

Determinants of Parenting Styles of Japanese Fathers and Mothers with Children Aged 0 to 10: Perceived Parenting During Childhood or Dysphoric Mood?

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Abstract: *Purpose:* To study the determinants of current parenting styles in Japan.

Methods: Fathers (n = 312) and mothers (n = 333) of children aged between 0 and 10 attending a paediatric clinic were evaluated with regards to the following: parental attitudes rated by spouses using the Parental Bonding Instrument, current dysphoric mood assessed with the Hospital Anxiety and Depression Scale, life time history of Major Depressive Episode (MDE), and perceived parenting styles when the parents themselves were children.

Results: Path models showed that current parenting styles were predicted by parents perception of maternal rearing during childhood. Moreover, in mothers only, they were predicted by the manner in which the women were raised by their fathers. This prediction was indirect, occurring *via* lifetime history of MDE and current dysphoric mood.

Conclusion: This study suggests that the way in which parents themselves were raised was no less important than how they currently felt in determining how they were raising their child. Current dysphoric mood or lifetime history of MDE mediated such effects only among mothers.

Keywords: Anxiety, depression, mediation, parenting style.

INTRODUCTION

Parenting styles are of both clinical and research importance. Children's development is influenced by their interaction with the outer world, one of the most crucial components of which is parenting style. Among the many attributes of parenting styles, many investigators have referred to responsiveness (acceptance/care) and demandingness (control/overprotection) as two of the most significant dimensions. Based on factor analyses of parents' behaviour [1], Baumrind [2] confirmed that parenting styles consisted of these two domains. Responsiveness refers to the extent to which parents foster individuality and self-assertion and this includes parents' warmth towards the child. Demandingness refers to the requirements parents place on children, *via* behavioural regulation and direct confrontation, regarding integration into society. A similar two-dimensional theory—acceptance/rejection *vs* control—was proposed by Rohner and Pettengill [3]. In a factor analysis of a children's report about their parents' behaviours, Schaeffer [4] identified the following three factors: Acceptance *vs*

Rejection, Psychological Autonomy *vs* Psychological Control, and Firm Control *vs* Lax Control. Parker [5] postulated Care and Overprotection as the two main domains of perceived parenting styles, and affectionless control (low Care and high Overprotection) was associated with poor psychological adjustment. Although factor analyses have demonstrated that Care and Overprotection correspond to two factors, they are moderately correlated with each other [6, 7].

What remains to be determined is the reason parents differ so markedly in the way they rear their children. There are many determinants of parenting behaviours [8] including parental mood state, history of depression, and parenting styles perceived as children.

Depression has often been associated with parents' attitudes towards their children (Fig. 1A). Parents with depression were found to be more likely to be irritable [9]. Mothers who were depressed were more likely to show destructive responses (such as use of criticism, scolding, threatening, withdrawing privileges, and aversive physical control with the intent of stopping the child's behaviour) in a free-play task with a 16- to 18-month-old child [10]. Other investigations have shown that the parenting styles of depressed parents differed from those of non-depressed

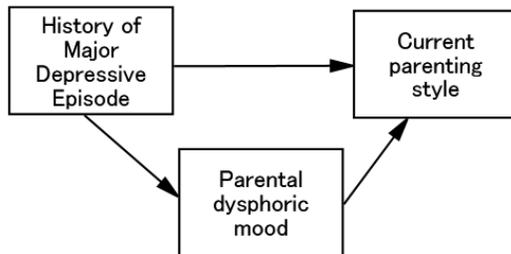
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parents [11- 13]. Anxiety may also be associated with poor parenting styles. In this study, we hypothesised that current parenting styles would be predicted by parents' current dysphoric mood state including depression and anxiety.

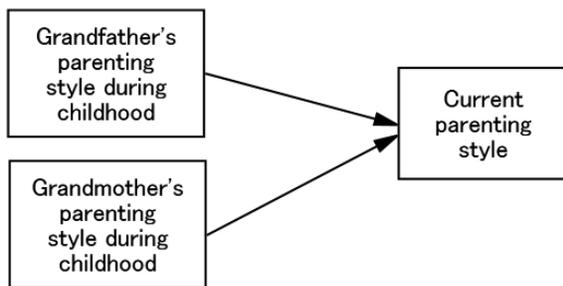
(A) Current parenting style is predicted by current dysphoric mood.



(B) Current parenting style is predicted by past history of depression.



(C) Current parenting style is predicted by perceived parenting of grandparents (i.e., the enrolled children's grandparents).



(D) Current parenting dysphoric mood and history of Major Depressive Episode are predicted by perceived parenting of grandparents.

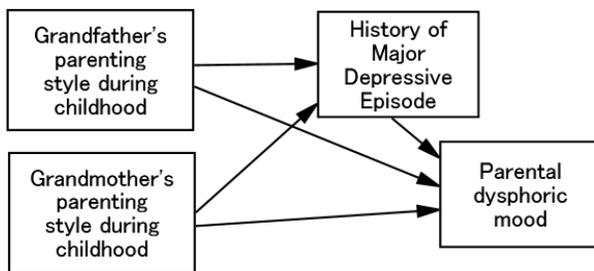


Fig. (1). Major hypotheses of the determinants of current parenting styles.

A second possible determinant of parenting styles is the *lifetime history* of depressive disorder (Fig. 1B). For example, Kendler, Sham, and MacLean [14] reported that lower levels of parental warmth were predicted by a lifetime parental history of Major Depression and Generalised Anxiety Disorder. Parents with a past history of depressive disorder may be more likely to experience greater current depressive mood and adopt poor parenting styles. The negative effect of past depression on current parenting styles may be direct or indirect, mediated in the latter case by current depressive mood. This issue has yet to be studied empirically.

Parenting styles including abusive behaviours may be transmitted from one generation to another [15-20] (Fig. 1C). Adolescent daughters of mothers who exerted affectionless control over them treated their own child in the same way 10 times more frequently than did daughters of mothers who did not exert this type of control [21]. Kitamura, Shikai, Uji, Hiramura, Tanaka, and Shono [22] reported that parenting styles in a Japanese population were transmitted directly from grandparents to parents. Hence in the present survey, we hypothesised that current parenting styles would be predicted by the parenting styles of the children's grandparents.

