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An Association between Self Assertiveness and Parent-Child Relationship among Siblings of Children with Developmental Disorders

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Abstract

The aim of the present study is to evaluate the ability of self assertiveness, using a standardized questionnaire for children, and correlations between the self assertiveness and parent-child relationship among siblings of children with developmental disorders.

The study subjects were 136 Japanese children aged 9–12 years in Kagoshima, Japan. Sixty-one out of 136 were siblings of children with developmental disorders (case siblings), and the remaining 75 children, who had siblings without developmental disorders, were defined as control siblings. An anonymous questionnaire survey was conducted for both sibling groups using the Assertiveness Scale for Children (ASC) and the Family Diagnostic Test during the period from October 2006 to January 2007.

The ASC test revealed that case siblings had less capability to defense their own rights (P for trend = 0.020), and this trend was relatively strong in boys. Compared to control siblings, case siblings tended to have sense to be rejected by their mothers and fathers (P for trends were 0.014 and 0.051, respectively). There was a significant gender difference in father-child relationships, especially in "psychological invasion" and "request for accomplishment" by fathers, where case brothers reported stronger feelings of these domains than control brothers did. However, these associations were not observed in girls. Furthermore, case siblings with higher score of defense of rights tended to show better parent-child relationships. On the other hand, control siblings showed no significant association between self assertiveness and parent-child relationship.

In conclusion, siblings of children with developmental disorders had less capability to defense their own rights, and the findings in this study suggested a possibility that case siblings were more susceptible to unsettled parent-child relationships than control siblings. Active interventions such as an assertiveness training program and counseling to foster tie between parents and siblings of developmentally challenged children are recommended.

Key words: developmental disorder, sibling, self assertiveness, parent-child relationship

Introduction

In the sift to family-centered services for children with chronic illness including developmental disabilities, there have been a number of researches on family members of those children during the past four decades [1]. It has been recognized that all family members are affected in some way once there is a change in the health of one member, and compassionate cares and supports for patients' family have been approached. However, great attention was mainly directed to parents, particularly mothers. In Europe and the United States, researches on siblings of developmentally challenged children have been reported since 1970's [2–6] but less attention has been paid until the late 1980's [7, 8].

One of the major issues in the family of children with developmental disabilities is that parents cannot help but pay attention to these developmentally challenged

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children, and consequently, the parents spend less time with siblings without developmental disabilities [2, 3]. There are consistent reports that siblings of children with disabilities demonstrate feelings of being deprived of parental time and attention [4, 5]. Other sources of stress among those siblings have been pointed out as follows: 1) siblings have to spent more time in care-giving activities, which are sometimes extra responsibilities [2, 6, 7, 9], 2) aspersion and jeering from others [9], and 3) anxiety about the future of care-giving for their siblings with disabilities [7, 10]. Other studies also revealed a significant impact on psychological development, including mental retardation, and potential stress among children living with developmentally challenged brother or sister [10]. The magnitudes of these influences might vary by gender, birth order, age-spacing between siblings, family size, and the severity of disorders [8, 11]. On the other hand, positive effects of living with developmentally challenged children have been recognized. Early maturation of the personality and strong sense of responsibility among the siblings of developmentally challenged children were reported [7]. However, long-term negative consequences may outweigh the potential benefits of their experiences in childhood.

Self assertiveness is one of the important social skills for communication, which are acquired abilities through learning after birth [12]. Although family, a minimum unit of social community, is the first and important stage to learn social skills, an experience of growing up with children who has developmental disorders induces two different effects on their siblings' acquisition of social skills. The first one is a direct effect from the developmentally challenged children who generally have difficulties to communicate with others, to understand language, and to express their own opinion and emotions, and another one is an indirect effect from deteriorated family and/or parent–child relationships [13]. Lack of communication skills frequently causes serious problems of personal relationships outside the home, which subsequently lower self-esteem among siblings of developmentally challenged children [7]. Toth et al. [14] also suggested that the development of language and social communication skills of young non-autistic siblings, aged 18–27 months, of children with autism might be negatively affected at an early age since they observed lower mean receptive language, adaptive behavior, and social communication skills, and fewer words, distal gestures, and responsive social smiles among young non-autistic siblings of children with autism than comparison children with no family history of autism. They also indicated that it would be worth to examine early parent-child, and child-child interactions as key factors in the development of communication skills. Most of the previous studies for siblings of developmentally challenged children focused on the psychological state [4, 5, 7, 11], behavioral characteristics [11], adaptability [7, 13–16], and the roles [2, 6, 7, 9] in the family. To my knowledge, however, there is no study to evaluate self assertiveness among siblings of children with developmental disorders in Japan although self assertiveness is one of the important social skills as mentioned above. Note that the definition of self assertiveness is "to express individual thinking and emotions without violating others' rights and hostile attitude" although there are different meanings of self assertiveness among researchers [17, 18].

