

Interparental Agreement on Ratings of Infants' Social-Emotional and Behavioral Problems and Competencies

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Abstract

Background: Clinically significant emotional and behavioral problems exist even among infants younger than 3 years old. These early problems are not transient but are sustained into school age. Accordingly, we examined interparental agreement on ratings of social-emotional and behavioral problems and competencies in 1- to 3-year-old children.

Methods: We used the Japanese version of the Infant-Toddler Social and Emotional Assessment (J-ITSEA), which assesses social-emotional problem behaviors (externalizing, internalizing, and dysregulation) and areas of competence (e.g., compliance, attention, and empathy) in 1- to 3-year-old children. Of 110 eligible parents, five were excluded due to an excess of unanswered items in either parent's ratings. Accordingly, data of 105 parents were analyzed (valid response rate: 95.45%).

Results: Intraclass correlations (ICCs) between fathers' and mothers' scores on the J-ITSEA ranged from .51 to .60 for problem behaviors, and the ICC for areas of competence was .75. ICCs for problem behaviors were higher in boys than in girls, but this was not significant. Regarding discrepancies, fathers rated boys significantly higher on externalizing and dysregulation problems than mothers did ($p < .01$), with medium-to-large effect sizes ($r = .48-.54$). Mothers rated girls significantly higher on internalizing problems than fathers did ($p < .01$). For areas of competence, mothers gave significantly higher ratings than fathers did, regardless of the child's gender ($p < .05$).

Conclusions: The findings in this study demonstrate the importance of gathering information from multiple informants in assessing infants' social-emotional behavioral problems and competencies.

Keywords: Infant, Infant Behavior, Emotional and Behavioral Problems, Fathers, Interparental Agreement

Introduction

Clinically significant emotional and behavioral problems exist even among infants younger than 3 years old, and the prevalence of these types of problems in preschool children has been reported in the range of 7% to 26% [1-5]. Furthermore, it has been found that these early problems are not transient, but are sustained into school age [6-9]. These findings demonstrate the importance of detecting behavioral problems at a very young age based on accurate and comprehensive information about children's behaviors, and

that children with such problems should be given appropriate care.

In assessing infants, clinicians should consider the limitations of children's verbal and metacognitive capacities [10]. Further, their behaviors during a short office visit in an unfamiliar setting may not represent their behavior in daily settings [11]. Thus, in assessment settings, information from those who care for the child on a regular basis (e.g., parents) or those who routinely spend sufficient time with the child (e.g., child care provider) is essential. Among potential in-

formants, parents are usually the most important source of information for clinicians because they have a developmental, contextual, historical, and intimate knowledge of their child's behaviors, temperament, and daily routine [10]. However, gathering information from multiple informants may be useful, [12] and this notion can be applied to both fathers and mothers. Given that fathers and mothers interact with their children in different ways, [13] despite living in the same environment, their observations, experience, and recognition of their child's behavioral problems might differ, and they might provide unique and valid information from their unique perspective regarding their child's behavior. However, research exploring the extent to which paternal and maternal ratings of child behavior problems correspond or differ is limited, particularly in infants aged 3 and below. Knowledge about agreement and discrepancies between parental ratings of their child's behavior problems might provide insight for clinicians into assessing and diagnosing behavior problems at very young age.

In the present study, we aimed to examine the agreement and discrepancies between paternal and maternal ratings of infants' emotional and behavioral problems, including externalizing, internalizing, and dysregulation issues in a Japanese sample. It was hypothesized that parental agreement might not be perfect, but moderate, as found in a previous meta-analysis [12,14]. Regarding discrepancies, mothers tend to describe more problem behaviors than fathers do, [14-17] and we anticipate a similar finding in the current study. We focused on parental ratings of both problem behaviors and areas of social-emotional competence among infants. Assessing acquisition of age-appropriate social-emotional competence (e.g., compliance, attention, mastery motivation, and empathy) is also important, as delay in social-emotional competence likely increases the risk for subsequent behavior problems [18].