We also hypothesised that the effects of a person's own childrearing experiences on their current parenting styles would be mediated by both the lifetime history of depressive disorder as well as current dysphoric mood. Ample evidence shows that past episodes of depressive disorder and current depressive states are associated with inadequate parenting experienced by individuals during childhood [15, 23-35] (Fig. 1D). We also hypothesised that effects of the lifetime history of depressive disorder on current parenting styles would be mediated by current mood state.

A methodological drawback of past studies examining the links between personal variables such as dysphoric mood (depression and anxiety) and childrearing styles is their reliance on the participant as the sole source of information. These individuals who are currently depressed or anxious and those who perceive their own parents' childrearing less affectionate may be more likely to view their own rearing styles as less affectionate. In order to avoid such halo effects, we asked spouses to report on the childrearing styles of their partner.

Our research hypothesis (Fig. 2) is that current parenting styles are predicted by current dysphoric mood (Fig. 1A) and lifetime depressive episodes (Fig. 1B) that mediate (Fig. 1D) the effects of parenting styles perceived when the parents themselves were children (Fig. 1C). This mediation may be partial. In such a case, perceived parenting styles during childhood may also exert a direct effect on current parenting styles.

METHODS

Participants

This questionnaire survey was conducted in collaboration with the Kumamoto Paediatric Association. We solicited the participation of Association members and 20 clinics agreed to take part. Paediatricians handed the questionnaire to the parent(s) of each child aged less than 11 years who visited the clinic. Thus, the present sample was convenient. If only one parent was present, this parent was given another questionnaire so that each partner would have a copy. Fathers and mothers were asked to fill in the questionnaire independently, and then return it in a stamp-added envelope. All the participating clinics provided generalised child care as opposed to specialised treatment of particular paediatric conditions such as developmental disorders. In Japan, children with serious diseases are referred to specialised institutions such as university hospitals and therefore, most of the children in this study were unlikely to be suffering from serious medical conditions.

In 759 families, at least one parent responded to the questionnaire survey. Overall, 395 fathers and 731 mothers responded. In 367 families both parents did so. There were 176 boys (51.4%) and 184 girls (45.6%). The mean age (SD) of the children was 3.4 (2.7) years with a range between 0 and 10 years. The gender of the remaining seven children was not reported. In order to avoid shared observer bias, we used the spouse's assessment of each individual's parental style. Thus, we used the data of 312 (79%) fathers whose wives reported their (fathers') parenting styles and 333 (46%) mothers whose husbands reported their (mothers') parenting styles. The mean (SD) ages of the fathers and mothers were 35.2 (5.8) and 33.6 (5.2) years, respectively. The fathers were significantly older than the mothers ($p < 0.001$).

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

Measurement

Current Parental Styles

The Parental Bonding Instrument (PBI) [24,36] is a measure used to retrospectively assess how an individual perceives their father's and mother's parenting (separately). There are two subscales: Care and Overprotection. Care consists of 12 items (rated on a 4-point scale) related to a parenting style that ranges from coldness, indifference, and neglect, to affection, emotional warmth, empathy, and reciprocity. Overprotection consists of 13 items (rated on a 4-point scale) ranging from parental control and overprotection, intrusion, and infantilization, to parental allowance, independence, and the development of autonomy. The Japanese version of this scale was used [7, 37].

To assess the parents' *current* parenting styles, we used the spouse-rated PBI in order to avoid shared observer bias. Thus, we rephrased sentence into the present tense and then asked each *spouse* to rate their spouse's parenting styles towards the child who consulted the clinic. Mothers, therefore, were asked to rate fathers' parenting styles, while fathers were asked to rate mothers' parenting styles. Modification of the PBI from the past to present tense has been reported in previous investigations [14]. Use of a spouse as an informant on parental styles has been adopted in previous investigations [e.g., 22, 38]. As an example of the process, an original item, "My father spoke to me with a warm and friendly voice" would be transformed into "My husband speaks to the child with a warm and friendly voice". Fathers and mothers agreed with each other to a moderate extent about their parenting style assessments: maternal Care $r = 0.55$; maternal Overprotection, $r = 0.57$; paternal Care $r = 0.38$; paternal Overprotection, $r = 0.38$ [37]. Missing PBI values were substituted with the mean of the item only for those cases in which fewer than six items (20% of the total) were missing. The mean was substituted for 5.1% cases of fathers' ratings of mothers' parenting styles and 8.1% cases of mothers' ratings of fathers' parenting styles.

Parental Dysphoric Mood

The Japanese version [39, 40] of the Hospital Anxiety and Depression Scale (HADS) [41] is a measure of current affective and cognitive symptoms of depression and anxiety

with an established factor structure [42]. Parents used the HADS to assess their current mood state. This instrument has two subscales: Depression and Anxiety, each with seven items. The scale is rated from 0 (low depression or anxiety) to 3 (high depression or anxiety) and the total scores of the HADS Depression and HADS Anxiety can therefore range from 0 to 21. Validity of the HADS was found to be correlated with other commonly used questionnaires and rating scales such as the Beck Depression Inventory, Symptom Checklist 90 Scale, State-Trait Anxiety Inventory, Montgomery-Asberg Depression Rating Scale, and Structured Clinical Interview for DSM-III [43-45].

Missing HADS values were substituted with the mean of the item only in cases where fewer than three items (25% of the total) were missing. The mean was substituted for 1.9% of assessments of fathers' dysphoric mood and 1.8% of those of mothers' dysphoric mood.

Lifetime History of Major Depressive Episode

To identify the lifetime history of Diagnostic and Statistical Manual of Mental Disorders 3rd version Revised (DSM-III-R) Major Depressive Episode (MDE), we used an ad hoc questionnaire consisting of 16 items that tapped criteria for current or past MDE [46]. Each item was rated on a 2-point scale (true/false) for the same period and we diagnosed MDE using an algorithm according to the DSM-III-R MDE criteria. This method is very similar to the lifetime version of the Inventory to Diagnose Depression (IDDL) [47], the validity of which was reported to be high using the interview-based DSM diagnosis of MDE. The IDDL's current version was translated into Japanese and its validity was confirmed using the Structured Clinical Interview for DSM-III-R as an external validation criterion [48, 49]. It is of note that the questionnaire provides three items for criterion A2 of MDE (loss of interest): (a) lost interest in things, (b) lost pleasure in things, and (c) lost interest in opposite-sex partners (loss of interest in sex). We defined this criterion as being met if all three A2 items were fulfilled.