The aim of the present study is to evaluate the capability of self assertiveness, using a standardized questionnaire for children [19], and correlations between the self assertiveness and parent-child relationship among children who have siblings with developmental disorders.

Methods

Study subjects and procedure

The study subjects were Japanese children without any developmentally disorders in 4–6th grades, aged 9–12 years, of elementary schools in Kagoshima, Japan. Permission for an anonymous questionnaire survey was obtained 5 out of 8 schools or care facilities of mentally-retarded children. The purpose of this study was informed to parents of candidate siblings by teachers of school or care facilities. Eighty-one questionnaires were distributed to siblings in 4–6th grades of children with developmentally disorders (case siblings), and 62 of them (76.5%) were returned directly by mail or through the institutions. As controls, the author also obtained permission of the survey from one out of 5 elementary schools. Ninety-six questionnaires were distributed to children in 4–6th grades, and all of them (100%) were returned through the school. None of them were siblings of children with developmentally disorders (control siblings). After checking returned questionnaires, 21 control siblings were excluded from the analysis because they did not have any brothers or sisters. Furthermore, one case sibling was excluded since

Table 1. Gender, age, and birth order distributions among the study subjects.

		Number(%)		
		Case siblings	Control siblings	*p* value
Gender				0.104
	boy	24(39.3)	40(53.3)	
	girl	37(60.7)	35(46.7)	
Age(year)				*P* for trend
	9	0(0.0)	12(16.0)	< 0.001
	10	11(18.0)	21(28.0)	
	11	21(34.4)	25(33.3)	
	12	29(47.5)	17(22.7)	
Parents living together				0.970
	both	53(86.9)	65(86.7)	
	single*	8 (13.1)	10(13.3)	
Presence of sibling(s)				0.573
	elder	22(36.1)	33(44.0)	
	younger	24(39.3)	28(37.3)	
	both	15(24.6)	14(18.7)	
Brother / sister with developmental disability				
	elder	29(47.5)	----------	
	younger	31(50.8)	----------	
	both	1(1.6)	----------	
Breakdown of the disability				
	mentally retardation†	36(59.0)	----------	
	autistic†	30(49.2)	----------	
	others‡	4(6.6)	----------	

* All of them (n=18) were living with their mothers.

† There were 6 siblings of children with both mentally retardation and autistic.

‡ Three of them were siblings of children with both or either mentally retardation and autistic.

there was no internal consistency in his answers. Thus, the number of subjects in the present study was 136 (61 case siblings and 75 control siblings). The questionnaire survey was conducted during the period from October 2006 to January 2007. Since this is an anonymous survey, a written informed consent was not obtained. Returning the questionnaires was considered as acceptance of the participation to this study. The present study was approved by the Institutional Review Board of Kagoshima University Graduate School of Medical and Dental Sciences, Japan.

Survey instruments

To evaluate self assertiveness and parent-child relationship, we used the Assertiveness Scale for Children (ASC) [19] and the Family Diagnostic Test (FDT) [20], respectively. The ASC is a multiple-scale test which was originally developed in the United States [17], and is composed of 36 items covered 6 domains of assertiveness: 1) defense of rights, 2) turn down of other's requests, 3) expression of different opinion, 4) expression of personal limitation, 5) request other's help, and 6) expression of positive feeling. Each question has 4 choices, "yes", "moderately yes", "moderately no", or "no". Each answer was scored from 4 (=yes) to 1 (=no), and points were summed up according to the 6 domains. Each domain has 6 items, and thus, the maximum subtotal score was 24 for each. The FDT, unilateral approach by children, is composed of 60 items covered 8 domains of parent–child relationships: 1) sense of being rejected (10 items), 2) active avoidance (10 items), 3) psychological invasion (5 items), 4) stringent discipline (5 items), 5) bad terms between parents (5 items), 6) request for accomplishment (5 items), 7) sense of being accepted (10 items), and 8) emotional closeness (10 items). Each question has 5 choices, "absolutely no" (=1 point), "moderately no" (= 2 points), "yes and no" (= 3 points), "moderately yes" (= 4 points), or "absolutely yes" (= 5 points). The points were also summed up according to the 8 domains, and the full score was 25 or 50 points for domains with 5 or 10 items, respectively. Relationships with mother and father were examined separately. Furthermore, demographic and family information was also obtained.

