

# The development of emotion-regulation and representational abilities in adopted children

Doctoral theses

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## **Introduction**

While post-institutionalized children show significant improvement in many areas after being placed in family environments, significant developmental delays are also noticeable even several years after adoption. Compared to children living with their birth families or adopted within the first weeks of their lives, such developmental delays in children adopted from institutional care are especially conspicuous in the fields of emotional and social development. Yet we know very little of the processes through which early experience leads to these developmental problems.

Although many international studies have focused on the development of institutionalized or post-institutionalized children, unfortunately these studies have almost entirely neglected the fields of the development of emotion-regulation and of representational abilities.

The small number of studies carried out in this area have employed relatively gross and sometimes overly subjective measures (such as parental reports) that help us little to identify and understand the real problems.

In Hungary there are 600-1500 children under the age of 3 years in institutional care each year and there are 320-450 domestic adoptions according to the statistics of the Ministry of Social Affairs and Labour (excluding adoptions by marital partners). To date, there has never been a single research carried out with the aim of assessing and studying the psychological development of institutionalized or adopted children in Hungary.

It is also important to note that the children participating in previous international studies had lived (prior to adoption to Western Europe or North-America) in extremely depriving institutions in Eastern-Europe, ex-Soviet-Union or in certain developing countries. Given the profound and complex deprivation these children had experienced, the interpretation and generalization of such research results have proved to be extremely difficult and ambiguous.

Therefore, the current study offers unique results also because children living in Hungarian institutions experienced „only” social-emotional deprivation, so our findings will be easier to extend to other areas of child abuse, attachment disorders, developmental disorders, child psychiatry, etc.

## **1. Aims**

There are a number of factors and processes underlying the emotional and social difficulties of post-institutionalized children. The aim of the present study is to examine emotion-regulation and related social cognitive (representational) abilities, as these abilities form the basis of psychological health and effective social functioning. Deficits in emotion-regulation may lead to various emotional and behavioural problems, whereas delays in social cognitive abilities may make social interactions and interpersonal relationships more difficult.

The function of “pretend “play provides an important link between emotion-regulation and representational abilities. The development of pretend play is closely related to the development of children’s social-emotional and representational competencies, thus making it possible to study the development of both emotion-regulation and cognitive representational abilities at the same time.

Although the development of pretend play has been in the centre of interest of researchers studying cognitive development and early social relationships, it has hardly ever been studied in connection with children experiencing early deprivation.

## **Questions and hypotheses**

### *Questions and hypotheses regarding representational development*

1. There are two strong positions regarding the development of theory of mind: on the one hand, it is argued that the quality of early relationships, care and attachment determine or significantly influence the development of the child’s theory of mind. According to the other school, theory of mind is an innate, social-cognitive adaption and its development and maturation is pre-determined and age-related. An important aim of the present research is to establish which notion is supported by the comparative study of the theory of mind development of post-institutionalized adopted children.

2. Another measure of cognitive representational development is the ability to coordinate symbolic representations. An interesting question is whether the development of the

coordination of symbolic representations is a process that is related to age and maturation or is it influenced by early experiences instead?

3. While the two questions above concern the application of cognitive (representational) abilities in so-called „cold” situations, in fact these skills are mostly used in emotionally charged social interactions. Since it is more difficult to keep up the dual representational system of the world and use theory of mind effectively in an emotionally charged („hot”) situation, according to my hypothesis children raised in institutional care in the first months of their lives will refer less to mental states in pretend play and will have more difficulty maintaining of the pretense-real boundary: they will „fall out” of the pretense context more often or will have more reality intrusion during pretend play.

#### *Hypotheses regarding the development of emotion-regulation*

My general hypothesis is that the emotion- regulation abilities of children who had spent at least the first 6 months of their lives in institutional care are less developed and these children are thus less able to use the pretend play effectively for emotion-regulative purposes.

As emotion-regulation involves a set of skills, one can formulate a number of specific hypotheses in this regard. Less efficient and adaptive emotion-regulation abilities could result in both under- and over-regulation:

4. The pretend-play narratives of post-institutionalized children will be less coherent due to the ineffective regulation of emotional arousal.

5. There will be more constricted and impoverished narratives in the stories of post-institutionalized children.

6. Due to their difficulty to regulate emotional arousal effectively, the narratives of post-institutionalized children will have more avoidant themes.

7. There will be more dysregulated aggressive content in the narratives of post-institutionalized children.

8. There will be more aggressive content in the context of low narrative coherence in the stories of post-institutionalized children.

9. There will be more anxiety themes in the narratives of post-institutionalized children.

*Hypotheses regarding emotional and behavioural problems*

10. Post-institutionalized children will have more emotional and behaviour problems.

## **1. Method**

### **3.1. Subjects**

90 children, between the age of 4 and 6 participated in the study. Mean age of subjects was  $58.32 \pm 6.65$  months.