Grandparents' Parenting Style

To measure the parenting styles that fathers and mothers perceived as children, we used the Parental Bonding Instrument (PBI; [24]) in its original form. The participating parents were asked to report how they had perceived their own parents' (i.e., the enrolled children's grandparents') attitudes towards them when they were aged 16 or less.

Missing PBI values were substituted with the mean of the item only for those cases with fewer than six items (20% of the total) missing. The mean was substituted for 1.3% and 2.9% cases of paternal grandfathers' and paternal grandmothers' parenting styles, respectively and for 2.4% and 3.6% cases of maternal grandfathers' and maternal grandmothers' parenting styles, respectively.

Statistical Analyses

After calculating means and SDs of all the variables used in this study, the subscales of the current parenting styles rated by the spouse—Care and Overprotection—were correlated with predictor variables for the fathers and mothers separately. The predictors included (1) the parents'

and children's ages, (2) current dysphoric mood including depression and anxiety, (3) lifetime history of MDE, and (4) perceived rearing experienced by the parents during childhood.

Because these predictor variables were correlated with each other and occurred sequentially during the life course, we performed path model analyses in the context of structural equation modelling (SEMs) (Fig. 2) following our theoretical consideration. We posited that the children's grandparents' parenting styles (i.e., the parenting styles experienced by the parents during their childhood) would appear first in the life course of individuals. This would then be followed by development of MDE before current Depression and Anxiety. Finally, current parenting styles would appear. We also posited four latent variables: Grandfathers' and Grandmothers' Parenting Styles (composed of Care and Overprotection), Paternal and Maternal Parenting Styles (composed of Care and Overprotection), and current Dysphoric Mood (composed of Depression and Anxiety). It was shown later in this study as well as in previous investigations that the indicator variables of each latent variables were moderately correlated with each other (e.g., [7]). We also surmised that what would matter most were not the different effects of Care and Overprotection on the child but the overall picture of the nurturing environment. We hypothesised that in the path model, variables appearing earlier in the life course would predict all the variables that appeared later. In addition, children's and parents' ages were expected to predict the current parenting styles. Finally we set covariances between children's and parents' ages as well as Grandfathers' and Grandmothers' Parenting Styles (Fig. 2).

We used modification to improve the model's fit with the data. New covariance estimates were consecutively added to the path model if modification indices made theoretical logical sense [50]. Goodness-of-fit indices included χ^2/df , 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, $\chi^2/df < 3$, GFI > 0.90 , AGFI > 0.85 , CFI > 0.95 , and RMSEA < 0.08 indicate an acceptable fit, while $\chi^2/df < 2$, GFI > 0.95 , AGFI > 0.90 , CFI > 0.97 , and RMSEA < 0.05 indicate a good fit [51, 52].

All the statistical analyses were conducted using the Statistical Package for the Social Sciences (SPSS) version 20.0 and Amos 20.0.

RESULTS

Means and SDs of all the variables used in this study are shown in Table 1. In fathers, spouse-rated Care was correlated with child's younger age, higher grandmothers' Care, and lower grandparents' Overprotection. In fathers, spouse-rated Overprotection was correlated with child's younger age and higher grandfather's Overprotection. In mothers, spouse-rated Care was correlated with child's younger age and higher grandmother's Care.

Because many of the predictor variables were intercorrelated (data not shown) and we theoretically considered that some predictors preceded others chronologically, we next performed path analyses using AMOS models for fathers and mothers separately (Figs. 3, 4).