Statistical analysis

The subtotal scores of all domains were roughly categorized into quartiles based on the distribution among the control siblings, and these quartiles were entered into logistic regression models as indicator variables because the subtotal scores were not normally distributed. Raw data of subtotal scores were used for trend tests. Age and gender were always included in the models as covariates. Maximum likelihood estimates of odds ratios (ORs) and corresponding 95% confidence intervals (CIs) were calculated. All p values presented are two-sided. We also examined interactions between self assertiveness and parent-child relationship. Test for statistical interaction was conducted by including a cross-product term of the two variables of interest in a model.

Results

Characteristics of the study subjects

Table 1 shows characteristics of the study subjects. Proportion of girls in case siblings (61%) was greater than that of control siblings (47%). Nearly half of the case siblings were 12 years old but there were more younger children in control siblings (p for trend <0.001). There was no significant difference in the distributions of family structures between case and control siblings. About half of the case siblings had younger children with developmentally disorders, and most of the developmental disabilities in the present study were mentally retardation or autistic.

Self Assertiveness

Distributions of the 6 assertiveness levels in case and control siblings are shown in Table 2. The case siblings had less capability to defense their own rights (p for trend = 0.020) after adjusting the effects of age and gender. In gender specific analyses, this trend was stronger in boys (OR in the highest level: 0.07, 95%CI: 0.01, 0.76, p for trend: 0.015) than girls (OR in the highest level: 0.72, 95%CI: 0.14, 3.62, p for trend: 0.753) but this gender difference was not statistically significant (p = 0.144).

There was no significant association between abilities of other assertiveness and the presence of siblings with developmentally disorders. Contrary to expectation, in gender specific analyses, sisters of children with developmentally disorders tended to show a higher request other's help (OR in the highest level: 3.44, 95%CI:

Table 2. Associations between self assertiveness and the presence of brother / sister with developmentally disorders: Results of multivariate logistic regression analyses*.

Boundary of subtotal score (lowest or highest)	Case siblings	Control siblings	OR（95% CI）	*p* for trend
Defense of rights				
≦17 (6)	29(47.5)	21(28.0)	1.00 (referent)	0.020
18≦	11(18.0)	20(26.7)	0.39(0.14-1.05)	
20≦	16(26.2)	20(26.7)	0.59(0.23-1.51)	
23≦ (24)	5(8.2)	14(18.7)	0.30(0.09-1.05)	
Turn down of other's request†				
≦14 (6)	17(27.9)	17(23.9)	1.00 (referent)	0.489
15≦	13(21.3)	22(31.0)	0.73(0.26-2.06)	
18≦	9(14.8)	17(23.9)	0.62(0.20-1.96)	
20≦ (24)	22(36.1)	15(21.1)	2.22(0.78-6.39)	
Expression of different opinion†				
≦10 (6)	21(34.4)	21(28.8)	1.00 (referent)	0.446
11≦	9(14.8)	16(21.9)	0.50(0.21-1.78)	
13≦	16(26.2)	20(27.4)	0.82(0.33-2.05)	
16≦ (24)	15(24.6)	16(21.9)	1.42(0.56-3.95)	
Expression of personal limitation†				
≦16 (6)	18(29.5)	22(30.6)	1.00 (referent)	0.979
17≦	13(21.3)	19(26.4)	0.47(0.17-1.50)	
20≦	22(36.1)	19(26.4)	1.24(0.31-2.18)	
22≦ (24)	8(13.1)	12(16.7)	1.41(0.51-3.99)	
Request other's help†				
≦15 (9)	20(32.8)	24(32.4)	1.00 (referent)	0.999
16≦	12(19.7)	17(23.0)	0.85(0.31-2.30)	
19≦	15(24.6)	23(31.1)	1.85(0.71-4.85)	
22≦ (24)	14(23.0)	10(13.5)	1.00(0.31-3.28)	
Expression of positive feeling				
≦15 (6)	12(19.7)	21(28.0)	1.00 (referent)	0.863
16≦	20(32.8)	23(30.7)	0.92(0.34-2.51)	
20≦	14(23.0)	15(20.0)	1.81(0.31-2.08)	
22≦ (24)	15(24.6)	16(21.3)	1.82(0.62-5.38)	

* Age and gender were always included in models as covariates.

† The numbers of subjects who did not answer to at least one item of "turn down of other's request", "expression of different opinion", "expression of personal limitation", and "request other's help" were 4, 2, 3, and 1, respectively.

0.78, 15.2). However, boys did not show such a trend (OR in the highest level: 0.74, 95%CI: 0.13, 4.03) and this gender difference was marginally significant (p = 0.066).

