The mediation of parental personality on preschool children's temperament by parenting styles

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Abstract

In order to examine the effects of parental personality on children's (under age 4) temperament as well as the mediation of these effects by parenting styles, fathers and mothers who attended paediatric clinics in Kumamoto, Japan, with their child were distributed a set of questionnaires. Parental personality as measured by the Temperament and Character Inventory predicted the children's temperament, which was assessed using the EASI Survey. Many of the associations between the two were found to be mediated by the parenting styles measured using the Parental Bonding Instrument, while some held direct association. Such interactions between parental personality, children's temperament, and parenting styles may be specific to parental gender.

Keywords

Personality, Temperament, Parenting Styles, Mediation, Gender Difference

1. Introduction

As William Wordsworth noted, the child is father of the man. Human individuality in personality traits may be seen in the early years of development. Such individuality is named temperament. Child temperament has been thought of as biological in origin [1]. It has been assumed that biological influences have a more important effect on temperament traits than on personality traits that emerge later in development. Temperament may be determined by heredity but research has shown that heritability of children's temperament cannot account for much of the variance of temperament. Environmental influences on children's temperament development have been studied, with parenting styles having been viewed as particularly important.

Among the many instruments used to assess child temperament, the EASI Survey is one of the first theory-driven measures. Buss and Plomin [1][2] proposed four

temperaments: Emotionality, Activity, Sociability, and Impulsivity. Emotionality refers to the intensity of children's reactions. Children high in Emotionality are more fearful than their low Emotionality counterparts, with wider mood swings. Activity refers to children's energy output. Children high in Activity are busily involved in things, are vigorous, and keep moving. Sociability refers to connections with other people. Children high in Sociability desire to be with other people and enjoy interacting with them. Impulsivity refers to spontaneity of behaviour. Children high in Impulsivity are more likely to respond immediately rather than planning before making a decision.

Buss, Plomin, and Willerman [3] used the EASI Survey in a twin study. They reported that heritability in children over 55 months old was .69 to .76 for Emotionality, .70 to .73 for Activity, .22 to .42 for Sociability, and .66 to .86 for Impulsivity. However, parent-offspring comparisons for

these temperament traits for adopted and non-adopted children indicated little, if any, genetic influence on temperament development [4]. These findings mean that while children's temperament traits are to some extent heritable, a substantial portion of the variance in temperament is explainable by environmental factors. Resemblance of parents' personality to their children's temperament suggests a psychological influence on the intergenerational transmission of personality traits.

Adult personality may be thought of as combination of traits that emerge early in development (temperament) and those that emerge later in this process (character). In the psychobiological model of personality, also known as the seven-factor model, Cloninger et al.[5] have hypothesised that temperament underlies the development of character and that personality is an end product of the interaction between the two. According to the psychobiological model of personality, temperament consists of four heritable dimensions that manifest early in life: Novelty Seeking (NS), Harm Avoidance (HA), Reward Dependence (RD), and Persistence (P), the last of which emerges from Reward Dependence. The first three temperament dimensions are thought to be determined genetically and to correlate with dopaminergic, serotonergic and noradrenergic activity, respectively. Character consists of three dimensions, which mature in adulthood. They include Self-directedness (SD), Co-operativeness (C), and Self-transcendence (ST). The character dimensions, though determined by heredity to some extent, are hypothesised to be determined primarily environmentally [6].

There are content similarities between temperament dimensions in the EASI Survey and those in the biopsychology model, for example, between Emotionality and HA, between Activity and P, between Sociability and RD, and between Impulsivity and HA. Thus, we speculated that correlations among temperament dimensions would exist between children and their parents. On the other hand, character dimensions, particularly SD and C, are thought to reflect personality maturation. Therefore, children of parents who are low in these character dimensions may be more likely to react emotionally to undesirable situations or to act without careful consideration of the consequences.

The intergenerational transmission of personality may be mediated by many factors. Research has demonstrated that adult personality is associated with how people were raised as children [7-11]. Parental rearing styles, in turn, may be determined by parents' personalities [12][13][14]. Hence, in this study, we hypothesised that the intergenerational transmission of personality and temperament in particular would be mediated by parenting styles.

