

Social development conditions and related factors for children in Japanese kindergarten in Shanghai, China

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Abstract

Objective The aim of this study is to clarify the social development conditions and related factors for children in Japanese kindergarten in Shanghai, China.

Methods The target schools were three Japanese kindergartens in Shanghai, three in Wakayama, Japan, and three in Osaka, Japan. The target kindergarten children were all 5- or 6-year-olds. We used an anonymous questionnaire to the guardian of the child. The question items related to social development, lifestyle and daily activities of the child, and rearing awareness and conditions of the guardian. Social development was scored by Strength and Difficulties Questionnaires (SDQ).

Results The number of respondents was 246 (Shanghai group 72, Wakayama group 86, Osaka group 88). The median value of the score of total difficulties and prosocial behavior, SDQ subscale, and the proportion of children judged as low need showed no significant difference. Results of multiple logistic regression analysis showed that the frequency of eating fast-foods and the rearing condition “I become anxious or lose enthusiasm for childrearing when the child is recalcitrant” were the factors relevant to prosocial behavior in the Shanghai group. In the Wakayama group, the hours spent daily watching TV was designated as the relevant factor. In the Osaka group, hours spent daily playing outdoors was found to be the relevant factor.

Conclusions Social development of children in Japanese kindergarten in Shanghai was the same as that of those living in Japan. The factors relevant to prosocial behavior in the Shanghai group were different from those in the two cities in Japan. This study may show the important points to keep in mind for childrearing abroad.

Keywords Kindergarten children · Social development · Raising environment · Living overseas · Multiple logistic regression analysis

Introduction

Recently, a significantly increasing number of Japanese companies have expanded business overseas, with many industries setting up operations in China. Shanghai is one of the beachheads for such activities. There are about 5,600 branches or industries of Japanese companies in China. About 1,600 of them are concentrated in Shanghai [1]. Due to such business ventures abroad, many Japanese people now live overseas with their families. There are 48,000 Japanese people in Shanghai, and the city has the world's third largest population of Japanese outside of Japan [2]. Children are sometimes included in these families. Although they mainly attend Japanese schools while living in foreign countries, they reside in environments that are different from those of children in Japan.

A child's social development is sensitive to nurturing conditions. Related factors include the nurturing attitude of the mother (parents), the number of siblings, etc. [3]. Since the child's social development is influenced by involvement with family and interaction with people outside of the family, it is important that they have such opportunities in daily life [4]. It appears that children living overseas do

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have quite different opportunities in daily life, such as experiencing the nurturing attitudes of the host country and interaction with foreigners. Consequently, such children have chances to experience different social development, even if education takes place in a Japanese school. Nonetheless, there is little research on social development of children living overseas.

The purpose of this study is to clarify the conditions of social development of children living in Shanghai, China, and factors relevant to social development by comparing them with those of children living in two cities in Japan.

Subjects and methods

Subjects

The target schools were three Japanese kindergartens located in Shanghai, China, three in Wakayama and three in Fujiidera, Osaka Prefecture, Japan. The target kindergarten children were all 5- or 6-year-olds enrolled during the research period (Shanghai 90, Wakayama 119, Fujiidera 106).

The target Japanese kindergartens in Shanghai were private associated schools. Parents are permitted to choose the kindergarten of their choice regardless of their address, when the kindergarten policy is consistent with their philosophy in childrearing. All children at the kindergartens were Japanese.

The target kindergartens located in Wakayama, Japan were randomly selected among 13 public institutions without school zones for kindergarten children. Parents are free to choose the kindergarten of their choice. The target kindergartens located in Fujiidera were also randomly selected among 8 public institutions; however, because they have school zones, parents have limited selection depending on their address.

Methods

Data collection

We applied an anonymous questionnaire. We explained the aims and methods of the study to the principals of the kindergartens. After obtaining their agreement, we asked them to distribute and collect the questionnaires. The person in charge of the kindergarten handed out the questionnaire to the guardians of the children, including an explanation of the aims and methods of the study, and contact information. The guardians filled in the questionnaire and submitted it to the person in charge of the kindergarten. We requested in the questionnaires that they be filled out by the guardian who was mainly rearing the child.

The survey was carried out in February 2011.