Younger case siblings of children with developmentally disorders tended to show higher abilities of "turn down of other's request" (OR in the highest level: 5.60, 95%CI: 0.96, 32.7) and "expression of personal limitation" (OR in the highest level: 5.92, 95%CI: 0.96, 36.6). But that was not true among elder siblings (ORs in the highest levels: 1.51 and 0.28, respectively). The birth-order difference in the capability of "expression of personal limitation" was statistically significant (p=0.016).

Mother-child relationship

The association between mother-child relationship and the presence of sibling with developmentally disorders was examined (Table 3). Compared to control siblings, case siblings felt to be rejected by their mother (p for trend = 0.014) although ORs were even lower in subjects with the middle two quartiles of subtotal score. The result of "sense of being accepted" supported this association, and the case siblings tended to feel not to be accepted by their mother (p for trend = 0.009). Other domains of mother-child relationship were not related to the presence of siblings with developmentally disorders.

Regarding gender difference, case brothers showed higher magnitudes of ORs in "psychological invasion" (OR in the highest quartile: 4.5, 95%CI: 0.73, 27.7) and "request for accomplishment" (OR in the highest quartile: 3.6, 95%CI: 0.65, 19.5) from their mothers than case sisters did (ORs in the highest quartiles: 0.96 and 1.96, respectively). However, these gender differences were not statistically significant. The results of "stringent discipline" differed between birth orders. Case siblings, who had an elder brother or sister with developmentally challenged, reported a strong feeling of "stringent discipline" from their mothers (OR in the highest quartile: 11.8, 95%CI: 1.83, 76.8) but not in case siblings, who had a younger brother or sister with developmentally challenged (OR in the highest quartile: 0.35, 95%CI: 0.05, 2.21). This birth-order difference was statistically significant (p=0.015) by a likelihood ratio test using logistic regression model with a cross-product term of birth order and gender.

Father-child relationship

The father-child relationship was also examined (Table 4). As was the case in mother-child relationship, the case siblings felt to be rejected by their father (p for trend = 0.051), and the result of "sense of being accepted" supported this notion (p for trend = 0.078). This trend was commonly observed regardless gender and birth order of siblings. The case siblings tended to feel that their fathers were less strict about manners (p for trend = 0.044) regardless gender and birth order of the siblings.

There were significant interactions between gender and father's "psychological invasion" or "request for accomplishment" (Table 5). Case brothers reported much stronger father's "psychological invasion" and "request for accomplishment" than control brothers did. However, case sisters showed opposite directions for both domains, and these gender differences were statistically significant (p values were less than 0.001 and 0.007, respectively).

The association between self assertiveness and mother-child relationship

Interactions between self assertiveness and parent-child relationship were examined, as shown in Table 6 and 7, using the results of "defense of rights" and four domains of parent-child relationship, which are recommended domains to evaluate stable parent-child relationship according to the guideline of the FDT [20]. Table 6 shows the association between the capability of "defense of rights" and mother-child relationship. For case siblings, medians of subtotal score of "sense of being rejected" and "active avoidance" were inversely related to the capability of "defense of rights". On the other hand, no inverse associations were observed among control siblings. Case siblings showed positive associations between the capability of "defense of rights" and feelings of "being accepted" and "emotional closeness" from their mothers. However, there was no clear association, or weak if any, among control siblings. These differences between case and control siblings were marginally significant especially in the interaction between "active avoidance" and "defense of rights" (p = 0.045).

The association between self assertiveness and father-child relationship

The association between the capability of "defense of rights" and father-child relationship were also examined (Table 7). As was the case in mother-child relationship, medians of subtotal score of "sense of being rejected" and "active avoidance" were also inversely associated with

Table 3. Associations between mother-child relationship and the presence of brother / sister with developmentally disorders: Results of multivariate logistic regression analyses*.