Methods

Participants

Participants were 110 fathers and mothers of children aged 12 months to 35 months, 30 days, who did not have any serious health problems and who visited a pediatric clinic in Tokyo. Infants whose parents were not Japanese and those who had severe congenital heart disease, brain malformation, or chromosomal abnormality were excluded.

Procedures

Parents who visited the pediatric clinic in Tokyo for their child's medical appointment owing to an acute minor illness (e.g., infections) or immunization were invited to participate in the study from October 1, 2013, to January 31, 2015. Fathers and mothers were asked to complete the questionnaire at home on the same day and return it by mail.

Measures

Demographic variables

Parents answered questions about sociodemographic variables, including the child's age (in months), gender, birth order, weight and gestational age at birth, parental age, parental education, marital status, and household income.

Japanese version of the Infant-Toddler Social and Emotional Assessment

The Japanese version of the Infant-Toddler Social and Emotional Assessment (J-ITSEA) [19] is an assessment tool for identifying social-emotional and behavioral problems and competencies in children aged 12 months to 35 months, 30 days. The J-ITSEA consists of 170 items and is completed by caregivers. Items are categorized into four domains: Externalizing problems, Internalizing problems, Dysregulation problems, and Competence. The Externalizing domain includes three subscales (Activity/Impulsivity, Aggression/Defiance, and Peer Aggression), the Internalizing domain includes four subscales (Depression/Withdrawal, General Anxiety, Separation Distress, and Inhibition to Novelty), the Dysregulation domain includes four subscales (Negative Emotionality, Sleep, Eating, and Sensory Sensitivity), and the Competence domain includes six subscales (Compliance, Attention, Mastery Motivation, Imitation/Play, Empathy, and Prosocial Peer Relations). The response format for each item comprises three choices: 0 (not true/rarely), 1 (somewhat true/sometimes), and 2 (very true/often). To calculate a subscale mean raw score, the values for each answered item are summed and divided by the total number of questions. In addition, to obtain the domain mean raw score, the subscale mean raw scores within a given domain are summed and then divided by the number of scored subscales in that domain. Therefore, the possible score range for each domain is 0–2. Higher scores for the Externalizing, Internalizing, and Dysregulation domains and lower scores for the Competence domain indicate less favorable behavior. The J-ITSEA[19] has good internal consistency (Cronbach's alpha: 0.70–0.93) and test-retest reliability (Spearman's rho: 0.51–0.91), and has demonstrated expected concurrent validity with the Child Behavior Checklist 2/3[20] and Pervasive Developmental Disorders Autism Society Japan Rating Scale [21].

Statistical analyses

Mann-Whitney U-tests were conducted to examine the differences in demographic data between fathers and mothers. In this study, we used only four domain scores (Externalizing, Internalizing, Dysregulation, and Competence) on the J-ITSEA for analysis. In order to examine father–mother agreement on infants' problem behaviors (Externalizing, Internalizing, and Dysregulation) and Competence, intraclass correlations (ICCs) were calculated. According to Landis and Koch, [22] an ICC

less than .20 is slight, .21 to .40 is fair, .41 to .60 is moderate, .61 to .80 is substantial, and .81 to 1.00 reflects almost perfect agreement. Differences in parental ICCs between boys and girls as well as among Externalizing, Internalizing, Dysregulation, and Competence were assessed using Fisher's z transformations [23]. Discrepancies in paternal and maternal ratings were assessed using the Wilcoxon signed-rank test. As an index of effect size, we used r , which was calculated by dividing the z -score (derived from each test statistic) by the square root of N . Usually, an r of .1, .3, and .5 indicates a small, medium, and large effect size, respectively [24]. The statistical significance of these tests was set at $p < .05$ (two-tailed).