Characteristics of the subjects

Twelve question items relating to the characteristics of the subjects were used, such as the guardian's relationship with the child, family members living with the child, the child's gender and age, length of stay abroad, the child's height and weight, and any hospital visits for illnesses needing long-term care.

Social development

We used the Japanese version of Strength and Difficulties Questionnaires for parents (SDQ) to measure the social development of the child [5, 6]. It consists of 5 subscales: conduct problems (5 items), hyperactivity (5 items), emotional symptoms (5 items), peer relationship problems (5 items), and prosocial behavior (5 items). The respondent selected 1 answer among "Not true," "Somewhat true," and "Certainly true" for each question item.

Each selected answer was rated with 0–2 points. The points for the former 4 categories, i.e., conduct problems, hyperactivity, emotional symptoms, and peer relationship problems, were summed as a total difficulties score (range 0–40 points). A low score for total difficulties was considered to indicate "low need"; i.e., the child needs little support, with a cutoff of 13 (i.e., low need = 0–13). The sum of the points for prosocial behavior was also used as a score, with a high value showing "low need" based on a cutoff of 6 (i.e., low need = 6–10).

We used the extra 9 question items, not included in the SDQ, to evaluate the child's social development. These items were devised with reference to the Social Skill Rating Scale [7] and TK Development Test for Infants [8]. Seven items were used in this study: "Play with anybody during hide-and-peek, tag, etc. (group activity)," "Speak voluntarily to a child outside the family or a teacher (human relations)," "Participate in an activity, such as game, group activity, and so on (isolation tendency)," "Endure something disagreeable if the parent reasons with a child enough (inner discipline)," "Listen silently when someone outside the family talks to the child (linguistic expression)," "Give someone outside the family one's own name (cooperativeness)," and "Follow rules when playing with children outside the family (sociality)." The respondent selected 1 answer among "Not true," "Somewhat true," and "Certainly true" for each question item.

Lifestyle and daily activities

The question items on lifestyle and daily activities concerned breakfast, meal size, fast-foods, picky eating (eating habits), watching TV (including DVDs), playing outdoors, sleep, going to enrichment lessons (physical activity), etc.

Regarding breakfast and fast-foods, we asked for frequency per week. Regarding meal size, the respondent selected 1 answer among “Eat too much,” “Eat as much as sufficient for one,” and “Eat small portions.” On the subject of picky eating, the respondent selected 1 answer among “Extremely biased nutrition,” “Somewhat biased nutrition,” and “No biased nutrition.” Concerning watching TV, playing outdoors, and sleeping, we asked the hours per day. Regarding enrichment lessons, we asked for their kind and frequency per week.

In addition, using a timetable, we asked how the child had spent the time the previous weekday. Omitting activities in the kindergarten, the respondent answered with free description of “how long the activity continued and with whom.”

Rearing awareness and conditions of guardians

We used 5 items to evaluate the rearing awareness of guardians using examples from the Mother’s Anxiety Screening Scale [9] and question items from the Sense of Maternity [10]. The items used in the survey were “The most important thing for me is my child,” “I have no time to do what I want to do,” “Rearing my child is meaningful,” “I want to have interests or hobbies other than childrearing,” and “I have no confidence to rear my child.”

Five items were used to evaluate the rearing conditions of guardians with the help of the Mother’s Anxiety Screening Scale [9]. The items were “Family members are supportive for childrearing,” “I have sufficient time to rear my child,” “I become anxious or lose enthusiasm for childrearing when my child is recalcitrant,” “My child shows delayed development compared with the other

children,” and “I have many uncertainties about rearing my child.”

The respondent selected 1 answer among “Definitely think so,” “Somewhat think so,” “Do not quite think so,” and “Do not think so at all” for each question item.

Statistical analysis

The question items were counted with respect to each target area, even though there were some question items showing significant difference among the 3 kindergartens in the target area, because the aim of this study is to compare the characteristics of the children among the areas where the kindergartens were located.

Regarding physical constitution, we calculated the degree of obesity by using the height and weight of the child, and the mean weight from weight-for-height standards of the Annual Report of School Health Statistic Research published by the Ministry of Education, Culture, Sports, Science, and Technology, MEXT, Japan [11]. We defined -20% or less as “too thin” and more than 20% as “obese.”

The answers for the extra question items, not included in the SDQ, to evaluate the child’s social development were divided into 2 categories: “Not true” and “True,” the latter including “Somewhat true” and “Certainly true.”