Boundaries of subtotal score (lowest or highest)	Case siblings	Control siblings	OR（95% CI）	*p* for trend
Sense of being rejected†				
≦13 (10)	15(25.0)	17(22.7)	1.00 (referent)	0.014
16≦	10(16.7)	19(25.3)	0.57(0.19-1.75)	
22≦	7(11.7)	20(29.3)	0.36(0.11-1.19)	
23≦ (42)	28(46.7)	17(22.7)	2.09(0.76-5.74)	
Active avoidance†				
≦17 (10)	17(27.9)	23(31.1)	1.00 (referent)	0.226
18≦	10(16.4)	18(24.3)	0.65(0.22-1.94)	
21≦	8(13.1)	15(20.3)	0.61(0.19-1.99)	
24≦ (38)	26(42.6)	18(24.3)	1.53(0.57-4.11)	
Psychological invasion				
≦11 (5)	14(23.0)	18(24.0)	1.00 (referent)	0.382
12≦	16(26.2)	17(22.7)	1.45(0.50-4.19)	
15≦	15(24.6)	24(32.0)	0.91(0.33-2.48)	
18≦ (25)	16(26.2)	16(21.3)	1.97(0.66-5.89)	
Stringent discipline				
≦14 (8)	21(34.4)	21(28.0)	1.00 (referent)	0.452
15≦	14(23.0)	23(30.7)	0.80(0.31-2.10)	
18≦	12(19.7)	16(21.3)	0.89(0.32-2.52)	
21≦ (25)	14(23.0)	15(20.0)	1.38(0.48-3.94)	
Bad terms between parents‡				
≦8 (5)	12(22.6)	16(25.8)	1.00 (referent)	0.364
9≦	11(20.8)	17(27.4)	0.65(0.20-2.12)	
12≦	13(24.5)	14(22.6)	1.41(0.43-4.61)	
15≦ (24)	17(32.1)	15(24.2)	1.65(0.53-5.09)	
Request for accomplishment†				
≦13 (6)	18(29.5)	22(29.7)	1.00 (referent)	0.405
14≦	18(29.5)	21(28.4)	1.14(0.44-2.95)	
17≦	8(13.1)	17(23.0)	0.87(0.28-2.74)	
20≦ (25)	17(27.9)	14(18.9)	2.52(0.87-7.28)	
Sense of being accepted				
≦36 (16)	34(55.7)	21(28.0)	1.00 (referent)	0.009
37≦	9(14.8)	18(24.0)	0.30(0.10-0.84)	
41≦	8(13.1)	19(25.3)	0.26(0.09-0.75)	
45≦ (50)	10(16.4)	17(22.7)	0.46(0.16-1.32)	
Emotional closeness†				
≦32 (11)	24(40.0)	19(25.3)	1.00 (referent)	0.565
33≦	5(8.3)	19(25.3)	0.22(0.06-0.76)	
38≦	14(23.3)	20(26.7)	0.59(0.21-1.65)	
43≦ (50)	17(28.3)	17(22.7)	0.91(0.33-2.57)	

* Age and gender were always included in models as covariates.

† There was one case or control sibling who did not answer at least one item of “sense of being rejected”, “active avoidance”, “request for accomplishment”, or “emotional closeness”.

‡ The analysis limited for 118 siblings who were living with both parents, and 3 of them did not answer at least one item of this domain.

Table 4. Associations between father-child relationship and the presence of brother / sister with developmentally disorders: Results of multivariate logistic regression analyses*.

Boundaries of subtotal score (lowest or highest)	Case siblings	Control siblings	OR（95% CI）	*p* for trend
Sense of being rejected†				
≦11 (10)	11(20.8)	18(28.6)	1.00 (referent)	0.051
12≦	10(18.9)	14(22.2)	1.02(0.31-3.37)	
17≦	9 (17.0)	16(25.4)	0.95(0.28-3.20)	
22≦ (44)	23(43.4)	15(23.8)	2.48(0.85-7.20)	
Active avoidance†				
≦16 (10)	11(20.8)	16(25.0)	1.00 (referent)	0.315
17≦	8 (15.1)	16(25.0)	0.60(0.18-2.06)	
21≦	11(20.8)	17(26.6)	0.62(0.19-2.05)	
26≦ (50)	23(43.4)	15(23.4)	1.60(0.53-4.77)	
Psychological invasion				
≦9 (5)	14(26.4)	22(33.9)	1.00 (referent)	0.166
10≦	12(22.6)	14(21.5)	0.97(0.32-2.90)	
12≦	17(32.1)	13(20.0)	2.12(0.73-6.18)	
16≦ (25)	10(18.9)	16(24.6)	1.31(0.43-4.02)	
Stringent discipline†				
≦13 (5)	21(40.4)	14(21.9)	1.00 (referent)	0.044
14≦	15(28.9)	17(26.6)	0.61(0.22-1.70)	
17≦	10(19.2)	17(26.6)	0.46(0.15-1.37)	
23≦ (25)	6 (11.5)	16(25.0)	0.43(0.12-1.50)	
Bad terms between parents				
≦8 (5)	18(34.0)	16(24.6)	1.00 (referent)	0.590
9≦	6 (11.3)	22(33.9)	0.19(0.06-0.67)	
11≦	21(39.6)	16(24.6)	1.09(0.39-3.06)	
16≦ (23)	8 (15.1)	11(16.9)	0.92(0.26-3.22)	
Request for accomplishment				
≦11 (5)	17(32.1)	17(26.2)	1.00 (referent)	0.867
12≦	18(34.0)	20(30.8)	0.94(0.35-2.53)	
16≦	9 (17.0)	11(16.9)	1.09(0.33-3.65)	
19≦ (25)	9 (17.0)	17(26.2)	0.79(0.25-2.50)	
Sense of being accepted†				
≦32 (10)	24(46.2)	16(25.0)	1.00 (referent)	0.078
33≦	12(23.1)	18(28.1)	0.41(0.15-1.17)	
38≦	4 (7.7)	14(21.9)	0.19(0.05-0.75)	
41≦ (50)	12(23.1)	16(25.0)	0.58(0.20-1.66)	
Emotional closeness†				
≦30 (10)	22(41.5)	16(25.0)	1.00 (referent)	0.522
31≦	10(18.9)	16(25.0)	0.56(0.19-1.69)	
38≦	11(20.8)	16(25.0)	0.55(0.19-1.60)	
44≦ (50)	10(18.9)	16(25.0)	0.65(0.22-1.96)	