Ethical considerations

Participants were informed in writing and orally about the objectives of the study, privacy protection, and the voluntariness of participation. The study protocol was approved by the ethics committee of Tokyo Medical and Dental University (no: 1535, date of approval: July 7, 2013).

Results

Participant demographic characteristics

Of 110 eligible parents, five were excluded due to a significant number of unanswered items in either parent's rating. Thus, data of 105 parents were analyzed (valid response rate: 95.45%). The demographic characteristics of the participants are shown in Table 1.

The mean age of children was 23.15 months (boys = 23.27; girls = 23.04). The mean age of and mean years of education of fathers was 35.01 years ($SD = 9.86$) and 14.84 years ($SD = 3.54$), respectively.

The mean age of and mean years of education of mothers was 34.10 years ($SD = 4.67$) and 14.85 years ($SD = 2.46$), respectively. Fathers' age was significantly higher than was that of mothers ($p < .001$), although there was no difference between fathers' and mothers' years of education. The most frequent household income of participants was from 4,000,000 to 6,000,000 yen ($n = 32$, 30.48%). In all single-income families ($n = 74$), the father was the main income earner. However, in dual-income families ($n = 31$), 27 mothers had full-time jobs and others worked part time.

Agreement between paternal and maternal ratings of problem behaviors and competence

Means and SDs on the J-ITSEA by gender are shown in Table 2. ICCs between fathers and mothers for the J-ITSEA ranged from .51 to .60 for problem behaviors, and the ICC for Competence was .75 (Table 3). The magnitude of the ICCs for problem behaviors was higher in boys than it was in girls. In terms of the four domains of the child's behavior, the magnitude of the ICC for Competence tended to be higher than it was for problem behaviors. However, these differences were not significant.

Table 1. Participants' demographic data ($N = 105$)

		Total		Boys		Girls	
		<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Total		105	100.00	52	100.00	53	100.00
Child's Age	12–17 months	32	30.48	16	30.77	16	30.19
	18–23 months	22	20.95	10	19.23	12	22.64
	24–29 months	24	22.86	13	25.00	11	20.75
	30–35 months	27	25.71	13	25.00	14	26.42
Gestational age	≥ 37 weeks	99	94.29	48	92.31	51	96.23
	< 37 weeks	6	5.71	4	7.69	2	3.77
Birth weight	≥ 2500 g	97	92.38	46	88.46	51	96.23
	< 2500 g	8	7.62	6	11.54	2	3.77
Birth order	First	77	73.33	36	69.23	41	77.36
	Second	26	24.76	16	30.77	10	18.87
	Third or later	2	1.90	0	0.00	2	3.77
Household	Single income	74	70.48	39	75.00	35	66.04
	Dual income	31	29.52	13	25.00	18	33.96

Table 2. Means and standard deviations (SDs) of the Japanese version of the Infant-Toddler Social and Emotional Assessment (J-ITSEA) scores by the child's gender and raters ($N = 105$)

	Total				Boys				Girls			
	Fathers		Mothers		Fathers		Mothers		Fathers		Mothers	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Externalizing problems	0.54	0.30	0.47	0.29	0.60	0.31	0.46	0.27	0.48	0.28	0.47	0.30
Internalizing problems	0.48	0.24	0.56	0.24	0.48	0.23	0.51	0.22	0.47	0.25	0.61	0.25
Dysregulation problems	0.54	0.25	0.48	0.22	0.59	0.26	0.45	0.24	0.50	0.23	0.50	0.20
Competence	1.14	0.40	1.25	0.39	1.14	0.35	1.23	0.41	1.13	0.45	1.27	0.38

Table 3. Agreement between paternal and maternal ratings on the Japanese version of the Infant-Toddler Social and Emotional Assessment (J-ITSEA) by child's gender ($N = 105$)