This is a report on the relationship between children's temperament, parental personality, and parenting styles as well as on the possible mediation by parenting styles on the effects of parental personality on children's temperament. Our study population was a group of families whose children consulted paediatric clinics in Kumamoto, a local city in southern Japan.

2. Method

2.1. Participants

We asked 20 paediatric clinics to cooperate in this questionnaire study. Paediatricians handed the questionnaires consecutively to the parent(s) of each child aged less than four years who visited the clinic. Thus, the present sample was convenient. The parents were asked to enter the study and, if they agreed to do so, they were given another questionnaire so that each partner had a copy. The fathers and mothers were asked to fill out the questionnaire independently. 447 families participated in the survey. However, the number of fathers and mothers who returned completed questionnaires was 247 and 434, respectively. The number of families in which both fathers and mothers returned the questionnaire was 234. The mean (SD) ages of the fathers and mothers were 33.4 (5.5) and 31.5 (5.4) years, respectively. The fathers were significantly older than the mothers (p < .001). The mean age (SD) of the children was 1.7 (1.1) years. The children included 225 boys (50.0%) and 209 girls (46.8%); the gender was not reported for the remaining 13 children (2.8%).

2.2. Measurements

Infant temperament: Assessment was performed using the EASI Survey [2]. This questionnaire consists of 20 items measuring four temperament dimensions. Each item in the original EASI Survey was rated on a five-point scale from 1 to 5. However, we changed it to from 0 ('a little') to 4 ('a lot') so that the possible overall score of each dimension would range from 0 to 20. Missing values of the EASI items were substituted with the mean of the item only in cases where fewer than 3 items (10% of the total) were missing. The EASI Survey was translated into Japanese by one of us (TK) following permission from the original authors. The Japanese version was then back-translated into Japanese in order to verify the wording of the Japanese version.

Parental personality: The Temperament and Character Inventory (TCI [5]) is a self-report measure of personality based on a seven-factor model of temperament and character. We used its 125-item short Japanese version. To this, we also added five more P items because of the relatively small number of original P items. The original dichotomous scale was changed into a four-point scale in this study; each item was rated from 0 ('strongly disagree') to 3 ('strongly agree') [15]. Missing values of the TCI items were substituted with the mean of the item in cases where fewer than 26 items (20% of the total) were missing.

Parents' parenting style: As a measure of parents' current parenting style we used the Japanese version [16] of the Parental Bonding Instrument (PBI[17]). The PBI was originally developed as a measure to assess retrospectively how an individual perceived their father's and mother's parenting (separately) before age 16. Because we were interested in the effects of the *current* parenting styles on the child's temperament, we rephrased sentence tenses into the

present. We asked parents to rate their own current rearing styles towards the child who consulted the clinic. Missing PBI values were substituted with the mean of the item only for those cases in which fewer than 5 items (20% of the total) were missing. Parker et al. [17] postulated two subscales: Care and Overprotection. Care consists of 12 items (with a four-point scale) related to a parenting style that may range from coldness, indifference, and neglect, to affection, emotional warmth, empathy, and reciprocity. Overprotection consists of 13 items (with a four-point scale) ranging from parental control and overprotection, intrusion, and infantilization, to parental allowance, independence, and the development of autonomy.

2.3. Procedure

Paediatricians handed questionnaires to consecutive parents of children who attended the clinic and solicited their participation. The parent who received the questionnaires gave a copy to his or her spouse. The questionnaires were returned using stamped addressed envelope.

This research project was approved by the Ethical Committee of Kumamoto University Graduate School of Medical Sciences.

2.4. Statistical Analysis

We calculated means (SDs) of and correlations between all the variables used in this study for fathers and mothers separately. We set the alpha level at .001 because of multiple comparisons.