* Age and gender were always included in models as covariates.

† The numbers of siblings who did not answer .at least one item of “sense of being rejected”, “active avoidance”, “stringent discipline”, “sense of being accepted”, and “emotional closeness” were 2, 1, 2, 2, and 1, respectively.

Table 5. Interactions between gender of the siblings and father-child relationship: Selected results of multivariate logistic regression analyses*.

Boundaries of subtotal score (lowest or highest)	OR（95% CI）		*p* value†
	Boy	Girl	
Sense of being rejected			
≦11 (10)	1.00 (referent)	1.00 (referent)	0.365
12≦	1.69(0.25-11.2)	0.67(0.13-3.28)	
17≦	0.73(0.10-5.36)	1.02(0.20-5.33)	
22≦ (44)	4.98(1.01-24.5)	1.30(0.30-5.70)	
Active avoidance			
≦16 (10)	1.00 (referent)	1.00 (referent)	0.587
17≦	3.30(0.43-25.1)	0.17(0.03-1.00)	
21≦	2.08(0.27-15.7)	0.26(0.05-1.36)	
26≦ (50)	4.97(0.81-30.6)	0.65(0.13-3.31)	
Psychological invasion			
≦9 (5)	1.00 (referent)	1.00 (referent)	<0.001
10≦	1.25(0.17-8.92)	0.74(0.17-3.26)	
12≦	10.6(1.57-71.2)	0.78(0.18-3.49)	
16≦ (25)	14.6(1.82-117)	0.29(0.06-1.38)	
Request for accomplishment			
≦11 (5)	1.00 (referent)	1.00 (referent)	0.007
12≦	1.44(0.28-7.46)	0.87(0.22-3.36)	
16≦	1.76(0.23-13.6)	0.97(0.20-4.79)	
19≦ (25)	4.22(0.60-29.5)	0.21(0.04-1.11)	

* Age was always included in models as a covariate.

† *p* values for the gender difference were obtained by a likelihood ratio test.

Table 6. Median of subtotal scores of mother-child relationship by the ability of defense of rights in case and control siblings.

		Median of subtotal scores of mother-child relationship (95%CI)			
		Ability of defense of rights*			
		1 (low)	2	3	4 (high)
Sense of being rejected	Case siblings	24.0(15.3-28.0)	23.0(13.7-27.0)	17.5(12.5-26.9)	12.0(10.0-23.0)
	Control siblings	15.0(13.5-20.5)	16.5(14.0 -19.0)	19.5(15.1-20.0)	18.0(12.8-23.0)
			$p = 0.105^{\dagger}$		
Active avoidance	Case siblings	23.0(20.0-27.6)	28.0(15.4-31.6)	20.5(12.6-24.5)	14.0(12.0-37.0)
	Control siblings	17.0(16.0-20.5)	20.0(18.1-21.0)	21.0(18.1-22.9)	23.0(17.8-27.6)
			$p = 0.045^{\dagger}$		
Sense of being accepted	Case siblings	36.0(34.0-40.3)	35.0(30.4-37.3)	37.5(33.0-43.5)	41.0(22.0-46.0)
	Control siblings	39.0(37.0-45.1)	39.5(38.0-42.9)	39.5(35.0-42.0)	42.5(35.8-45.0)
			$p = 0.085^{\dagger}$		
Emotional closeness	Case siblings	39.0(29.7-41.0)	31.0(23.4-44.4)	39.0(30.2-44.5)	48.0(19.0-49.0)
	Control siblings	37.0(34.0-41.5)	38.0(34.2-43.8)	35.5(33.1-42.0)	35.0(31.3-42.0)
			$p = 0.161^{\dagger}$		

* The ability of defense of rights was categorized into four groups using the same boundaries in Table 2.

