Relations between Early Regulatory Disorders and Maternal Play Strategies

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Introduction

Self-regulation, a complex construct, has been defined as the infants' growing capacities to calm on their own, tolerate frustrations, adapt to transitions, initiate and cease activities according to situational demands, modulate their state of arousal, and regulate their emotions and behaviors. Disturbances or delays in the development of these regulatory capacities are described as regulatory disorders. Regulatory disorders are expressed in behavioral problems such as excessive crying, sleeping and eating difficulties, and temper tantrums. Usually, the infant's regulatory disturbances are seen to be part of the triadic interplay of: a) difficulties in the child's sensory or processing capacities, b) severe emotional overload in the parents and c) maladaptive interaction between both[1]. In particular, the dysfunctional interactional patterns between parent and child seem to play an important role in this attributing context. The aim of the present study was to analyze mother-child-interactions in a neutral context (everyday play situation) to indicate functional and dysfunctional interactional patterns in mother-child-dyads. Secondly, we investigated if early regulatory disorders and interaction patterns are associated.

This study focuses the complex interdependences between regulatory disturbances and interactional behavior between mother and infant.

Participants

20 German mother-child-dyads with 15 to 16 months old infants participated in this study. Mothers were recruited in public institutions with classes for mothers with young children. The sample included 45% girls and 70% firstborn infants. The average age of mothers was 33.85 years (*SD* = 4.50). The mothers represent Western urban middle-class women with a high education, 45% having a university degree.

Method

Assessment of Early Regulatory Disorders:

Mothers completed a questionnaire to evaluate their children's behavior on four domains defining the regulatory disordered construct: sleeping, crying, eating behavior and temper tantrums. The questionnaire consisted of 12 items. Based on DeGangi's[2] symptom checklist concerning regulatory disorders. To conceptualize children's self-regulatory difficulties, three items per domain were defined (e.g. "My child wakes up at nights and has difficulties falling asleep again"). Mothers were asked to evaluate the infants' behavior described in each item on a 3-point Likert scale.
The reliability was calculated as Cronbach's α reaching very good reliability of .82. The regulatory disorder scores were generated by calculating the mean agreement of the 12 items.

Assessment of Maternal Play Strategies:

To assess interactional behavior between mother and child, mothers were asked to play with their children as they usually do. The free-play situations were videotaped for ten minutes. A trained rater analyzed the videotapes, using a computer-based video analysis system for the assessment of play initiatives of mothers and children and other parameters concerning play styles[3]. The videos were coding using a time-sampling method based on 10-seconds intervals:

1. Maternal initiatives
2. Child initiatives
3. Maternal follow-up
4. Child follow-up
4. Maternal directives
6. Maternal attention guiding

Not the whole ten minutes but the minutes three to seven were coded. Interrater reliability was high between coders. Cohen's Kappa was above 0.7 for each category, ranging between 0.71 and 0.89.

Results

For each category the scores were generated by adding the frequencies of the codes. The scores were entered into an exploratory principal COMPONENTS FACTOR ANALYSIS with VARIMAX ROTATION to determine the factors underlying the coded categories. Based on Kaiser Criterion a two-factor solution was suggested, explaining 62% of the variance. Table 1 shows the rotated components matrix.

Rotated Components Matrix

Variable	*Factor 1*	*Factor 2*
Maternal initiatives	**.865**	.084
Child follow-up	**-.830**	-.310
Child initiatives	**.694**	-.247
Maternal directives	.189	**-.696**
Maternal follow-up	.144	**.659**
Maternal attention guiding	**.537**	**.619**
Explained variance	38%	24%

Note. Boldface type indicates factor loadings ≥.40

The category "maternal attention guiding" showed very high cross-loadings and was excluded from the analysis.

To test the relations between maternal play strategies and infants' regulatory competencies a REGRESSION ANAYLISIS was computed. The regulatory disorder score was entered as dependent variable and the two maternal play strategies were entered as predictors.

The overall model reached significance, ***F* (2) = 4.006, *p* = 0.041.** Only the mother's **"competitive play strategy"** predicted regulatory disturbances significantly, β **= 0,491, *p* = 0,038.** The mother's **"supportive play strategy"** did not contribute significantly for the prediction of self-regulatory problems, β **= 0,295, *p* = 0,191.**

"competitive play strategy"
Both partners frame the play situation actively without attending to the ideas of the other. The dyads' interaction during play situations seems unbalanced.

"supportive play strategy"
The mother is observant and reserved while playing with child. She avoids directing the play situation and follows the child's initiatives. The mother's behavior enables a dialogue-like interaction.

Discussion

In this paper we present a method to classify mother-child-interactions regarding their balance and synchrony. Our results confirm that there are substantial differences in mothers' play styles in a Western middle class sample. Two different maternal play strategies could be identified.
The "competitive play strategy" can be characterized as an unbalanced play style. An asymmetrical interaction arises in which one interrupts the other so that no flow can emerge. Playing ideas change frequently and reflect the discontinuity of the interaction. The second factor characterizes a "supportive play strategy" of the mother. The mother observes the child's behavior and follows it to co-design the mutual activity which results in a harmonic play situation.
In line with Barnard's[4] assumptions that for infants' optimal development, caregivers carry respon-sibilities for being sensitive to children's signals and attempting to respond to them complementary, maternal "supportive play strategy" meets the essential requirements for infants' developmental progress. Contrary, mothers' "competitive play strategy" fails to establish synchrony in play situation and can be seen as a dysfunctional pattern of interaction.
Von Hofacker and Papoušek[1] stress dysfunctional interactions patterns to be one important aspect in the attribution process of regulatory disorders. Therefore maternal "competitive play strategy" can be regarded as an indicator for maladaptive interaction patterns that promote regulatory disturbances.
In the next step of our data analysis, we demonstrated that the "competitive play strategy" but not the "supportive play strategy" predicted regulatory disorders significantly. These results confirm empirically that imbalances in mother-child-interactions have a negative impact on the development of infant's self regulatory competencies.

References

[1]Von Hofacker, N. & Papoušek, M. (1998). Disorders of excessive crying, feeding, and sleeping: the Munich interdisciplinary research and intervention program. Infant Mental Health Journal 19 (2), pp.180-201.
[2]DeGangi, G.A., Breinbauer, C., Roosvelt, J.D., Porges, S., Greenspan, S. (2000). Prediction of Childhood Problems at Three Years in Children Experiencing Disorders of Regulation During Infancy. Infant Metal Health Journal 21 (3), pp. 156-175.
[3]Borke, J., Werchan, A., Keller, H., Maasmeier, K. (2009). Coding Manual Free Play 19 Months. Coding Manual: University of Osnabrueck.
4Barnard, K.E., Hammond, M.A., Booth, C.L., Bee, H.L., Mitchell, S.K., & Spieker, S.J. (1989). Measurement of meaning of parent – child interaction. In: F.J. Morrison, C. Lord, & D.P. Keating (Eds.), Applied Developmental Psychology Vol. 3 (pp. 40-80). New York: Academic Press.

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