Lifestyle and daily activities were categorized as shown in Table 1.

Regarding the rearing awareness and conditions of guardians, the answers were divided into 2 categories: “Think so,” which includes “Definitely think so” and “Somewhat think so,” and “Don’t think so,” which includes “Do not quite think so” and “Do not think so at all.”

Table 1 Categorized list of child’s lifestyle and daily activities

Activity	Category	Question answer
Breakfast	No skipping breakfast	“Eat breakfast every morning”
	Skipping breakfast	“Eat breakfast 6 times or less in a week”
Meal size	Overeating	“Eat too much”
	Not overeating	“Eat as much as sufficient for one” and “Eat small portions”
Fast-foods	Less than once a week	“Eat fast-foods less than once a week”
	Once or more a week	“Eat fast-foods once or more a week”
Picky eating	Biased nutrition	“Extremely biased nutrition” and “Somewhat biased nutrition”
	No biased nutrition	“No biased nutrition”
Watching TV	<2 h	“Watching TV less than 2 h in a day”
	2 or more hours	“Watching TV 2 or more hours in a day”
Playing outdoors	<1 h	“Playing outdoors less than 1 h in a day”
	1 or more hours	“Playing outdoors 1 or more hours in a day”
Enrichment lessons	Less than once a week	“Going to enrichment lessons less than once a week”
	Once or more a week	“Going to enrichment lessons once or more a week”

Mann–Whitney *U* test and Kruskal–Wallis test were used to compare the median value of the groups. Chi-square test was used to compare the proportion of each group. Multiple logistic regression analysis (stepwise method) was used to find the factors relevant to the child’s social development. The dependent variables were “low need” and “high need” based on the cutoff score of SDQ. We calculated the odds ratio of the number of “high need” to the number of “low need.” The number of siblings (none, 1 and more), the length of stay in abroad (<30 months, 30 months and more), 7 question items on lifestyle and daily activities, and 10 on rearing awareness and conditions of guardians were used as independent variables.

Data handling and statistical analyses were carried out using SPSS version 19.0 (SPSS Japan). Difference was considered statistically significant for $p < 0.05$. Difference was considered statistically significant for a trend for $p < 0.1$.

Ethical considerations

We stated clearly on the papers: the aims and methods of the study, protection of personal information and answers, anonymity, that participation was voluntary, that there was no disadvantage in not participating, the data usage limits of the survey, and absolute confidentiality of the individual. Submitting the questionnaire was considered as consent to participate in this study. Therefore, only subjects who agreed with the study purposes were requested to answer and return the questionnaire. A personal envelope was attached to submit the questionnaire without being seen by others.

This protocol was approved by the Ethical Committee of Wakayama Medical University in December 2010.

Results

The number of respondents was 72 (response rate 80.0 %) in Shanghai (Shanghai group), 87 (response rate 73.1 %) in Wakayama (Wakayama group), and 88 (response rate 83.0 %) in Fujiidera (Osaka group). In the Wakayama group, one subject was excluded due to a high-functioning autism diagnosis. As a result, there were 246 subjects. The overall response rate was 78.1 %.

Characteristics

The characteristics of the respondents and the subjects are summarized in Table 2. More than 95 % of respondents were mothers in all groups. The proportion of nuclear families was highest in the Shanghai group, but not

Table 2 Characteristics of respondents and subjects

Characteristics	Shanghai group		Wakayama group		Osaka group	
	<i>n</i> = 72	%	<i>n</i> = 86	%	<i>n</i> = 88	%
Respondent						
Mother	69	95.8	85	98.8	88	100.0
Family structure						
Nuclear	71	98.6	68	79.1	77	87.5
Siblings						
None*	18	25.0	12	14.0	8	9.1
Gender						
Male	41	56.9	46	53.5	45	51.1
Female	31	43.1	40	46.5	43	48.9
Age (months)						
≤72	15	20.8	18	20.9	23	26.1
>72, ≤78	34	47.2	40	46.5	37	42.0
>78	23	31.9	28	32.6	28	31.8
Obese						
20≤	0	0.0	2	2.3	3	3.4
Hospital utilization						
Using	4	5.6	9	10.5	11	12.5

* $p < 0.05$ (χ^2 test, $df = 2$)

significantly so. The proportion of no siblings was significantly high in the Shanghai group. The gender and age distributions were not significantly different. The length of stay in Shanghai showed a wide range between 2 and 78 months (median 30 months).

