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Attachment Representation in Mothers of Children with Attention Deficit Hyperactivity Disorder

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Key Words
Attachment representation · Attention deficit hyperactivity disorder · Adult Attachment Projective

Abstract
Attachment research so far rarely has focused on attention deficit hyperactivity disorder (ADHD). This study is the first to examine the distribution of the attachment representation in mothers of children with ADHD. Considering results of clinical attachment studies we formulated the following hypothesis: the prevalence of maternal insecure and unresolved attachment representations increases with the degree of severity of children's ADHD symptoms. Therefore it is highest in mothers of children with ADHD who are treated clinically (group A). It is expressed less strongly in mothers of children with ADHD symptoms without need for clinical treatment (group B). In a control group of mothers whose children have no ADHD diagnosis (group C), there is the lowest prevalence of insecure and disorganized attachment representations. Within a period of 6 months from a total of 72 recruited children and their mothers screened according to participation criteria (e.g. ICD-10: F90 Hyperkinetic disorders), 13 mothers could be assigned to group A, 19 mothers to group B, and 19 mothers to group C. The attachment representation was assessed using the Adult Attachment Projective. To test the sequence order hypothesis we used the Jonckheere-Terpstra test ($u = 3.78$; $p < 0.001$). The increasing clinical conspicuity in the groups obviously is connected to a reduced prevalence of the autonomous attachment representations as well as to an increase of the insecure and unresolved attachment representations of the mothers. We interpret this result with respect to the treatment of children with ADHD as a vote for considering the family context as well as early intervention strategies which aim at the improvement of the quality of maternal sensitivity.

Introduction

With attachment theory, John Bowlby [1–3] worked out a model of human development based on psychoanalysis and ethology with a systems theory orientation. He suggested that a baby is phylogenetically determined to attach to the main caregivers in his immediate environment. If a child experiences stress, separation, or danger, its attachment system is activated. In this state of activation the child has a highly effective repertoire of signals at its disposal to activate the caregivers' nursing system. Triggered by the child's signals, the attachment figure will usually employ suitable measures to provide relief. In the course of this routine the child develops an inner working model (IWM) of attachment. According to

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Bretherton [4–7], IWMs can be regarded as generalized representations of events in the sense of 'lived experiences'. These contain affective as well as cognitive components and allow the simulations of real-life events. Thus they allow the individual to anticipate environment events and to plan his own behavior based on insight and foresight [1]. If an attachment figure perceives the children's attachment behaviors and everyday signals in an appropriate way, if he or she interprets them correctly and finally acts adequately and promptly, he or she displays sensitive behavior according to the definition of Ainsworth et al. [8]. The child will picture such an attachment figure in its IWM as competent, reliable, and predictable in its behavior, and it will attach itself securely to this person in the course of the first year of its life. If a child often experiences its signals to be unresponded or misinterpreted, and that the attachment figure therefore reacts inappropriately or too late, it will develop an insecure-avoidant attachment to this person. Though it will picture this attachment person in its IWM as acting inadequately and as not reliable, the child is able to predict the reactions of the person to its signals just as precisely as a securely attached child does. A child with an insecure-ambivalent attachment fails on this. Such a child will experience its attachment figure as unpredictably alternating between competent, reliable, and predictable and in other situations inadequately and unreliable. Hence, the child is at a basic loss to predict the behavior of its attachment figure. Twelve years after Ainsworth et al. [9] had first described this typology of organized attachment patterns in 1978 it was extended to include the disorganized attachment pattern [10, 11]. If a child is neglected, maltreated, or abused, if it experiences its attachment figure to fall mentally ill, if it is threatened or traumatized otherwise by her, it will develop a disorganized attachment towards this person. In sharp contrast to the three initial situations outlined before, this confronts the child with the dilemma that the person meant to provide relief to the child is identical with the one to threat and endanger it. In the ensuing breakdown of the attachment system the child will act in a frightened, overanxious, petulant and/or hypervigilant way in the presence of the attachment figure. As attachment research proved in many elaborate longitudinal studies [12–14], early childhood attachment experiences are highly predictive with regard to later psychosocial development and level of functioning (self-image, self-esteem, social competence, cognitive ability) up to adulthood. In the meantime, we find common appreciation of the fact that a secure attachment to the main attachment figure in the first year of life features as a major protective factor with respect to the psychosocial development of the child while the disorganized attachment poses a risk factor for subsequent psychopathological development.