† *p* values for interaction terms between assertiveness (defense of rights) and mother-child relationship were obtained by a likelihood ratio test.

Table 7. Median of subtotal scores of father-child relationship by the ability of defense of rights in case and control siblings.

		Median of subtotal scores of father-child relationship (95% CI)			
		Ability of defense of rights*			
		1 (low)	2	3	4 (high)
Sense of being rejected	Case siblings	22.0(20.5-28.0)	22.5(15.3-29.4)	15.0(11.2-25.0)	12.0(10.0-21.0)
	Control siblings	17.5(13.0-24.9)	14.0(14.0-18.3)	15.0(10.3-21.7)	20.0(11.0-29.9)
		$p = 0.048^{\dagger}$			
Active avoidance	Case siblings	24.0(18.9-33.0)	29.0(24.0-31.0)	23.0(15.1-28.0)	18.0(14.0-27.0)
	Control siblings	23.0(17.4-24.5)	20.0(18.0-24.1)	20.0(16.3-26.8)	19.0(15.2-28.8)
		$p = 0.084^{\dagger}$			
Sense of being accepted	Case siblings	31.0(27.5-37.5)	32.0(19.3-37.0)	35.0(31.0-39.5)	42.0(28.0-43.0)
	Control siblings	35.0(31.5-38.6)	38.0(34.7-39.3)	38.0(32.7-44.0)	36.5(31.0-40.0)
		$p = 0.227^{\dagger}$			
Emotional closeness	Case siblings	33.0(26.0-39.1)	27.0(18.0-41.4)	34.0(29.2-44.5)	46.0(24.0-48.0)
	Control siblings	34.0(29.5-39.0)	37.0(31.7-42.0)	41.0(31.0-47.3)	39.0(23.9-42.0)
		$p = 0.250^{\dagger}$			

* The ability of defense of rights was categorized into four groups using the same boundaries in Table 2.

† *p* values for interaction terms between assertiveness (defense of rights) and father-child relationship were obtained by a likelihood ratio test.

the capability of "defense of rights" among case siblings. Furthermore, medians of subtotal score of "sense of being accepted" and "emotional closeness" showed increase tendencies with the capability of self assertiveness. Although control siblings showed similar trends in the associations between the capability of "defense of rights" and feelings of "active avoidance" and "emotional closeness" from their fathers, it seemed to be weaker than case siblings did.

Discussion

The present study showed an evidence of less capability of self assertiveness, especially to defense of rights, among siblings of children with developmentally disorders. In addition, discrepancies in the self assertiveness and parent-child relationship between case and control siblings suggested that a psychological barrier between parents and children much strongly affected the capability of defense of rights among case siblings more than that of control siblings (Table 6 and 7). As occasion demands, siblings of developmentally challenged children play different roles, which are social and play partners, helpers and caregivers, teachers, and interface with the broader social system [8]. In most of these situations, they are required to be patient and unselfish. In addition, their parents excessively expect successes of siblings without disorders, and some of these siblings, for parents' attention, eagerly attempt to respond to parents' expectation. Such psychological features among case siblings might be reflected in the findings of this study. Masumitsu and Egashira [21] reported that siblings of children with developmental disorders were tortured by a guilty to express their frustration and anger even they were resentful of their brother or sister with disabilities. Other studies also demonstrated importance of giving siblings the opportunity to represent their emotions at an early stage [10, 22]. In both Tables 6 and 7, case siblings in the second lowest group of "the ability of defense of rights" showed the lowest medians of subtotal scores of "emotional closeness". Relatively small number of case siblings in this group (n=11) might explain a part of this phenomenon but it was difficult for drawing a conclusion.

Gender is a potential modifier of psychological and emotional adjustment, including self assertiveness. However, the results in previous studies were inconsistent [11, 15, 23–25]. A study of siblings of children with disabilities indicated that females were at a greater risk for poor adjustment [23]. However, a recent study reported that male was a risk factor of psychological and emotional development of non-disabled siblings[25]. On the other hand, other studies did not find significant gender differences [11, 15, 24]. In the present study, the capability of defense of rights was much lower in case brothers than that of girls although this gender difference was not statistically significant.

In the parent-child relationship, case siblings reported a strong feeling of being rejected by their parents. These observations are consistent with the results in previous studies because of reduced parental time and attention to siblings of children with disabilities [10]. Mori and Hirakawa [26] also reported similar results using other measurement of parent-child relationship. The author also observed a gender difference in the results of "psychological invasion" and "request for accomplishment" from parents, especially from fathers. Case brothers felt much stronger "psychological invasion" and "request for accomplishment" from their fathers than case sisters did (Table 5). Since it is quite likely that fathers and mothers cope differently with their children's problems, different support systems for each may be recommended. However, researches on father-child relationship and father's role in the family of children with developmental disorders are limited. Further studies are required.