Each child belonged to one of the 3 groups, with 30 children in each of the following groups:

1. The children in the first group were placed in institutional care at birth and lived there for at least six months before being adopted.
2. The second group consisted of children who were adopted within the first 6 weeks of their lives.
3. The third (control) group consisted of children reared with their biological families

Group 1. and 2. are each other's control groups: the „only” difference between the children in these two groups is whether they had spent the first months of their lives in an institution or in a family. The genetic background, possible pre- and peri-natal impairments are supposedly very similar. Neither was there any significant age-difference between the groups and the gender distribution was also very similar.

## **3.2. Materials**

### **3.2.1. Tests**

#### ***False-belief tests***

Two standard false-belief tests were administered to the children with a slight modification to the original test-situation. These tests measure children's theory of mind in an emotionally neutral, „cold” situation.

#### ***Test of symbolic coordination***

This test measures children's ability to reflectively coordinate symbolic representations.

The pantomime task requires the simultaneous coordination of dynamic action and a symbolic object, which is too difficult for children prior to the level of reflective symbolic coordination.

#### ***MacArthur Story Stem Battery***

The MacArthur Story Stem Battery (MSSB) is a standardised and structured technique based on the traditions of play therapy that yields psychometrically valuable data.

The MSSB consists of open-ended story-stems that allow for a range of coherent solutions, and thus helps to understand children's representations of their social-emotional worlds.

Vivid story beginnings, made more dramatic and concrete by the use of dolls, effectively set in motion children's narrative responses. Each story beginning portrays a relationship, emotional or moral conflict that culminates at an emotionally critical point.

The children's task is to complete the story, resolving the conflict as far as possible.

The MSSB can be coded in a number of different ways, taking into account different perspectives. The coding approach depends on the research questions, characteristics of the sample, etc. The most commonly used scoring systems have concentrated on two broad

domains of response: 1. the content or themes, and 2. performance features or manner of the responses.

When designing my own coding system I chose the codes most relevant to my questions and hypotheses of the already existing coding systems (in line with the general practise). Of special importance among the content codes were those related to interpersonal relationships, regulation of aggression, parent representations, anxiety, and the avoidance of emotional conflict.

The most important performance feature was narrative coherence. In addition, embellishment and detailed story completion, difficulty when completing the story, boundary confusion, responsiveness and involvement with the examiner and the task were also relevant.

### ***Snijders-Oomen Nonverbal Intelligence Test***

The Snijders-Oomen Nonverbal Intelligence Test is a 5 sub-test non-verbal battery that can be used from 2.5 years. It is particularly suited for children with verbal communication difficulties and also for children whose language development might be delayed.

### ***Peabody Picture Vocabulary Test***

When planning the research there was no standardised, general test of language abilities available in Hungary. Of the many specific tests each measuring different aspects of language development the Peabody Picture Vocabulary Test was administered to the children.

PPVT is the most well known and widely used test to measure passive/receptive vocabulary that is one measure of verbal intelligence.

### ***3.2.2. Questionnaires***

#### ***Child Behavior Checklist (CBCL)***

The Child Behavior Checklist is one of the most popular and widely used questionnaires in the field of child psychiatry. It is a multi-dimensional instrument designed to assess and measure emotional and behaviour problems in children and adolescents.

*Questionnaire exploring the background of adoption (edited by the author – A.B.)*

*Questionnaire exploring the families' socio-economic status (edited by the author – A.B.)*

### **3.3 Procedure**

All parents of the children participating in the study volunteered to take part in it. Doing so, they were responding to ads in journals, chat-rooms or to outreach efforts by relevant non-governmental organizations and foundations.

The examiner and her assistants met each child twice in the course of the study. First time the examiner visited children in their home to administer the pretend-play task and the tests of representational abilities, which was all video-recorded. Intelligence and vocabulary test were carried out in the lab. Parents were also asked to fill out some questionnaires about their child's emotional and behaviour problems, the family's socio-economic status, and to provide more information about the adoption.

Parents also signed written consent forms after proper information was given orally and in writing.

### **3.4. Coding, scoring and analyses**

The videofilms with the false-belief and symbolic representation tests and the MSSB were coded by a trained coder blind to the hypotheses and to which group each child belonged.

Intelligence and vocabulary tests were coded subsequently by the assistants who carried out the tests.

Statistical analyses were carried out using the SPSS program.

As the distribution of most of the variables was not normal, I used non-parametric tests in the statistical analyses.

To measure differences between means across groups instead of one-way ANOVA I used Kruskal-Wallis test and pair-wise comparisons were subsequently carried out by Mann-Whitney tests. Bonferroni-corrections were employed to avoid accidental errors due to multiple comparisons.