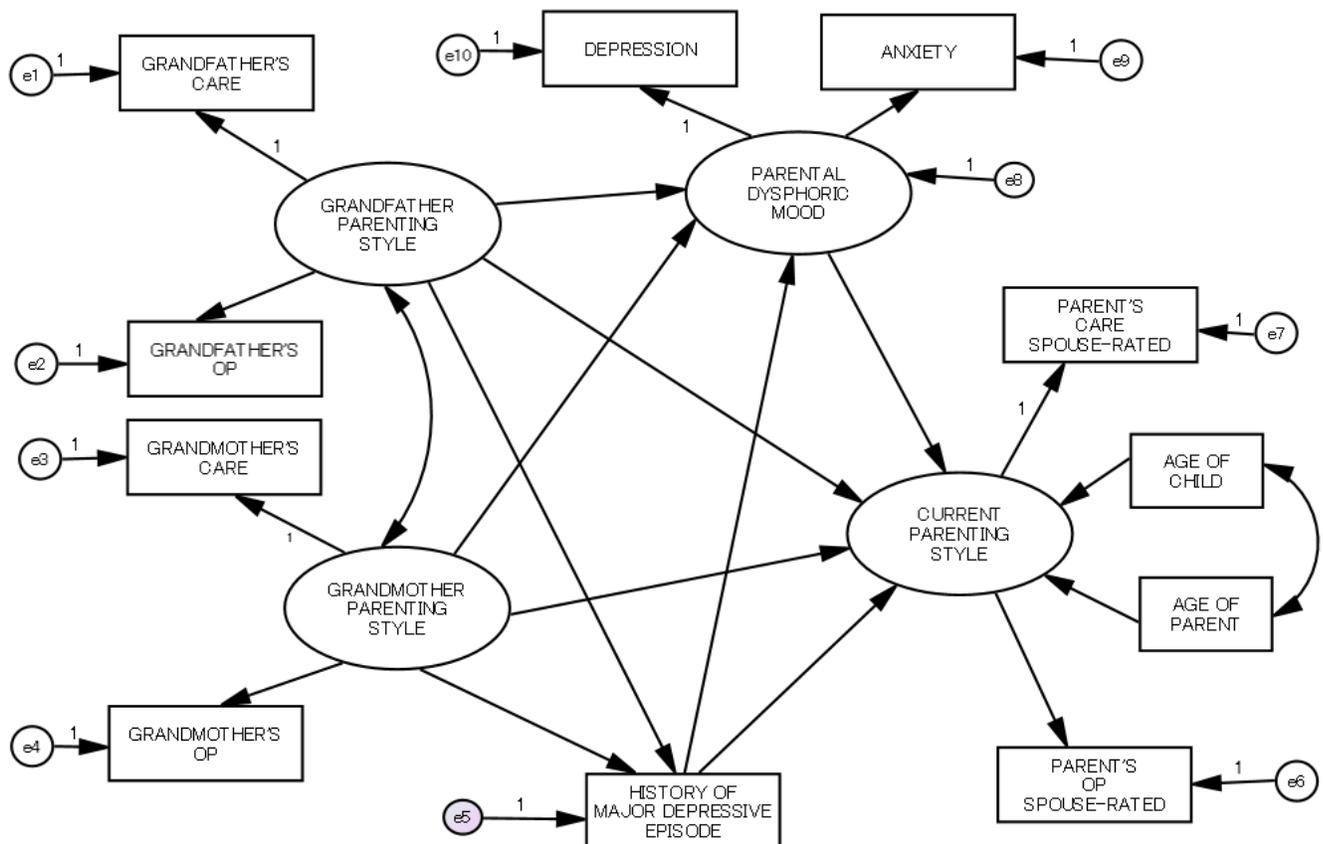


Fig. (2). Original path model of current parenting styles with their potential predictor variables.

Table 1. Correlates of fathers' and mothers' PBI subscales (fathers n = 312; mothers n = 333).

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
|-------------------------|--------------|--------------|--------|--------------|------------|------------|------------|--------------|--------------|--------------|--------------|
| 1. Care (spouse-rated) | — | -.36*** | -.17** | -.10 | -.01 | -.07 | .04 | .06 | -.05 | .18** | -.09 |
| 2. OP (spouse-rated) | -.31*** | — | .05 | .06 | .06 | .10 | .00 | -.10 | .06 | -.10 | .10 |
| 3. Child's age | -.14* | -.15** | — | .50*** | -.12* | -.11* | -.02 | -.04 | .08 | -.14* | .15** |
| 4. Parental age | -.05 | -.04 | .52*** | — | -.06 | .02 | -.07 | -.08 | .11 | -.14* | .15** |
| 5. HADS Depression | -.04 | .09 | -.02 | -.08 | — | .61*** | .27*** | -.17** | .22*** | -.22*** | .21*** |
| 6. HADS Anxiety | -.05 | .08 | -.04 | -.03 | .63*** | — | .25*** | -.21*** | .12* | -.22*** | .16** |
| 7. Lifetime MDE | -.07 | .03 | .09 | .03 | .19** | .21*** | — | -.19*** | .21*** | -.28*** | .19*** |
| 8. Care of grandfather | .06 | -.04 | .07 | .08 | -.08 | -.23*** | -.08 | — | -.49*** | .36*** | -.25*** |
| 9. OP of grandfather | -.17** | .15** | -.07 | -.04 | .14* | .18** | .03 | -.58*** | — | -.24*** | .53*** |
| 10. Care of grandmother | .16** | -.03 | .06 | .07 | -.19** | -.25*** | -.14* | .51*** | -.38*** | — | -.61*** |
| 11. OP of grandmother | -.16** | .07 | .01 | .08 | .13* | .17** | .07 | -.37*** | .64*** | -.55*** | — |
| Mean | 29.0 30.2 | 11.1 12.3 | 3.4 | 35.2 33.6 | 4.8 4.7 | 4.2 4.9 | 0.1 0.1 | 22.6 23.6 | 12.4 10.7 | 27.2 27.3 | 11.9 10.8 |
| SD | 4.7 4.3 | 4.6 5.2 | 2.7 | 5.8 5.2 | 3.2 3.3 | 3.1 3.3 | 0.2 0.3 | 6.6 7.5 | 6.6 6.2 | 5.8 6.5 | 6.9 6.6 |

Correlations of fathers' data are above the diagonal and those of mothers' data are below the diagonal.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. OP, Overprotection; MDE, Major Depressive Episode.

In the fathers' model, we added according to modification indices a covariance between the error variables of Grandfathers' and Grandmothers' Overprotection. The final model (Fig. 3) suggested that the spouse-rated Current Paternal Parenting Style was predicted by younger age of the child and by better Paternal Grandmothers' Parenting Style (high Care and low Overprotection). Dysphoric Mood was predicted by the lifetime history of MDE but it did not predict Current Paternal Parenting Style. The data met the criteria of acceptable fit: $\chi^2/df = 2.67$, GFI = 0.949, AGFI = 0.900, CFI = 0.931, and RMSEA = 0.073.

In the mothers' model, we added according to modification indices a covariance between the error variables of grandparents' Overprotection. The final model (Fig. 4) suggested that the spouse-rated Current Maternal Parenting Style was predicted by younger age of the child and by better Maternal Grandmothers' Parenting Style (high Care and low Overprotection). It was also predicted by the lifetime history of MDE and inversely by Maternal Dysphoric Mood with the latter predicted by the lifetime history of MDE. Lifetime history of MDE but not Maternal Dysphoric Mood was predicted by poorer Grandfathers' and Grandmothers' Parenting Styles (low Care and high Overprotection). Thus, maternal Grandfathers' Parenting Style influenced Current Maternal Parenting Style *via* lifetime history of MDE and Maternal Dysphoric Mood. The data met the criteria of acceptable fit: $\chi^2/df = 2.74$, GFI = 0.954, AGFI = 0.911, CFI = 0.925, and RMSEA = 0.072.

DISCUSSION

The present study showed that in bivariate correlations current parenting styles—Care and Overprotection—were not predicted by parents' current level of depression or anxiety. However, SEM indicated that in mothers, Maternal Dysphoric Mood (composed of Depression and Anxiety)

significantly predicted Current Maternal Parenting Style (composed of Care and Overprotection). This was not the case in fathers. This suggests the importance of dysphoric mood rather than depression per se. Past investigations have paid more attention to the effects of depression on parenting styles and less to the effects of anxiety. It may be beneficial to investigate the effects of a broader range of mood states on parenting styles, including fear and anger.