In order to examine the ways in which parenting styles may mediate the effects of parental personality on children's temperament, we created a series of structural equation models based on a maximum likelihood method. In addition to theoretical considerations, in order to improve the models' fit with the data, modification indices were used and new covariance estimates were consecutively added. The fit of each model with the data was examined in terms of chi-squared (CMIN), goodness-of-fit index (GFI), adjusted goodness-of-fit index (AGFI), comparative fit index (CFI), and root mean square error of approximation (RMSEA). According to conventional criteria, a good fit would be indicated by CMIN/df < 2, GFI > 0.95, AGFI > 0.90, CFI > 0.97, and RMSEA < 0.05, and an acceptable fit by CMIN/df < 3, GFI > 0.90, AGFI > 0.85, CFI > 0.95, and RMSEA < 0.08[18][19]. The Akaike Information Criterion (AIC) was used to compare different models; a model with an AIC at least two points lower than another model is regarded as the better of the two.

All statistical analyses were conducted using the Statistical Package for Social Science (SPSS) version 14.0 and Amos 6.0.

3. Results

Table 1. Correlations between the EASI Survey and TCI in fathers (n = 236 - 245) and mothers (n = 415 - 428)

	1	2	3	4	5	6	7	8	9	10	11
1 Emotionality	--										
2 Activity	.14 * .17 ***	---									
3 Sociability	-.30*** -.23***	.17 ** .25 ***	---								
4 Impulsivity	.50 *** .43 ***	.37 *** .50 ***	-.12 -.03	---							
5 NS	.17 ** .08	.20 ** .01	.09 -.05	.24 *** .03	---						
6 HA	.17 ** .22 ***	.02 .08	-.13 * -.07	.20 ** .19 ***	.00 -.35***	---					
7 RD	-.04 -.12 **	.04 -.05	.09 .06	-.10 -.14 **	.11 -.05	.00 -.05	---				
8 P	.05 .02	.05 .02	-.04 .11 *	-.07 -.06	-.25*** -.21***	-.23*** .01	.11 .20 ***	---			
9 SD	-.27*** -.31***	-.12 -.09	.11 .09	-.33*** -.26***	-.41*** -.07	-.53*** -.50***	.05 .17 ***	.38 *** .03	---		
10 C	-.11 -.28***	.05 -.08	.18 .09	-.16 * -.22***	-.16 * -.17***	-.25*** -.24***	.48 *** .48 ***	.27 *** .24 ***	.35 *** .37 ***	---	
11 ST	.05 -.03	.04 -.08	.09 .03	-.02 -.07	.15 * .23 ***	-.20 ** -.23***	.23 *** .12 *	.11 .28 ***	-.03 .07	.17 ** .15 **	---
Mean	10.1 9.4	13.3 12.6	12.3 12.9	10.1 9.6	27.1 23.9	29.5 32.7	28.7 31.4	17.6 16.6	43.0 41.3	46.4 49.3	16.9 16.5
SD	3.2 3.3	3.1 3.3	2.7 2.8	3.0 3.0	7.0 6.6	7.1 7.8	5.6 5.2	3.8 3.4	9.1 8.5	7.1 6.1	6.2 6.1

The upper figures are for fathers; the lower figures are for mothers.

NS, Novelty Seeking; HA, Harm Avoidance, RD, Reward Dependence, P, Persistence; SD, Self-directedness; C, Co-operativeness; ST, Self-transcendence; OP, Overprotection.

The means (SDs) of and correlation between the EASI Survey and TCI scores are shown in Table 1. Since we speculated that a parental gender difference might exist in the correlations between variables and in the mediation of

parental personality on preschool children's temperament by parenting styles, we performed analyses of fathers and mothers separately. As expected, children's Emotionality was correlated with paternal and maternal HA (Table 1). Children's Impulsivity was correlated with maternal NS. Children's Emotionality and Impulsivity were also inversely correlated with parental SD and maternal C. Contrary to our hypotheses, children's Activity and Sociability were not correlated with parental P and RD, respectively. In addition, children's Impulsivity was correlated with maternal HA.

We then examined the relationship between children's temperament and their parents' rearing styles. Children's Emotionality was correlated with paternal and maternal Care (rs = -.26, -.25, respectively) and paternal Overprotection (r = .26). Children's Impulsivity was correlated with maternal Care (r = -.23) and Overprotection (r = .21). Children's Sociability was correlated with maternal Overprotection (r = -.22).