While attachment research initially focused on childhood, the development of the Adult Attachment Interview (AAI) in the mid-80s enabled close scrutiny of adult attachment representations [15]. The AAI is an autobiographical semistructured clinical interview in which participants are questioned with respect to their childhood attachment relationships. The interview's design aims at triggering attachment-relevant events, including (physical and psychological) injuries and/or pains, separation, loss, or also sexual traumatization. The classification of the attachment representation is based on the verbatim protocols. Recently a novel and less time-consuming projective procedure for classifying attachment representations has been introduced, the Adult Attachment Projective (AAP) [16, 17]. In the AAP the testee is presented with 8 black and white pictures showing various scenes, with the intention of gradually activating the persons' attachment behavior system. On the one hand, evaluation of the mode of linguistic presentation of the attachment event informs AAP and AAI analysis and evaluation. On the other hand, scene-specific stringency and consistency of the memorized narrative are evaluated. In addition to these criteria the employed defensive mechanisms are evaluated. The analysis is concluded by the classification of the attachment representation. Participants classified as autonomous (corresponds to secure in childhood) demonstrate a flexible approach to attachment-relevant feelings. As evidence to this, their narratives show candor, frankness and coherence. Lack of free emotional approach to attachment-relevant feelings and minimization or deactivation of attachment needs lead to assignment of the dismissing category (corresponds to insecure-avoidant in childhood). Participants classified as preoccupied (corresponds to insecure-ambivalent in childhood) present hyperactivated attachment needs and extremely emotionalized narratives. The interviews classified as unresolved (corresponds to disorganized in childhood) contain narratives of emotional disorientation and linguistic incoherence in attachment-relevant narratives.

Since these inventories were introduced into attachment research, numerous studies were carried out concerning the prevalence of the various attachment representations in normative (nonclinical mothers, nonclinical fathers, adolescents and young adults, other cultures) and in clinical samples (low socioeconomic status, adults

with clinical problems, mothers of children with clinical problems). A meta-analytical evaluation of these studies by van Ijzendoorn and Bakermans-Kranenburg [18] resulted in 55% autonomous, 16% dismissing, 9% preoccupied und 19% unresolved attachment representations for nonclinical mothers. The clinical samples documented the following distribution: 8% autonomous, 26% dismissing, 25% preoccupied, and 40% unresolved. Compared to the standard distribution in nonclinical groups, the combined clinical groups therefore showed an extremely deviating distribution in attachment representation with a strong bias towards insecure and unresolved participants ($\chi^2 = 114.83$, $p < 0.001$). It has to be noted that these studies encompassed a great diversity of samples (e.g. conduct disorders in adults, depressive disorders in adults, mothers of abused or neglected children, mothers of children with oppositional disorders) [18]. The authors, however, felt that it was irrelevant for the overall distribution whether the clinical pathology occurred in the examined adults or in the children [19].

Besides the question of the distribution of attachment representation in adults, attachment research dealt with the transgenerational transmission of parental attachment experiences. The correlations between parental attachment representation and the attachment quality of the child, meanwhile established in numerous studies, are regarded as evidence for the intergenerational transmission of attachment [19–27]. This can be firmly validated in the case of autonomous attachment of the mother and secure attachment of the child. But it is also found for the insecure and unresolved representations of the mothers and their insecure and disorganized counterparts. Parental attachment representation and maternal sensitivity as demonstrated in the interaction with the child (see above) are regarded as agents promoting intergenerational transmission.

Attachment and ADHD

ADHD represents one of the most frequent forms of externalizing psychopathology in child and adolescent psychiatry with prevalence rates ranging from 3 to 9% in normal populations [28, 29] and features among the best examined disorders of childhood and adolescence. The frequency of this diagnosis has led to controversy regarding its etiology, its pathological validity, and treatment protocol. For example, Weisshaupt and Jokeit [30] state that despite decades of clinical experience and the availability of a variety of methods ranging from molecular genetics, neurophysiology, neuroimaging, and neuroscientific behavior analysis, the etiology and the pathogenesis of this disorder are yet poorly understood. Since for the individual patient neither behavioral data nor genetic or neurobiological markers would justify an objectivation of the diagnosis, the authors favor the endphenotyping of ADHD as a differential and maybe more promising research approach that might also gain importance for clinical diagnosis. Current data indeed calls for meticulous diagnosis so that the en-vogue diagnosis ADHD is not assigned on false grounds, especially regarding the indication for therapy, in particular when considering pharmacological intervention. Keeping in mind this initial situation, it is astonishing that so far there is only one study examining the distribution of attachment quality in children with ADHD [31], while the distribution of attachment representation in the parents of these children has not been examined in a systematic way at all.