#### **4. Results**

1. There was no difference between the groups on the false-belief tasks. Children's age and performance on the false-belief task were significantly correlated. ũ
2. There was no difference between the groups on the action-pantomime task. However, age and performance were significantly correlated. Performance on the false-belief and action pantomime tasks were correlated. However, the correlation was not significant after controlling for age.
3. There was more boundary-confusion in the play narratives of post-institutionalized children.
4. Narrative coherence was significantly lower in both adopted groups compared to the control group.
5. There were more atypical aggressive themes and atypical negative responses in post-institutionalized children's narratives compared to the control group, and more conflict themes compared to both the early adopted and the control group.
6. There were more children in the post-institutionalized group whose narratives were high on aggressive themes and low on narrative coherence.
7. There were more constricted, impoverished narratives in both adopted groups compared to the control group.
8. There were more anxiety themes in the group of post-institutionalized children compared to the control group.
9. There was more avoidance of the conflict themes in both adopted groups compared to the control group.
10. There was no difference between the groups on the problem-scales of the Child Behavior Checklist.

More results:

1. Post-institutionalized children's receptive vocabulary was significantly lower than control children's on the Peabody Picture Vocabulary Test.
2. Post-institutionalized children were rated as more hyperactive and having more attention problems by the coder of the videotapes.
3. There were significant sex differences on certain themes of the MSSB: girls' narratives had more prosocial themes and more positive maternal representations while boys' narratives had more destructive themes and dysregulated contents.

## **5. Discussion**

In the following section I shall examine whether my hypotheses were supported by the empirical study. Our results on representational development support the view that theory of mind and the coordination of symbolic representations are innate, adaptive competencies. As such, the quality of early care relationships does not substantially influence the pre-determined developmental path of these capabilities in „cold“, emotionally neutral situations.

Our expectations have been confirmed by the results on the employment of cognitive representational skills. Children adopted from institutional care were more easily stepping out of the pretense-context, blurred boundaries; and mixed real with pretense more often. This result confirms the hypothesis that children experiencing institutional care are similarly successful in coordinating dual representations in „cold“, emotionally neutral situations, but they have difficulties in doing so in emotionally charged situations with higher arousal level.

Instead of a single behavioural trait, emotion-regulation refers to a complex set of competencies and abilities. Consequently, various measures of pretend-play may reveal different aspects of emotion-regulation. The results of comparing the three groups confirm the hypothesis that children adopted from institutional care have less developed emotion-regulation skills or are less efficient in employing those skills.

We found that even moderate institutional deprivation may lead to long-term, serious consequences in emotional development. This is a new finding in relevant international literature.

Another important and surprising result of the study was that even early (neonate) adopted children differ from the control group (children in birth-families) in several measures of emotion-regulation development (although to a lesser extent than late-adopted children do).

We may well suppose that there had been pre- and perinatal factors in both groups of adopted children that could conversely influence those structures of the nervous system that provide the neuro-physiological basis of emotion-regulation development, affect the child's temperament and through all these affect early relationships as well.

Moreover, various characteristics of the adoptive parents and vulnerabilities following directly from the fact of being adopted may also be important to the explanation of the delays in the development of emotion regulation capacities.

Interestingly, we failed to replicate the results that had often been found in previous international studies that children adopted from institutional care have more behavioral and emotional difficulties as measured by the Child Behavior Checklist. Given that many of our results indeed indicate a higher probability for such difficulties in the case of children experiencing early institutional care, we may suppose that (unconscious) psychological distortions of adopting parents might account for this surprising negative finding. At the same time, this negative result also underlines the serious limitations of the questionnaire methodology that has been so widely used in the research of adopted children.

## 6. Publications

Publications related to the dissertation:

Batki, A. (2009) The development of emotion-regulation and representational abilities in post-institutionalized adopted children. Poster presented at the *International ESCAP Conference, Budapest*

Batki, A., Baron-Cohen, S., Connellan, J, Wheelwright, S. és Ahluwalia, J. (2000): Is there an innate gaze module? Evidence from human neonates, *Infant Behavior & Development*, 23: 223-229

Connellan, J.,Baron-Cohen, S.,Bátki, A., Wheelwright, S. és Ahluwalia, J. (2000): Sex differences in neonatal social cognition, *Infant Behavior & Development*, 23, 113-118.

Futó, J., Bátki, A., Koós, O., Fonagy, P., Gergely, Gy. (2004) Early Social-Interactive Determinants of Later Representational and Affect-Regulative Competence in Pretend Play. Poster presented at the *14<sup>th</sup> Biennial Conference on Infant Studies, Chicago*

Other publications:

Bátki, A. (2001): Az univerzalizmus és relativizmus kérdése az evolúciós és a kulturális pszichológiában.In: Pléh, C., Csányi V., Bereczkei, T. (szerk.): *Lélek és Evolúció*, Osiris, Budapest, 118-133

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Bátki, A. : Az anyai érzelmtükrözés szerepe a gyermeki reprezentációs képesség alakulásában  
*EFTA: Családterápia 2001, Budapest,*