Parenting styles were correlated with several parental personality traits. Thus, parental Care was correlated with

RD (rs = .31, .22 for fathers and mothers, respectively), SD (rs = .32, .39), and C (rs = .27, .27). Parental Overprotection was correlated with HA (rs = .27, .21), SD (rs = .32, .22), and C (rs = -.25, .19). In addition, maternal Care was correlated with HA (r = -.27).

These bivariate correlations suggest that the effects of paternal and maternal personality traits on children's temperament traits are mediated by parenting styles. We created path models for fathers and mothers, separately. In the original model (Fig. 1), we hypothesised that in addition to the fathers' personality directly predicting their children's temperament, the fathers' temperament and character dimensions would predict their parenting styles, which in turn would indirectly predict their children's temperament. This model, however, did not yield an acceptable goodness-of-fit with the data (CMIN/df = 15.461, GFI = .782, AGFI = .290, CFI =. 301, and RMSEA = .251). The model was not improved even when some covariance estimates were added via modification indices.
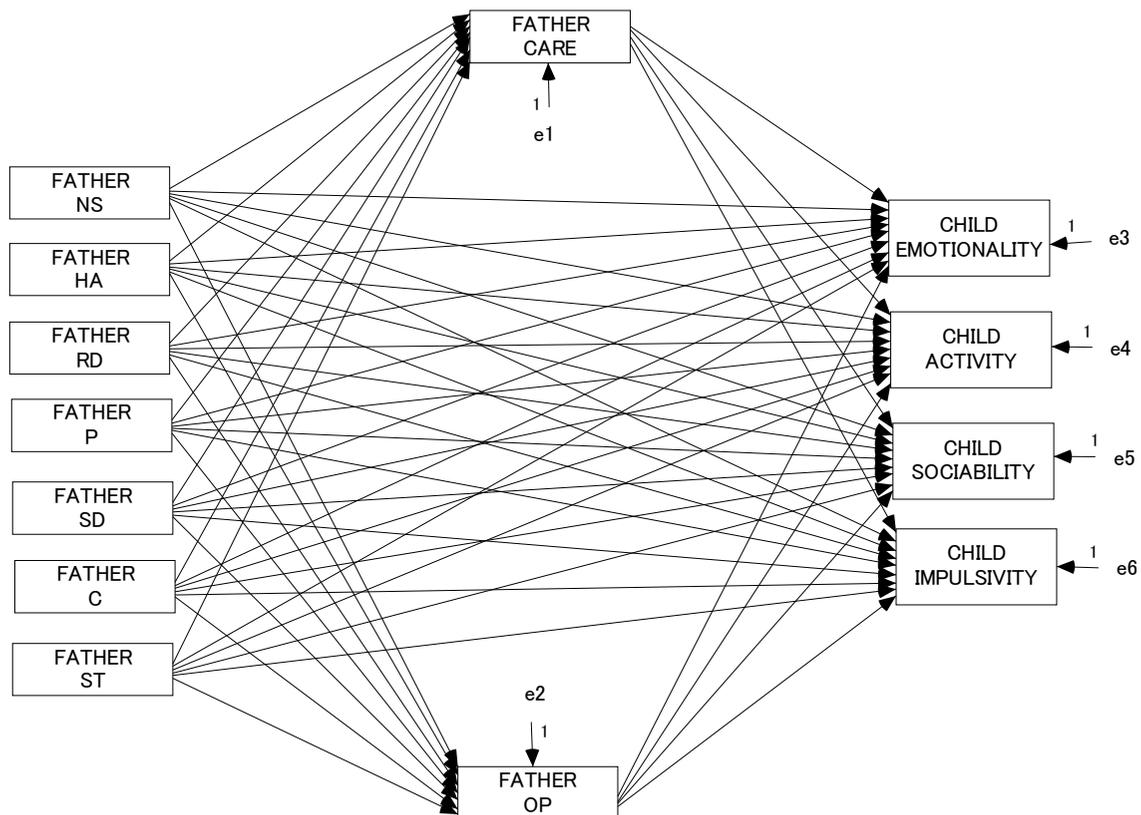
Fig. 1. *Model describing the relationships between fathers' personality and parenting styles and children's temperament.*

