychotherapeutic interventions were very useful for treatment of acute and chronic depression among juveniles. Additionally, incarceration itself might be applicable as a respite from various stressors including traumatic events. Intervention by time interaction was significant for changes of eating problems assessed using EAT-26. We were able to interpret that eating pathology in the intervention group was originally higher than that in the no-intervention group. Moreover, therapeutic intervention and the time course might affect reduced eating problems; therefore, the EAT-26 scores at the second assessment were lower than the initial assessments. Consequently, the score of the first assessment in the intervention group was the highest. The results showed that inhibition of impulsivity was not provided by the time course or intervention. The impulsiveness might be a predisposing factor in young delinquent women, many of whom have been exposed to multiple traumas, particularly victims of sexual abuse and domestic violence. Therefore, impulsive control deficiency might be attributable to abuse as a trait in these young women.

There is a marked need for verification of these findings. Few subjects were included in this study; moreover, we were unable to clarify whether psychiatric intervention decreases recidivism risks of female juvenile delinquents. It is necessary to control the contents and formality of intervention by some means, which might include a randomized control trial and a tightly defined method. We also note that more offenders require psychiatric services including diagnosis, assessment and treatment. Other psychological or neuropsychiatric evaluations must be assessed to estimate the efficacy and applicability of mental health services. Methodologically, there was no control for the passage of time, and the rationale for the inclusion of the comparison group should be more precise. It should be beneficial to re-administer psychiatric interviews prior to release. Collectively considered, these results suggest that psychiatric intervention is necessary for female juvenile detainees.

NOTE

We made a preliminary presentation of this study at the 13th Congress of the Asian College of Psychosomatic Medicine on September 2008 in Seoul.

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Michio Ariga, MD, PhD, Department of Psychiatry, Nozominosono, National Center for Persons with Severe Intellectual Disabilities, Takasaki, Japan.

Toru Uehara, MD, PhD, General Health Support Centre, Gunma University, Maebashi, Japan.

Kazuo Takeuchi, MD, MPH, Takasaki University of Health and Welfare, Takasaki, Japan.

Yoko Ishige, MD, Department of Psychiatry and Human Behaviour, Gunma University Graduate School of Medicine, Maebashi, Japan.

Reiko Nakano, Haruna Joshi Gakuen (Female Reformatory School), Gunma, Japan.

Masahiko Mikuni, MD, PhD, Department of Psychiatry and Human Behaviour, Gunma University Graduate School of Medicine, Maebashi, Japan.

Correspondence to: toruaki@gunma-u.ac.jp