As expected, current Maternal Dysphoric Mood was predicted by lifetime history of MDE in both fathers and mothers. The link between MDE and lower levels of parental warmth reported by Kendler, Sham, and MacLean [14] may be explained by the possibility that current dysphoric mood mediates the effects of lifetime history of MDE on poorer parenting styles.

The lack of a link between current mood state (depression and anxiety) and parenting styles among fathers in this study may be explained by the fact that we removed the shared source variance by having spouses report on parenting style. This was a unique method that has been used infrequently. Alternatively it may be because we did not aim to recruit parents with high depression or anxiety scores. A third possibility is that fathers who were depressed or anxious may have been less likely to participate in this study so that the resulting participants may have been healthier.

Using a path model, this study showed that parenting styles perceived when parents were children predicted current parenting styles directly and, in mothers, indirectly as well. In mothers, poorer parenting styles of grandfathers and grandmothers predicted a lifetime history of MDE: this in turn predicted current dysphoric mood and led to poorer current parenting styles. A lifetime history of MDE also had a direct path towards poorer current parenting styles. Thus, the lifetime history of MDE itself mediates the effects of

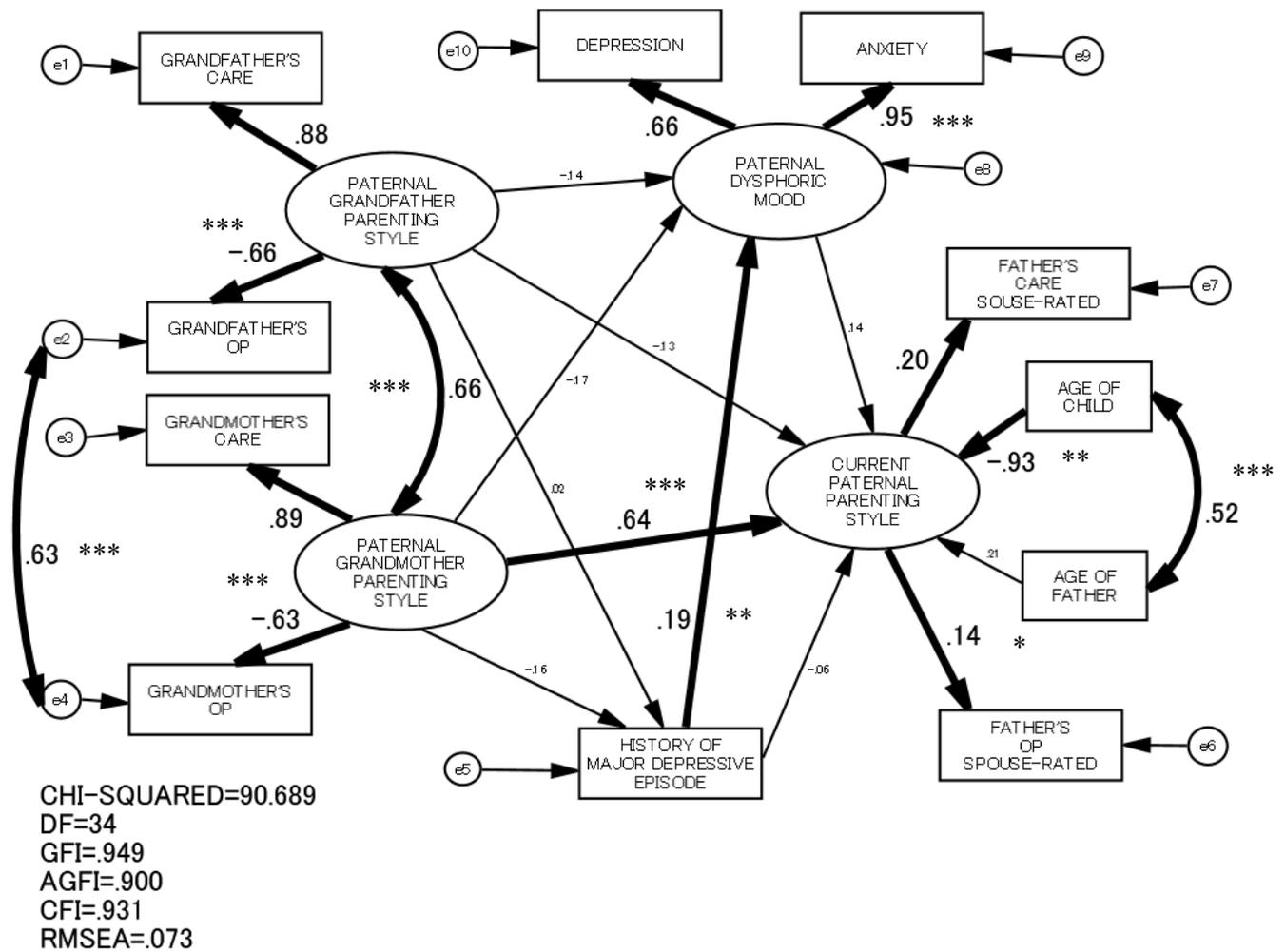


Fig. (3). Path model of fathers' current parenting styles with their potential predictor variables. * $P < 0.05$; ** $P < 0.01$; *** $P < 0.001$. Statistically significant paths are in bold with a standardised estimate. OP, Overprotection.

perceived parenting during childhood on current parenting styles.

This study also showed a direct link between grandmothers' parenting styles perceived when parents were children and the current parenting styles of fathers and mothers. Parenting styles of grandmothers perceived when parents were children may have influenced current parenting styles through learning. Alternatively, the link between the two may be mediated by variables that were not examined in the present study including parental personality [22], and marital adjustment [54]. Investigation into these potential mediators is of importance not only for research purposes but also clinical ones. This is because such mediators may be used as a target for effective parenting programmes.

Parental gender specificity was observed in this study. Thus, the fathers' Current Parenting Style was predicted only by how they remembered being raised by their own mothers whereas the mothers' Current Parenting Style was predicted directly by how they remembered being raised by their own mothers and indirectly by how they remember being raised by their own fathers. It has been suggested that father-son, father-daughter, mother-son, and mother-daughter are distinct dyads [55].