There were no children defined as too thin in any of the groups. No children were defined as obese in the Shanghai group (Table 2). However, there were 2 and 3 children defined as obese in the Wakayama and Osaka groups. The proportion of children who visited hospital for illness that needed long-term care was lower in the Shanghai group, but not significantly so.

Child’s social development

The median scores of total difficulties and prosocial behavior are presented in Table 3. There were no significant differences in either score. The proportions of children who were judged as “low need” are also presented in Table 3. There were no significant differences in the proportions of such children.

The proportions of “True” for the extra question items, not included in SDQ, are shown in Table 4. The proportions of “True” for “Human relations” and “Linguistic expression” were significantly lower in the Shanghai group. The proportion of “True” for “Cooperativeness” was significantly higher in the Shanghai group.

Table 3 Median scores of total difficulties and prosocial behavior, and the proportions of children judged as “low need”

Subscale	Shanghai group, <i>n</i> = 72		Wakayama group, <i>n</i> = 86		Osaka group, <i>n</i> = 88	
	Median (quartile)	Low need (%)	Median (quartile)	Low need (%)	Median (quartile)	Low need (%)
Total difficulties	8 (5–10)	88.9	8 (5–10)	90.4	8 (5–12)	86.2
Prosocial behavior	6 (5–7)	69.4	6 (5–7)	66.3	7 (5–8)	72.7

Table 4 The proportions of “True” for the extra question items, not included in SDQ

Question items	Shanghai group		Wakayama group		Osaka group	
	<i>n</i> = 72	%	<i>n</i> = 86	%	<i>n</i> = 88	%
Group activity	66	91.7	82	95.3	86	97.7
Human relations*	59	81.9	78	90.7	77	87.5
Isolation tendency	62	86.1	78	90.7	81	92.0
Inner discipline	70	97.2	85	98.8	85	96.6
Linguistic expression*	60	83.3	82	95.3	77	87.5
Cooperativeness*	65	94.4	77	80.2	80	80.7
Sociality	68	100.0	69	95.3	71	98.9

* $p < 0.05$ (χ^2 test, $df = 2$)

Lifestyle and daily activities

The responses to the question items on lifestyle and daily activities are summarized in Table 5. For eating habits, the responses for children who ate fast-foods once or more per week were significantly lower in the Shanghai group.

For physical activities, the proportion of children who watched TV for 2 or more hours was significantly lower in the Shanghai group. For the Osaka group, it was 77.3 %, which was highest among the three groups. The proportion of children who played outdoors <1 h a day showed no significant difference, but the proportion of children who did not play outdoors at all was significantly higher in the Shanghai group (Shanghai group 18.1 %, Wakayama group 9.3 %, Osaka group 5.3 %). The proportion of children who went to enrichment lessons once or more a week was significantly higher in the Shanghai group. The major activities in the Shanghai group were sports (swimming, soccer, body exercise, etc.) and playing a musical instrument (piano, violin, etc.).

The location where the child spent time, and the partners with whom the child spent time, were analyzed using the

Table 5 The situations of lifestyle and daily activities

Lifestyle and daily activities	Shanghai group		Wakayama group		Osaka group	
	<i>n</i> = 72	%	<i>n</i> = 86	%	<i>n</i> = 88	%
Breakfast						
Skipping breakfast	5	6.9	4	4.7	3	3.4
Meal size						
Overeating	3	4.2	5	5.8	9	10.2
Fast-food*						
Once or more a week	37	51.4	55	64.0	64	72.7
Picky eating						
Biased nutrition	38	52.8	47	54.7	50	56.8
Watching TV*						
2 or more hours	32	44.4	53	61.6	68	77.3
Playing outdoors						
<1 h	29	40.3	28	32.6	38	43.2
Enrichment lessons						
Once or more a week*	66	91.7	65	75.6	70	79.5
Sports**	59	81.9	45	52.3	56	63.6
Musical instruments**	18	25.0	12	14.0	5	5.7
Languages	13	18.1	8	9.3	8	9.1
Location where a child stayed (multiple selection)						
Outside**	12	16.7	35	40.7	33	37.5
Friend’s home**	13	18.1	1	1.2	9	10.2
Enrichment lessons	19	26.4	23	26.7	14	15.9
Person who stayed with a child (multiple selection)						
Siblings**	51	70.8	75	87.2	79	89.8
Parents**	59	81.9	84	97.7	85	96.6
Friends**	40	55.6	29	33.7	60	68.2
Alone**	31	43.1	27	31.4	16	18.2