NS, Novelty seeking; HA, Harm avoidance; RD, Reward dependence; P, Persistence; SD, Self-directedness; C, Co-operativeness; ST, Self-transcendence; OP, Overprotection

Then we revised the model. In the new model, the fathers' temperament subscales were posited as predicting their character subscales. Their temperament and character dimensions were hypothesized as predicting both their parenting styles and children's temperament traits, and their parenting styles were thought to predict their children's

temperament traits (Fig. 2). These changes were based on the theoretical assumption that character would develop in the framework formulated by temperament. We added some covariance estimates suggested by modification indices (Fig. 3). The revised model showed good fit with the data (CMIN/df = 1.13, GFI = .995, AGFI = .932, CFI =. 999, and
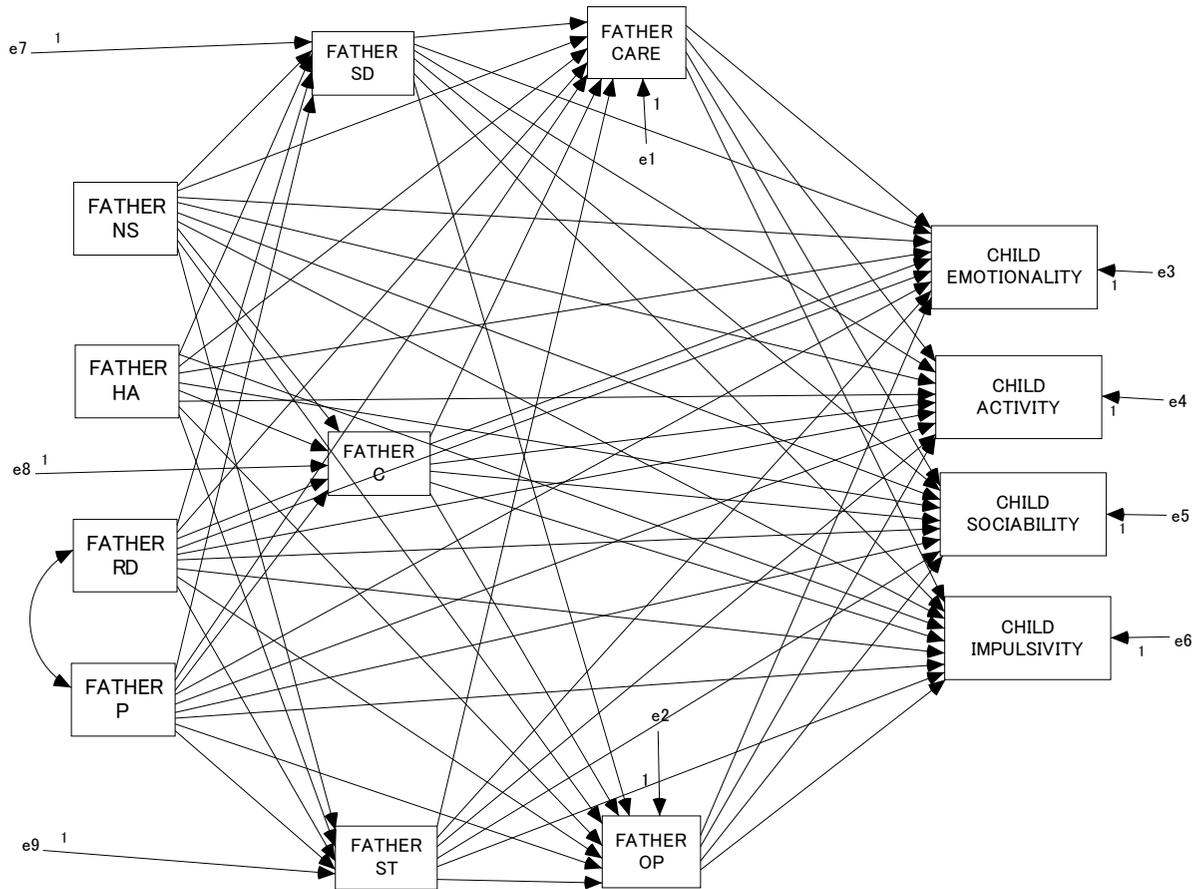
RMSEA = .024).