The strengths and limitations of this study should be noted. First, the present sample used spousal reports as the measure of the current parenting styles. The PBI scores are associated, though modestly, with the tendency toward social desirability [37]. Yet direct observation of parenting by a researcher is time-consuming and may result in distortion of behaviours in parents. However, spouses have rarely been used as informants on the other parent's parenting styles [37, 38]. Spouses may observe parenting behaviours in more naturalistic settings and shared observer bias may be reduced by the use of a spouse as a reporter.

A drawback of this study is that it used a convenient sample. The representativeness of the parents is in question. The attrition rate of parents was substantial because we selected families in which both parents returned the questionnaire. Another drawback is this study's cross-sectional research design. Parents who are depressed or anxious may be more likely to report past MDEs and to describe the way they were raised from a more negative perspective. However, there are reports showing that memories of childhood rearing are minimally influenced by current mood state [56-59].

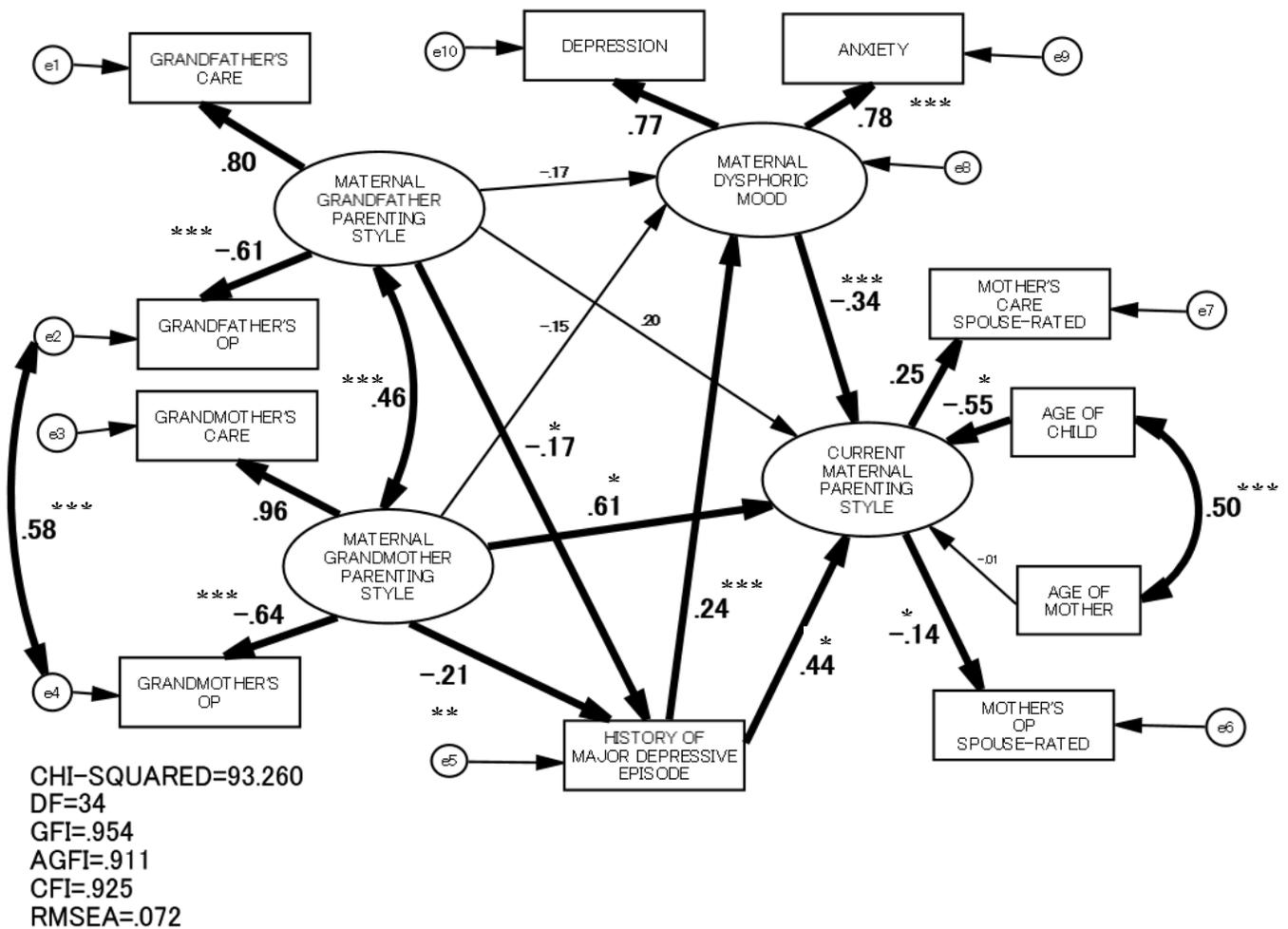


Fig. (4). Path model of mothers' current parenting styles with their potential predictor variables. * $P < 0.05$; ** $P < 0.01$; *** $P < 0.001$. Statistically significant paths are in bold with a standardised estimate. OP, Overprotection.

We used questionnaires whose reliability and validity have been reported. However, the questions regarding lifetime history of MDE were constructed based on IDDL [47]. A methodological limitation of this study is the fact that we did not diagnose the history of MDE using a structural diagnostic interview. The questionnaire assessing the history of clinical depression was developed ad hoc and has not fully tested in terms of its psychometric properties. Despite the validity of an instrument of similar design, the questionnaire used in this study should not be used to form definitive conclusions. Hence, its reliability and validity should be evaluated in future studies.

Since this study used a non-clinical population, reported parenting difficulties may have been fairly mild in nature. The HADS Depression and Anxiety scores in this study were slightly lower than those reported in a Japanese undergraduate population [53]. Further studies should be carried out in a clinical population where severe psychopathology result in a different picture.

Combinations of fathers and mothers and sons and daughters should also be investigated in the future. This is because gender difference between parents and children have been less extensively studied [55].