	Total			Boys			Girls		
	ICC	95% CI		ICC	95% CI		ICC	95% CI	
		Lower	Upper		Lower	Upper		Lower	Upper
Externalizing problems	.60	.46	.71	.63	.44	.77	.59	.38	.74
Internalizing problems	.56	.42	.68	.63	.43	.77	.54	.31	.70
Dysregulation problems	.51	.36	.64	.64	.45	.78	.41	.16	.61
Competence	.75	.65	.82	.74	.58	.84	.76	.62	.85

Note. ICC = intraclass correlation; 95% CI = 95% confidence interval

Table 4. Discrepancies between paternal and maternal ratings on the Japanese version of the Infant-Toddler Social and Emotional Assessment (J-ITSEA) ($N = 105$)

	Total		Boys		Girls	
	p	r^a	p	r	p	r
	Externalizing problems	.01	.28	< .01	.48	.66
Internalizing problems	< .01	.33	.25	.16	< .01	.49
Dysregulation problems	.01	.27	< .01	.54	.98	.00
Competence	< .01	.38	.02	.32	< .01	.44

Note. Wilcoxon signed-rank test

r^a = effect size, r was calculated by dividing the z-score (derived from each test statistic) by the square root of N . An r of .1, .3, and .5 indicates a small, medium, and large effect size, respectively.

Discrepancies between paternal and maternal ratings of problem behaviors and competence

Table 4 shows the scoring differences between fathers and mothers on the J-ITSEA. Fathers rated boys significantly higher on externalizing and dysregulation problems than mothers did, and these effect sizes were medium to large ($r = .48-.54$). On the other hand, mothers rated girls significantly higher on internalizing problems than fathers did. In terms of the ratings of the child's competence, mothers rated significantly higher than fathers regardless of infant gender.

Discussion

In this study, we aimed to explore the agreements and discrepancies between paternal and maternal ratings on their infants' emotional and behavioral problems as well as social-emotional competencies using the J-ITSEA. Parental agreements were moderate and significant. In terms of discrepancies, fathers reported boys as having more externalizing and dysregulation problems than did mothers, and mothers reported higher internalizing problems in their daughters than fathers did.

The moderate parental agreements in this study are consistent with findings in previous studies. Achenbach *et al.* [12] conducted a comprehensive meta-analysis on cross-informant ratings of emotional and behavioral problems in children and adolescents and found a moderate correlation ($r = .59$) with no significant difference between the mean correlations for externalizing ($r = .62$) and internalizing problems ($r = .59$). Duhig *et al.* [14] reported in their meta-analysis of 3- to 19-year-old children that there was moderate agreement in ratings of internalizing problems ($r = .45$) and substantial agreement in ratings of externalizing problems ($r = .63$). In a clinical sample, Langberg *et al.* [25] examined parental agreement on ratings of attention deficit hyperactivity disorder (ADHD)-specific symptoms (e.g., inattention and hyperactivity/impulsivity) for their children diagnosed with ADHD, reporting fair agreement among parents (ICCs = .38–.40). Regarding infants' competence, a study using the brief version of the ITSEA (BITSEA) [26] showed that the ICCs for competence were .58 for girls and .67 for boys. In the current study, only for infants' competence was the ICC greater than .70, which is generally considered satisfactory agreement. This might be because competence-related behaviors are relatively easy to observe in daily life for both fathers and mothers.

In the current study, disagreement between fathers and mothers differed by the type of infants' behaviors and infants' gender. For boys, fathers reported significantly more externalizing and dysregulation behavior problems than did mothers, whereas mother rated girls as having more internalizing behavior problems than did fathers. These results are inconsistent with previous studies. Several studies have demonstrated that mothers report more problem behaviors in their children than fathers do [14–17]. Luoma *et al.* [27] indicated that fathers report lower problem levels than mothers do, particularly for boys' problem behaviors. Duhig *et al.* [14] inferred that this tendency might arise because mothers have more exposure to their children's problem behaviors than fathers do because they spend more time with their children than fathers do. They also implied that children tend to obey their fathers more frequently and further, that they are more likely to obey their mothers in the presence of their fathers. Consequently, fathers are less likely to see disruptive behavior in their children than mothers are [14]. Several explanations might account for the inconsistency of findings between previous studies and the current study. First, the age of children who were enrolled into most of the studies mentioned above [14,15,17,27] were older than those in the current study. Second, Japanese fathers' tolerance for boy's overt problem behaviors, such as externalizing and dysregulation, might be lower than mothers' tolerance. As a result, fathers may have rated boys as having more externalizing and dysregulation problems as compared to mothers. Third, Japanese boys might actually demonstrate more aggressiveness, impulsivity, negative emotionality, and eating/sleeping problems in front of fathers as compared to mothers although there is little evidence that supports this hypothesis. It was