The disorder is composed of the three core symptoms inattention, hyperactivity, and impulsivity. While according to the DSM-IV-TR criteria a division into a mainly inattentive (314.00), a mainly hyperactive-impulsive (314.01), and the combined subtype (314.01) is possible, the International Classification of Psychiatric Diseases (ICD-10) differentiates hyperkinetic disorders (F90) with regard to disturbance of activity and attention (F90.0), hyperkinetic conduct disorder (F90.1), other hyperkinetic disorders (F90.8), and the unspecified hyperkinetic disorder (F90.9). In order to diagnose ADHD, the person must present the core symptoms to an abnormal extent and in various situations including family and school contexts over a period of at least 6 months. In addition, the symptoms must also be experienced as stressful and they must be discernable since the preschool years.

Meanwhile there is some empirical evidence that temperament and vitality of the infant play a part in the etiology of ADHD, especially if there is a mismatch with the primary attachment figure (mostly the mother) [32–34]. Increased and hard-to-control crying in infancy may point to interaction problems between mother and child and seems to be an early indicator of the risk of later ADHD [35, 36]. Prospective studies [37, 38] have shown that among 40 different child-related criteria the quality of the parent-child interaction in the 6-month-old infant alone can predict the risk for ADHD. In particular this is associated with overstimulating and intrusive behavior on the parents' part, a problematic relationship between parents and child, and a lack of support available to the mother.

One can assume that such a parental behavior is the expression of an insecure or unresolved parental attachment representation. Therefore the above-described level of knowledge given in the field of attachment research initiated this pilot study in which for the first time the distribution of attachment representation in mothers of children with ADHD was examined. Moreover, with respect to the results of the clinical attachment studies [18, 19] described above, the following hypothesis can be formulated: the prevalence of maternal insecure and unresolved attachment representations increases with the degree of severity of the ADHD symptoms as presented by the children. Therefore it rates highest in (group A) mothers of children with ADHD who are treated clinically (with psychotherapy or drugs). It decreases in mothers of children with ADHD symptoms without need for clinical treatment (group B). In a control group of mothers with children lacking ADHD diagnosis (group C), there is the lowest prevalence of insecure and unresolved attachment representations. Group degree of insecure and unresolved attachment representation: A > B > C.

Methods

Subjects

For participation in the study a total of 72 children and their mothers were recruited during a period of 6 months and divided into the following subgroups: mothers of children with ADHD who are treated clinically (with psychotherapy or drugs, group A), mothers of children with ADHD symptoms without need for clinical treatment (group B), and mothers of children with no ADHD diagnosis (group C).

Group A (n = 13; age range 7–14 years; 10 male, 3 female) was examined at the Clinic of Child and Adolescent Psychiatry and Psychotherapy, University of Cologne. The ICD-10 diagnoses of the 13 ADHD children who presented for treatment were carried out by clinicians. Diagnosis having been established, the mothers of the children enrolled in the AAP, carried out by a trained research colleague. Groups B (n = 19; age range 6–9 years; 16 male, 3 female) and C (n = 19; age range 6–8 years; 8 male, 11 female) were recruited in four schools in Cologne. These were requested to recruit families to participate in the study whose children showed extreme inattention, hyperactivity, and impulsivity in class (group B). Additionally, families were addressed whose children did not show any conspicuous behavior with respect to inattention, hyperactivity, and impulsivity in class (group C). In this way, 30 children of group B, 29 children of group C, as well as their mothers enrolled and could be examined. Initially, diagnoses were established employing the external assessment sheet of the diagnosis checklist for hyperkinetic disorders (DISYPS-KJ) [39]. It was edited by the children's teachers and analyzed by a trained research colleague who afterwards also carried out the AAP to establish the maternal attachment representations. Eleven participants of the 30 mother-child pairs recruited into group B had to be excluded from the data set due to failure to meet ADHD criteria. In 5 cases severe language problems on the mother's part ruled out reliability in AAP conduction and analysis. In the group C sample, 10 mother-child pairs had to be disregarded due to accordance to ADHD criteria, based on teachers' assessment (2 cases); 2 mothers denied participation in the AAP interview; in 6 cases severe language problems on the mother's part proved prohibitive. The specific values of the children's samples are shown in table 1.

Table 1. Group characteristics of children

Group	n	Sex		Age		ICD-10	
A	13	M	10 (76.9)	mean	9.6	F90.0	10 (76.9)
		F	3 (23.1)	SD	1.7	F90.1	3 (23.1)
				range	7–14	F90.9	–
B	19	M	16 (84.2)	mean	7.4	F90.0	5 (26.3)
		F	3 (15.8)	SD	0.7	F90.1	–
				range	6–9	F90.9	14 (73.7)
C	19	M	8 (42.1)	mean	7.2		
		F	11 (57.9)	SD	0.5		
				range	6–8		

Figures in parentheses are percentages. Group A = ADHD children with psychiatric treatment; group B = children with ADHD symptoms without need for clinical treatment; group C = children with no ADHD diagnosis; SD = standard deviation.