Caution should also be exercised before forming conclusions based on this study because of the age range of the children examined. The PBI was used for parents of children aged 0–10. Many PBI items, however, may not be valid for parents of very young children. At least five of the items are about autonomy (e.g., the child being free to make his or her own decisions, choose his or her own clothing, go out alone, etc.). These items would clearly be irrelevant for children under two and would be questionable for preschoolers. Perhaps restricting the age range of the children to 2–10 years would be more appropriate. Therefore, we repeated our initial statistical analyses after selecting only parents of children aged two or older. SEM results for fathers and mothers individually showed virtually the same pattern as the SEMs outcomes in this study (data not shown). A few estimates (e.g., Paternal Grandmothers' Parenting Style on Current Paternal Parenting Style, estimate = 0.80; Maternal Grandmothers' Parenting Style on History of MDE, estimate = -0.12) lost their significance possibly due to the smaller number of cases ($n = 222$ and 237 for fathers and mothers, respectively).

Taking into consideration these methodological shortcomings, we believe this study suggests that the way in which parents themselves were raised was no less important

than how they felt currently in determining how they were raising their child. Current dysphoric mood or lifetime history of MDE mediated such effects only among mothers. Among fathers, perceived parenting in the past was found to be the sole determinant of current parenting style.

CONFLICT OF INTEREST

The authors confirm that this article content has no conflict of interest.

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REFERENCES

- [1] Baumrind D. Effects of authoritative parental control on child behavior. *Child Dev* 1966; 37: 887-907.
- [2] Baumrind D. Patterns of parental authority and adolescent autonomy. *New Dir Child Adolesc Dev* 2005; 108: 61-9.
- [3] Rohner RP, Pettengill SM. Perceived parental acceptance-rejection and parental control among Korean adolescents. *Child Dev* 1985; 56: 524-8.
- [4] Schaeffer ES. A configurational analysis of children's reports of parent behavior. *J Consult Psychol* 1965; 29: 552-7.
- [5] Parker G. Parental rearing style: examining for links with personality vulnerability factors for depression. *Soc Psychiatry Psychiatr Epidemiol* 1993; 28: 97-100.
- [6] Suzuki H, Kitamura T. The parental bonding instrument: a four-factor structure model in a Japanese college sample. *Open Fam Stud J* 2011; 4: 89-94.
- [7] Uji M, Tanaka N, Shono M, Kitamura T. Factorial structure of the Parental Bonding Instrument (PBI) in Japan: a study of cultural, developmental, generational, and sexual influences. *Child Psychiatry Hum Dev* 2006; 37: 115-32.
- [8] Luster T, Okagaki L, eds. *Parenting: an ecological perspective*. 2nd ed. New York: Routledge 2005.
- [9] Downey G, Coyne JC. Children of depressed parents: An integrative review. *Psychol Bull* 1990; 108: 50-76.
- [10] Caughy MO, Huang K-Y, Lima J. Patterns of conflict interaction in mother-toddler dyads: differences between depressed and non-depressed mothers. *J Child Fam Stud* 2009; 18: 10-20.
- [11] Leiferman JA, Ollendick TH, Kunkel D, Christie IC. Mothers' mental distress and parenting practices with infants and toddlers. *Arch Women Ment Health* 2005; 8: 243-7.
- [12] McLearn KT, Minkovitz CS, Strobino DM, Marks E, Hou W. Maternal depressive symptoms at 2 to 4 months post partum and early parenting practices. *Arch Pediatr Adolesc Med* 2006; 160: 279-84.
- [13] Paulson JF, Dauber S, Leiferman JA. Individual and combined effects of postpartum depression in mothers and fathers on parenting behavior. *Pediatrics* 2006; 118: 659-68.
- [14] Kendler KS, Sham PC, MacLean CJ. The determinants of parenting: an epidemiological, multi-informant, retrospective study. *Psychol Med* 1997; 27: 549-63.
- [15] Dixon L, Browne K, Hamilton-Giachritsis C. Risk factors of parents abused as children: a mediational analysis of the intergenerational continuity of child maltreatment (Part 1). *J Child Psychol Psychiatry* 2005; 46: 47-57.
- [16] Ertem IO, Leventhal JM, Dobbs S. Intergenerational continuity of child physical abuse: how good is the evidence? *Lancet* 2000; 356: 814-9.
- [17] Muller RT, Hunter JE, Stollak G. The intergenerational transmission of corporal punishment: a comparison of social learning and temperament models. *Child Abuse Neglect* 1995; 19: 1323-35.
- [18] Newcomb MD, Locke TF. Intergenerational cycle of maltreatment: a popular concept observed by methodological limitations. *Child Abuse Negl* 2001; 5: 1219-40.
- [19] Pears KC, Capaldi DM. Intergenerational transmission of abuse: a two-generational prospective study of an at-risk sample. *Child Abuse Negl* 2001; 25: 1439-61.
- [20] Van IJendoorn MH. Intergenerational transmission of parenting: a review of studies in nonclinical populations. *Dev Rev* 1992; 12: 76-99.
- [21] Miller L, Kramer R, Warner V, Wickramaratne P, Weissman MM. Intergenerational transmission of parental bonding among women. *J Am Acad Child Adolesc Psychiatry* 1997; 36: 1134-9.
- [22] Kitamura T, Shikai N, Uji M, Hiramura H, Tanaka N, Shono S. Intergenerational transmission of parenting style and personality: direct influence or mediation? *J Child Fam Stud* 2009; 18: 541-56.
- [23] Kerver MJ, van Son MJ, de Groot PA. Predicting symptoms of depression from reports of early parenting: a one-year prospective study in a community sample. *Acta Psychiatr Scand* 1992; 86: 267-72.
- [24] Parker G, Tupling H, Brown LB. A parental bonding instrument. *Br J Med Psychol* 1979; 52: 1-10.
- [25] Parker G, Hadzi-Pavlovic D, Greenwald S, Weissman M. Low parental care as a risk factor to lifetime depression in a community sample. *J Affect Disord* 1995; 33: 173-80.
- [26] Parker G, Kiloh L, Hayward L. Parental representations of neurotic and endogenous depressives. *J Affect Disord* 1987; 13: 75-82.
- [27] Mackinnon AJ, Henderson AS, Andrews G. Parental 'affectionless control' as an antecedent to adult depression: a risk factor refined. *Psychol Med* 1993; 23: 135-41.
- [28] Martin G, Waite S. Parental bonding and vulnerability to adolescent suicide. *Acta Psychiatr Scand* 1994; 89: 246-54.
- [29] Oakley-Browne MA, Joyce PR, Wells JE, Bushnell JA, Hornblow AR. Adverse parenting and other childhood experiences as risk factors for depression in women aged 18-44 years. *J Affect Disord* 1995; 34: 13-23.
- [30] Rey JM. Perceptions of poor maternal care associated with adolescent depression. *J Affect Disord* 1995; 34: 95-100.
- [31] Rogers B. Reported parental behaviour and adult affective symptoms, 1. associations and moderating factors. *Psychol Med* 1996; 26: 51-61.
- [32] Rogers B. Reported parental behaviour and adult affective symptoms, 2. mediating factors. *Psychol Med* 1996; 26: 63-77.
- [33] Sato T, Sakado K, Uehara T, Nishioka K, Kasahara Y. Perceived parental styles in a Japanese sample of depressive disorders. A replication outside Western culture. *Br J Psychiatry* 1997; 170: 173-5.
- [34] Sato T, Uehara T, Sakado K, *et al.* Dysfunctional parenting and a lifetime history of depression in a volunteer sample of Japanese workers. *Acta Psychiatr Scand* 1997; 96: 306-10.
- [35] Sato T, Sakado K, Uehara T, *et al.* Dysfunctional parenting as a risk factor to lifetime depression in a sample of employed Japanese adults: evidence for the 'affectionless control' hypothesis. *Psychol Med* 1998; 28: 737-42.
- [36] Parker GB. *Parental overprotection: A risk factor in psychosocial development*. New York: Grune and Stratton 1983.
- [37] Kitamura T, Suzuki T. A validation study of Parental Bonding Instrument in Japanese population. *Jap J Psychiatry Neurol* 1993; 47: 29-36.
- [38] Tanaka M, Kitamura T, Chen Z, Murakami M, Goto Y. Do parents rear their children as they were reared themselves? intergenerational transmission of parental styles (warmth and control) and possible mediation by personality traits. *Open Fam Stud J* 2009; 2: 82-90.
- [39] Kitamura T. Hospital Anxiety and Depression Scale. *Arch Psychiatr Diag Clin Eval* 1993; 4: 371-2.
- [40] Matsudaira T, Igarashi H, Kikuchi H, *et al.* Factor structure of the Hospital Anxiety and Depression Scale in Japanese psychiatric outpatient and student populations. *Health Qual Life Outcomes* 2009; 7: 42.
- [41] Zigmond AS, Snaith RP. The hospital anxiety and depression scale. *Acta Psychiatr Scand* 1983; 67: 361-70.
- [42] Mykletun A, Stordal E, Dahl AA. Hospital Anxiety and Depression (HAD) scale: factor structure, item analyses and internal consistency in a large population. *Br J Psychiatry* 2001; 179: 540-4.