* $p < 0.05$, ** $p < 0.01$ (χ^2 test, $df = 2$)

timetable and are also summarized in Table 5. The proportion of children who were outside was significantly lower in the Shanghai group. The proportion of children who were at a friend’s home was significantly higher in the Shanghai group. No one was found to be playing with or meeting foreigners even in the Shanghai group. The proportion of children who spent time with siblings and parents was significantly lower in the Shanghai group. The proportion of children who spent time alone was significantly higher in the Shanghai group.

The length of sleeping hours was at the same level in all 3 groups (Shanghai group 9.7 ± 0.7 h, Wakayama group 9.6 ± 0.8 h, Osaka group 9.6 ± 0.7 h; mean \pm standard deviation).

Table 6 The proportions of “Think so” for the question items on the rearing awareness and conditions of guardians

Question items on the rearing awareness and conditions of guardians	Shanghai group		Wakayama group		Osaka group	
	n = 72	%	n = 86	%	n = 88	%
The most important thing for me is my child	68	94.4	84	97.7	87	98.9
I have no time to do what I want to do [†]	31	43.1	52	60.5	45	51.1
Rearing my child is meaningful	59	81.9	79	91.9	74	84.1
I want to have interests or hobbies other than childrearing*	71	98.6	79	91.9	75	85.2
I have no confidence to rear my child	25	34.7	35	40.7	26	29.5
Family members are supportive for rearing child	62	86.1	77	89.5	82	93.2
I have sufficient time to rear my child [†]	62	86.1	72	83.7	83	94.3
I become anxious or lose enthusiasm for childrearing when my child is recalcitrant	65	90.3	74	86.0	73	83.0
My child shows delayed development compared with other children	10	13.9	10	11.6	13	14.8
I have many anxieties about rearing my child	19	26.4	27	31.4	23	26.1

[†] $p < 0.1$, * $p < 0.05$ (χ^2 test, 2×3 list)

Rearing awareness and conditions of guardians

The proportions of “Think so” for the question items on the rearing awareness and conditions of guardians are summarized in Table 6. The proportion of “Think so” for “I have no time to do what I want to do” was lower in the Shanghai group. The proportion of “Think so” for “I want to have interests or hobbies other than childrearing” was significantly higher in the Shanghai group. The proportion of “Think so” for “I have sufficient time to rear the child” was over 80 % in all groups.

Factors relevant to the child’s social development

The results of multiple logistic regression analysis are presented in Table 7. As factors relevant to total difficulties, the rearing condition “The child shows delayed development compared with the other children” was selected in the Shanghai and Wakayama groups. In the Osaka group, the rearing condition “I have many uncertainties about rearing the child” was selected as a relevant factor.

As factors relevant to prosocial behavior (Table 7), the frequency of eating fast-foods and the rearing condition “I become anxious or lose enthusiasm for childrearing when the child is recalcitrant” were selected as the factors relevant to prosocial behavior in the Shanghai group. In the Wakayama group, hours spent daily watching TV was designated as the relevant factor. In the Osaka group, hours spent daily playing outdoors was found to be the relevant factor.

Discussion

This study made it clear that the social development of kindergarten children living in Shanghai, China, as

measured by SDQ, was not significantly different from those living in two cities in Japan. In the aspects of “human relations,” “linguistic expression,” and “cooperativeness,” however, social development was significantly different. The factors relevant to prosocial behavior in the Shanghai group were different from those in the two cities in Japan.

There are 3 groups of Japanese kindergartens in Shanghai. Little difference exists in the course content among the 3 groups because the course contents are based on the “Course of Study for Kindergarten” produced by MEXT [12]. The 3 target schools belong to the same group and are located in the urban area. The living environments of the subjects seemed to have little difference. The response rate was sufficiently high.