reported that children's aggressive behavior is often directed toward their mothers rather than fathers [28]. However, the transition of the previous image of fathers as being strong and fearsome [29] to their current role in which their involvement in housework and child care has increased in recent years [30] might lead to a change in the objects toward which infant's overt problem behavior direct more frequently. Finally, mothers, who spend more time with their children than fathers do, [31] might have greater sensitivity to more covert and subjective problem behaviors such as internalizing problem as compared to other behaviors, particularly for girls. The current findings suggest that mothers rated their infants' competence (e.g., compliance, attention, empathy, and prosocial behavior) significantly higher than fathers did. The most valid explanation for these differences between parents might be the shorter length of time spent with children by fathers. Time spent on childcare by Japanese fathers is one-fourth that spent by Japanese mothers [31]. Moreover, the average hours per day spent caring for children by Japanese fathers is clearly short compared to international standards, and it was reported that paternal childcare time was approximately half compared to that of European and American fathers [32,33]. Consequently, they may be unaware of some of their child's social behaviors.

Clinical Implications

With the present findings, we cannot evaluate which ratings reflect actual infants' behavior more accurately or which parent is the best informant of infants' problem behavior. However, the findings demonstrate that we should keep in mind that it is ideal to gather information from mothers as well as fathers for assessment. If clinicians gather information about infants' behavior only from mothers, this might lead not only to underestimation of the severity of their infants' behavior problems, but also overestimation of their children's acquisition of age-appropriate social-emotional competence. Professionals tend to perceive mothers as the most useful and accurate informants regarding emotional and behavioral problems in children [34]. However, the important role of fathers in child development and child psychopathology [35,36] is becoming increasingly apparent. Each parent interacts with children in different ways, and they differ in opportunities for observing children, effects on their children, and their standard of judgment [12]. Therefore, data from both fathers and mothers might allow clinicians to develop a more comprehensive profile of the infant and provide support that fits each infant's characteristics.

Limitation and future directions

The result of this study must be interpreted with caution due to a small sample from one region. Further, parental agreement and discrepancies on the rating of children's behavior problems and competence might be influenced by several factors, including parental psychological status, quality of marital relationship, or extent of paternal involvement in child care.

For instance, Langberg *et al.* [25] indicated that paternal parenting stress predicted discrepancies among parents in ratings on child's problem behaviors. Further, Christensen *et al.* [15] reported that discrepancies increase as family distress level increases. We did not explore the correlation between those factors and parental ratings in the current study. Therefore, further investigations and replications will be needed with larger samples, and potential variables for explaining agreement and discrepancies between paternal and maternal ratings should be investigated. Moreover, we believe that it is important to compare parental agreement between the group who demonstrated clinically significant social-emotional problems and the control group. Despite these limitations, the findings have significant clinical implications that emphasize the importance of a multi-informant approach to assess problem behaviors and delay in competence among infants.

Conclusion

The findings of this study indicate that there is moderate agreement, as well as gender differences, between mothers and fathers in the rating of infant's social-emotional problem behaviors and competence. Compared to mothers, fathers perceived more externalizing and dysregulation behavior problems in boys, whereas mothers reported more internalizing behavior problems in girls. Mothers perceived more social-emotional competence in boys and girls than fathers did.

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