- [43] Bjelland I, Dahl AA, Haug TT, Neckelmann D. The validity of the Hospital Anxiety and Depression Scale: An updated literature review. *J Psychosom Res* 2002; 52: 69-77.
- [44] Hamer D, Sanjeev D, Butterworth E, Barczak P. Using the Hospital Anxiety and Depression Scale to screen for psychiatric disorders in people presenting with deliberate self-harm. *Br J Psychiatry* 1991; 158: 782-4.
- [45] Michopoulos I, Douzenis A, Kalkavoura C, *et al.* Hospital Anxiety and Depression Scale (HADS): validation in a Greek general hospital sample. *Ann Gen Psychiatry* 2008; 7: 4.
- [46] Hasui C, Kitamura T. The prevalence of depressive disorder and symptomatic profile of depression among junior high school students in Japan. In: Okuma T, Kanba S, Inoue Y, Eds. *Recent advances in the research of affective disorder in Japan*. Amsterdam: Elsevier 2002; pp. 7-11.
- [47] Zimmerman M, Coryell W. The inventory to diagnose depression, lifetime version. *Acta Psychiatr Scand* 1987; 75: 495-9.
- [48] Uehara T, Sato T, Sakado K, Kameda K. Discriminant validity of the Inventory to Diagnose Depression between patients with major depression and pure anxiety disorders. *Psychiatr Res* 1997; 71: 57-61.
- [49] Uehara T, Sato T, Sakado K, Sato S. Reliability of the Japanese version of the Inventory to Diagnose Depression. *Psychiatry Clin Neurosci* 1996; 50: 235-8.
- [50] Arbuckle JL, Wothke W. *Amos 4.0 User's Guide*. Chicago: SmallWaters 1955-99.
- [51] Bentler PM. Comparative fit indexes in structural models. *Psychol Bull* 1990; 107: 238-46.
- [52] Schermelleh-Engell K, Moosbrugger H, Müller H. Evaluating the fit of structural equation models: tests of significance and descriptive goodness-of-fit measures. *Methods Psychol Res Online* 2003; 8(2): 23-74.
- [53] Matsudaira T, Kitamura T. Personality traits as risk factors of depression and anxiety among Japanese students. *J Clin Psychol* 2006; 62: 97-109.
- [54] Lu X, Uji M, Kitamura T. Effects of intimate marital relationships upon self-reported rearing styles among Japanese parents of young children. *Open Fam Stud J* 2008; 1: 17-22.
- [55] Russell A, Saebel J. Mother-son, mother-daughter, father-son, and father-daughter: Are they distinct relationships? *Dev Rev* 1997; 17: 111-47.
- [56] Gerlsma C, Arrindell WA, Emmerkamp PMG. Mood and memories of early parenting: Connotation of two parental rearing style questionnaires. *Pers Individ Diff* 1993; 12: 551-5.
- [57] Gerlsma C, Das J, Emmerkamp PMG. Depressed patients' parental representations: stability across changes in depressed mood and specificity across diagnoses. *J Affect Disord* 1993; 27: 173-81.
- [58] Gerlsma C, Kramer JJAM, Scholing A, Emmerkamp PMG. The influence of mood on memories of parental rearing practices. *Br J Clin Psychol* 1994; 33: 159-72.
- [59] Richter J, Eisemann M. Stability of memories of parental rearing among psychiatric inpatients. *Clin Psychol Psychother* 2000; 7: 256-61.

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