Fig. 2. *Model describing the relationships between fathers' temperament, character, and parenting styles and children's temperament.*

NS, Novelty seeking; HA, Harm avoidance; RD, Reward dependence; P, Persistence; SD, Self-directedness; C, Co-operativeness; ST, Self-transcendence; OP, Overprotection

For the dyads of fathers and children, the revised model showed that (1) Emotionality was predicted by fathers' low Care and high Overprotection as well as fathers' high P; (2) Activity was predicted by fathers' NS; (3) Sociability was predicted by fathers' Care and low Overprotection as well as fathers' high NS; (4) Impulsivity was predicted by fathers' low SD and fathers' NS; (5) fathers' Care was predicted by their high SD and RD; (6) fathers' Overprotection was predicted by their low SD and C as well as high HA; (7) fathers' SD and C were predicted by their low NS, HA, and high P; and (8) fathers' ST was predicted by their high NS and RD as well as low HA.

For the dyads of mothers and children, we followed the same statistical approach as used for the fathers. The revised model (Fig. 4) showed good fit with the data (CMIN /df =

1.821, GFI = .995, AGFI = .939, CFI =. 994, and RMSEA = .044).

For the mothers, this model showed that (1) Emotionality was predicted by mothers' low Care, SD, and C, as well as high P; (2) Activity failed to be predicted by any of the maternal variables; (3) Sociability was predicted by mothers' low Overprotection; (4) Impulsivity was predicted by mothers' low Care and high Overprotection, as well as mothers' low SD; (5) mothers' Care was predicted by their high SD and RD as well as low NS and HA; (6) mothers' Overprotection was predicted by their HA; (7) mothers' SD and C were predicted by their low NS and HA as well as high RD; and (8) mothers' ST was predicted by their high NS and P as well as low HA.
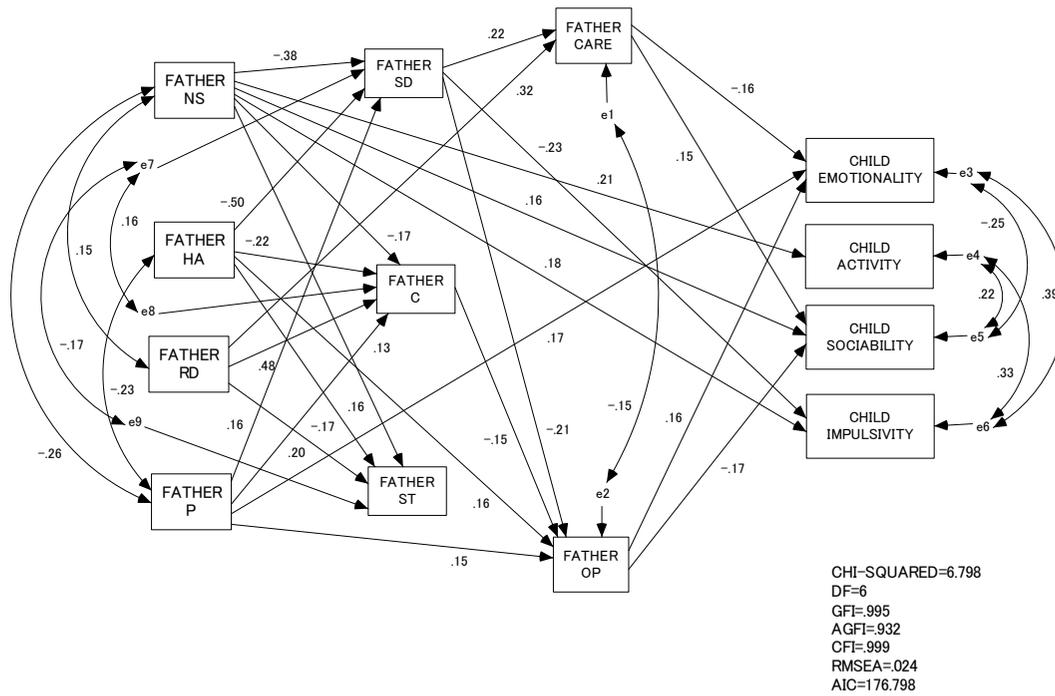
Fig. 3. Revised model describing the relationships between fathers' temperament, character, and parenting styles and children's temperament.