In addition to gender, birth order is another important modifier of psychological and emotional adjustment for siblings of children with developmental disorders [11, 8, 27]. The present study showed that younger case siblings, especially younger brothers, tended to report a stronger feeling of "stringent discipline" from their mothers than elder case siblings. Early studies of siblings living with developmentally challenged children suggested that elder sisters may be more vulnerable to adjustment problems [11, 27]. On the other hand, Breslau reported that younger brothers scored higher on psychological impairment than elder brothers [11]. Combination of gender and birth order, perhaps other factor(s), should be taken account to interpret the results.

Breslau also suggested that effect of age-spacing between siblings was important, and that close age-spacing had a strong effect [11]. However, this age-spacing effect could not be examined in the present study since the information on age-spacing between siblings was

not obtained by the questionnaires. This is one of the limitations of this study.

Another drawback was a relatively low collection rate of the questionnaires among case siblings (76.5%). Since the purpose of this study was explained to cases' parents, probably mainly mothers, by teachers of the school or care facilities, uncooperative parents might not agree to return the questionnaires. Thus, it is a matter of speculation, case siblings with an unfavorable parent-child relationship might not be included in this study.

Although there have been a number of studies reporting positive and negative impacts of children with disabilities on their siblings, to my knowledge, this is the first study reporting abilities of self assertiveness among Japanese children, who have a brother or sister with developmental disorders. In the present study, the author applied the ASC method to evaluate self assertiveness, which is the Japanese version of Children's Action Tendency Scale developed in the United States[17]. In 1994, Hamaguchi[19] constructed the ASC and confirmed its validity and reliability by comparing with other measures of assertiveness, which were social desirability scale for children (SDSC)[28] and Motoaki-Guilford personality test[29]. Since both measures cover only a part of dimension in self assertiveness, the ASC is a multifactorial instrument to evaluate self assertiveness for children. However, Watanabe[30] pointed out the need of improvement of currently used instruments which do not include cognitive, emotional, and behavioral aspects.

Regarding the measurement of parent-child relationship, the FDT method was used in this study. The FDT is a unilateral evaluation by children. Although there are several bilateral instruments to evaluate by parents and children, previous studies for the family of children with developmental disorders revealed that the evaluation by parents, mainly mothers, was affected by maternal psychological status or depression[8, 31]. However, a recent study recommended the use of multiple types of respondents[25]. Further validity studies of these instruments are required.

In conclusion, the present study showed that siblings of children with developmental disorders had less capability to defense their own rights. Furthermore, this might be because of unsettled relationships between case siblings and their parents. With a recent increase in awareness of this problem, researchers and health professionals launched interventions for siblings and parents of developmentally challenged children[8, 10, 32]. Active interventions such as an assertiveness training program and counseling to foster tie between parents and siblings of developmentally challenged children are recommended.

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発達障害児のいる同胞の自己主張と親子関係との関連

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本研究の目的は，発達障害児のいる同胞において，彼らの自己主張の特徴および自己主張と親子関係との関連を検討することである．

2006年10月から2007年１月までの期間，鹿児島市内５ヵ所の養護学校・施設に通う障害児の小学４～６年生の同胞61名（ケース群）と，鹿児島市内の１つの小学校に在籍する４～６年生75名（コントロール群）に対し，児童用主張性尺度と親子関係診断検査質問紙を用いた無記名調査を行い，その結果を比較検討した．

コントロール群と比べてケース群は，自分の権利を守る場面で，自己主張することができないという特徴が示され（$p = 0.020$），その傾向は男児で強くみられた．また，ケース群はコントロール群より両親から拒否されている不安を抱いていた（母:$p = 0.014$，父:$p = 0.051$）．父親との関係においては性差が認められ，特に父親からの「心理的侵入」と「達成要求」を男児のケース群はコントロール群より強く感じていたが，女児ではそのような傾向は認められなかった．さらに，ケース群においては，自己主張能力が高いほど良好な親子関係を示す傾向が強く観察されたが，コントロール群においてはケース群ほど強い関連は認められなかった．

本研究結果より，発達障害児の同胞は，自分の権利を守る場面で自己主張する能力が低い傾向にあることが示された．その理由として，発達障害児の同胞は不安定な親子関係による影響を受けやすい可能性が示唆された．このような発達障害児の同胞に対する積極的な主張性訓練プログラムや安定した親子関係を確立するためのカウンセリングなどが必要と思われた．