In Japan, there are 2 kinds of establishments for preschool children: kindergarten and nursery school. Kindergartens are under the jurisdiction of MEXT [12], while nursery schools are under the Ministry of Health, Labor, and Welfare, Japan [13]. Since a child is under care in the kindergarten for a shorter time than in the nursery school, the mother is often out of employment, whereas mothers of children in nursery school often have a job. Because family members of resident employees are not permitted to work in Shanghai, almost all guardians in Shanghai group are assumed to be housewives. Consequently, we selected the kindergartens in the two cities in Japan to reduce the differences in characteristics of guardians, especially in the nurturing attitude of mothers, one of the important factors related to the child’s social development. According to explanations given by the kindergarten principals, guardians of the children in the Wakayama and Osaka groups were almost all full-time housewives. The guardians, therefore, had sufficient time to rear the child in all groups.

The proportions of nuclear families and children who had no siblings were higher in the Shanghai group. The proportion of nuclear families in the Shanghai group was at

Table 7 The results of multiple logistic regression analysis

Selected independent variables	Odds ratio (high/low)	95 % CI	P-value
Factors relevant to total difficulties			
Shanghai group			
My child shows delayed development compared with the other children (think so/not think so)	46.667	6.256–348.115	<0.001
Wakayama group			
My child shows delayed development compared with the other children (think so/not think so)	16.000	3.233–79.174	0.001
Osaka group			
I have many uncertainties about rearing the child (think so/ not think so)	4.500	1.304–15.531	0.017
Factors relevant to prosocial behavior			
Shanghai group			
The frequency of having instant foods or fast foods (over once a week/under once a week)	6.367	1.608–25.212	0.008
I become anxious or lose enthusiasm for childrearing when my child is recalcitrant (think so/not think so)	0.049	0.004–0.644	0.022
Wakayama group			
The time of watching television (over 2 h/under 2 h)	3.586	1.076–11.949	0.038
Osaka group			
The time of playing outdoors(under 1 h/over 1 h)	2.658	1.085–6.514	0.033

Odds ratio: ratios of the number of “High need” to the number of “Low need.”

CI confidence interval

the same level as in a previous report of fifth- and sixth-graders living in Shanghai ($n = 202$, nuclear family 96 %, no siblings 50 %) [14], whereas that of children with no siblings was lower. Fewer children in the Shanghai group did not play with siblings. This may be because there were fewer children living with siblings.

No children were defined as obese in the Shanghai group. This proportion was lower than the results of research conducted by MEXT, in which the proportion of obese preschool children was 2.8 % [15]. The proportions of obese children in the Wakayama and Osaka groups corresponded to the proportion in the research by the MEXT. More children in the Shanghai group did not play outdoors at all. This may be due to the fact that there were no safe places to play outdoors, such as parks.

The proportion of children who frequented hospitals was lowest in the Shanghai group. This may indicate the possibility that families with such children are not assigned to work abroad. The proportion of such children was equal to that reported in a previous report (4 %) [14].

The scores of total difficulties and prosocial behavior, and the proportion of children judged as “low need,” in the Shanghai group showed no difference when compared with the other groups. Consequently, there seemed to be no difference in social development between children living in Shanghai and those living in Japan. Compared with the

report by Matsuishi et al. [16] relating to 2,899 Japanese children aged 4–12 years (in which the proportion of “low need” was 80.3 % for total difficulties and 71.2 % for prosocial behavior), the proportion of children judged as “low need” in the Shanghai group was higher for total difficulties and was the same for prosocial behavior.

Children’s social development is influenced by interaction with people outside the family in early childhood: they control their emotions, share their own ideas, and try to find common ground or solutions without becoming aggressive or crying when there are problems [17]. Considering that children in Shanghai had no time to play with or meet foreigners, the social group of the children in Shanghai is limited to Japanese living in the local area, as they speak in Japanese. Even under such conditions, there is enough possibility to have interaction with people outside the family. Thus, the child’s social development when living in Shanghai is at the same level as when living in Japan.

There were fewer children in the Shanghai group who spoke voluntarily to a child outside the family or a teacher (human relations) and who listened silently when someone outside the family talked to the child (linguistic expression). This may result from the unfamiliar association with other children because of the wide range of times spent in Shanghai. Although a child without siblings has greater difficulty in acquiring cooperativeness than a child with siblings

[3], more children in the Shanghai group were willing to give their own name (cooperativeness). As the family has a heightened sense of unity and more opportunities to mingle with other families in the Japanese society, it is necessary for the children to give their own name to others.