Covariance estimates are added following modification indexes. Estimates are all standardized. Statistically nonsignificant paths are calculated but not shown for clarity of presentation.

NS, Novelty seeking; HA, Harm avoidance; RD, Reward dependence; P, Persistence; SD, Self-directedness; C, Co-operativeness; ST, Self-transcendence; OP, Overprotection.

Fig. 4. Model describing the relationships between mothers' temperament, character, and parenting styles and children's temperament.

Covariance estimates are added following modification indexes. Estimates are all standardized. Statistically nonsignificant Paths are calculated but not shown for clarity of presentation.

NS, Novelty seeking; HA, Harm avoidance; RD, Reward dependence; P, Persistence; SD, Self-directedness; C, Co-operativeness; ST, Self-transcendence; OP, Overprotection.
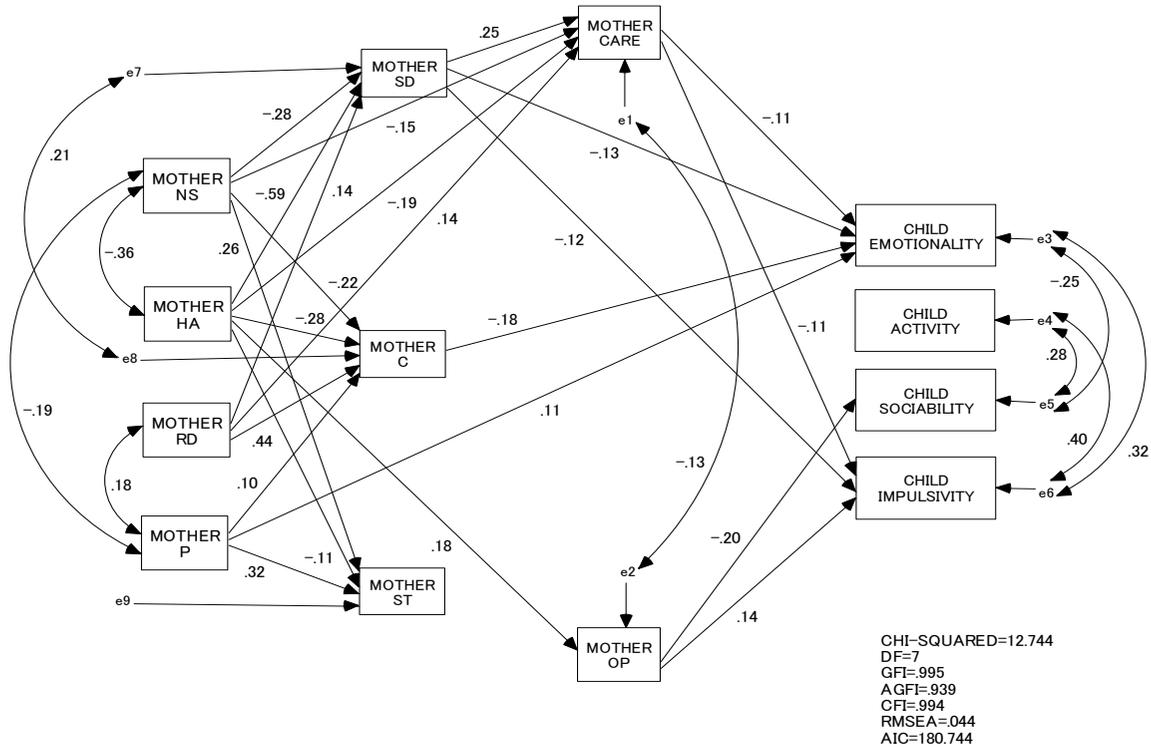
4. Discussion

In the bivariate correlations, parental HA and low SD predicted children's Emotionality and Impulsivity, whereas maternal low C predicted children's Impulsivity. Paternal NS was found to predict children's Impulsivity, while low maternal C predicted children's Emotionality and Impulsivity. However, these effects of parental personality traits on their children's temperament traits are at least partially indirect, mediated via parenting styles. This was shown by the revised path models for fathers and mothers.

In the fathers, Care mediated the effects of RD and SD on children's Emotionality and Sociability. On the other hand, Overprotection mediated the effects of HA, SD, and C on children's Emotionality and Sociability. Similarly, in the mothers, Care mediated the effects of HA and RD on children's Emotionality and Impulsivity whereas Overprotection mediated the effects of HA on Impulsivity. These findings suggest that children's temperament traits develop under the influence of their parents' rearing styles that are in turn predicted by parental personality.

Some parental personality traits were directly associated with children's temperament traits even after we took into consideration the mediation by parenting styles. Thus, paternal NS predicted children's Activity, Sociability, and Impulsivity, paternal P predicted children's Emotionality, and paternal SD predicted children's low Impulsivity. Maternal SD and C predicted children's Emotionality and maternal SD also predicted children's low Impulsivity. Nevertheless, these seemingly direct effects may be mediated by other variables that we did not examine in the present study. For example, fathers high in NS may be more enthusiastic about activities in which their children have an opportunity to relate to peers. Parents high in SD may be more sensitive to their children's demands and more tolerant of their trials and errors, and as a result children may learn self-control and become less impulsive. These possibilities should be examined in further studies using other possible mediators.

Parental gender differences were found in the effects of parenting styles on children's temperament traits. Thus, in both fathers and mothers associations were seen between low Care and children's Emotionality as well as between Overprotection and children's Impulsivity. On the other hand, it was only among fathers that Care was associated with Sociability and that Overprotection was associated with children's Emotionality, and only among mothers that low Care was associated with children's Impulsivity and that Overprotection was associated with Impulsivity. The difference between fathers and mothers in terms of the impact of parenting styles on psychological adjustment has been reported [20].

Children's temperament plays an important role in their mental health [21]. From the clinical perspective, the results of this study suggest that clinicians may be able to prevent negative aspects of children's temperament from leading to subsequent psychological maladjustment by promoting better parenting styles. It may require more time and effort to treat parents' maladaptive personalities. On the other hand, there have been several studies reporting effective parental training schemes [22][23][24].

We should comment on the limitations and future prospects of this study. First, the TCI, PBI, and EASI are based on parents' retrospective reports. Although the validity of retrospective reports is supported by some research [25], we should nonetheless interpret these results carefully. On the other hand, direct observation of the parent-child interaction may hinder spontaneous behaviour and thus prevent gathering of accurate data due to the observer effect. Parents and children may change their behaviour consciously or unconsciously when aware of being watched by an observer.

The small sample size and the convenient nature of the sample are another drawback of the present study. Although the children studied in this investigation had not been referred to a psychiatric clinic, neither were they randomly extracted from the community; rather, they were being seen at a paediatric clinic at the time of invitation into the study.

We studied only parenting styles as possible mediators of the effects of parental personality on children's temperament. Parental characteristics such as parental bonding towards the child, child abuse, parental monitoring of the children's behaviour, parental mood states such as depression, anxiety, and phobia, marital harmony and discord, and family cohesion and adaptability are but a few examples that should be evaluated in future studies.

5. Conclusions

The present study demonstrated that children's temperament dimensions rated by the EASI were predicted by their parents' personality rated by the TCI directly and via parenting styles rated by the PBI indirectly. The parenting styles were, to some extent, determined by the parents' personality traits.

Acknowledgement

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