Many kindergarten children in the Shanghai group went to enrichment lessons related to sports. This result corresponds to previous results [14]. This may be because many guardians use enrichment lessons as an alternative safe place for children to play when there are none outdoors. More children in the Shanghai group spent less time with guardians. This may result from the large amount of time that the child spent outside the home, for example, at enrichment lessons or at a friend's house. The families in the Shanghai group got together in their neighborhoods in the Japanese community, making it easier to visit a friend's home. Fewer guardians in the Shanghai group had no time to do what they wanted to do. This may be because this study excluded infants as subjects and because enrichment lessons or time spent at friends' homes provided the guardians with time to do what they wanted.

The result of multiple logistic regression analysis showed that two factors were relevant to prosocial behavior in the Shanghai group: eating fast-foods once or more a week, and becoming anxious or losing enthusiasm for childrearing when the child was recalcitrant. Regarding fast-foods, fewer children in the Shanghai group ate fast-foods once or more a week. The families of resident employees in China were apprehensive about the safety of food due to environment pollution [18]. In this study, the guardians may not easily allow their children to eat fast-foods because of concerns about food safety. Guardians who easily allowed children to eat fast-foods may have less interest in their child's eating habits and/or insufficient time. Regarding rearing conditions, in case the guardian became anxious or lost enthusiasm for childrearing when the child was recalcitrant, the social development of the child needed less support. In early childhood, children develop new philosophies different from those of their guardians, and then act depending on them. Consequently, guardians sometimes feel that children become recalcitrant [17]. Guardians of a child with proper social development may easily encounter such a situation, and often became anxious or lose enthusiasm for childrearing.

In the Wakayama group, the relevant factor was hours of watching TV per day. Children who watch TV longer may spend less time with family members or friends. In the Osaka group, the relevant factor was playing outdoors <1 h. Considering the result that 77 % of children watched TV for 2 h or more in a day, children in the Osaka group spent less time playing outdoors and considerable time watching TV. Watching TV for many hours per day will reduce physical activities or experiences that are necessary

for a child's social development as well as opportunities to greet others on the street, thus hindering the child's social development [19]. Meanwhile, the number of children who watched TV longer was lower in the Shanghai group than in the other groups, and also compared with the results of an earlier report on 18-month-old children (in which 56.4 % did so for 2 h or more) [20]. Three-year-old children in Japan watch TV at home longer as outdoor activity becomes shorter [21]. More children in the Shanghai group, however, did not watch TV at home longer, even though more children did not play outdoors. The guardians in the Shanghai group may have a childrearing philosophy of limiting time spent watching TV. Accordingly, watching TV in the Shanghai group had no effect on the child's social development.

The result of multiple logistic regression analysis showed that factors relevant to total difficulties were the rearing conditions in all 3 groups. Total difficulties mainly evaluate the child's daily activities from the standpoint of the guardian [5]. Worrisome activities may be easily detected by the guardian. On the contrary, prosocial behavior mainly evaluates involvement with people outside the family [5]. Disturbing activities may be detected with difficulty by guardian, even in the case of needing someone's support.

Limitations and conclusions

This study is cross-sectional. We cannot suggest a causal connection. The nurturing attitude of the mother is one of the important factors related to social development [3]. This may depend on economic circumstances. Although we tried to match the proportion of housewives in this study to reduce the difference in the nurturing attitude of mothers, there are still some differences in economic circumstances. Children who had lived in Shanghai for a short period may be influenced by their living environment in Japan rather than Shanghai. The number of siblings is also an important factor [3]. These could not be controlled for because of the small number of subjects. Target schools in Shanghai belong to the same group. Since the rearing awareness and conditions of guardians could be biased, more kindergartens belonging to other groups should be surveyed to reveal more general conditions of Japanese families in Shanghai. There are regional differences in customs in Japan. Consequently, generalization of the results of this study should be done with care.

This study shows that the social development of children in Japanese kindergartens in Shanghai is the same as that of those living in Japan. The factors relevant to prosocial behavior in the Shanghai group were different from those in the two cities in Japan. This result may highlight the important points to keep in mind for childrearing abroad.

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Conflict of interest The authors declare that they have no conflicts of interest.

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