Measures

Diagnostic System for Mental Disorders in Childhood and Adolescence according to ICD-10/DSM-IV (DISYPS-KJ). DISYPS-KJ [39] is a diagnostic system serving the manualized definition of psychiatric disorders in children and adolescents according to the ICD-10 and DSM-IV criteria. The sheets for self- and external assessment (parents, teachers, educators) allow the determination of seven childhood and adolescence disorders including ADHD. The DISYPS-KJ design takes into account categorical as well as dimensional diagnostic approaches, thus facilitating 'classical' diagnostic procedure as well as quantitative rating of symptoms and symptom clusters. Within the DISYPS-KJ the diagnosis checklist for hyperkinetic disorders (DCL-HKS) contains, according to the core symptoms of ADHD, the symptom groups attention disorder (9 items), hyperactivity (5 items), and impulsivity (4 items). The examined person is asked to rate the target problem behavior (which is outlined by means of items and also explained by the examiner) with respect to the frequency of occurrence on a 4-point scale (0 = nonexistent; 1 = slight; 2 = marked; 3 = very marked). By this procedure the severity levels of the three symptom groups as well as the calculation of the total ADHD score may be established. To obtain specific ADHD diagnoses according to ICD-10 and DSM-IV, the core symptom criteria were defined with respect to a categorical diagnosis. For the present study the external assessment sheets were employed for parents.

Table 2. Distribution of maternal attachment representations

	AAP classification, n			
	F	Ds	E	U
Group A (n = 13)	2 (15.4)	5 (38.5)	2 (15.4)	4 (30.8)
Group B (n = 19)	11 (57.9)	5 (26.3)	1 (5.3)	2 (10.5)
Group C (n = 19)	16 (84.2)	2 (10.5)	0 (0.0)	1 (5.3)

Figures in parentheses are percentages. Group A: mothers of children with ADHD who are treated clinically; group B: mothers of children with ADHD symptoms without need for clinical treatment; group C: mothers of children with no ADHD diagnosis; F = autonomous; Ds = dismissing; E = preoccupied; U = unresolved.

Adult Attachment Projective. As mentioned above, the AAP [16, 17] assesses adult attachment representation based on the analysis of narrative responses to a standardized set of eight projective pictures. These pictures are simple drawings of events meant to activate the attachment system (e.g. illness, separation, death, abuse). Subjects are asked to come up with a story to each picture. AAP classification is carried out based on a set of narrative dimensions including narrative style (coherence), content, and evidence of defensive processing. The AAP has shown convergent validity, test-retest reliability and interrater reliability in a recent validation study [40]. Convergent validity was established between the AAP and the AAI [15]. For classifying individuals as organized versus disorganized, convergent validity was 97% (kappa = 0.88, $p < 0.000$, n = 130). Across a 3-month period test-retest reliability was 91% (kappa = 0.79, $p < 0.000$, n = 65). Interrater reliability was examined for two pairs of independent blind raters. For one pair reliability was 99% (kappa = 0.66, $p < 0.000$, n = 74), for the other 88% (kappa = 0.70, $p < 0.000$, n = 153). For AAP examinations in the course of the present study 2 research coworkers of the Clinic of Child and Adolescent Psychiatry and Psychotherapy and one research coworker of the Department of Human Sciences, University of Cologne, were trained and supervised by the first author. Prior to this, this author successfully went through an AAP training by the first author of the inventory – Carol George (Mills College, Oakland, Calif., USA) – and is authorized to train persons in carrying out the AAP. The AAP classifications were carried out by 2 psychologists who had achieved AAP reliability status and were ignorant with regard to any of the sample-specific rating scores.

Results

The statistical calculations on which the following results are based were accomplished by means of the SPSS program version 14.0. Table 2 shows the distribution of attachment representations of the mothers of ADHD children as well as of the mothers of the control group.

The first salient point to be noted is that the prevalence of the autonomous attachment pattern increases clearly from group A (15.4%) over group B (57.9%) up to group C (84.2%). Autonomous attachment occurs – in comparison with the mothers of children with ADHD receiving clinical treatment (group A) – in mothers of children with ADHD symptoms without clinical treatment (group B) almost four times as often and in the mothers of the control group (group C) more than five times as often. When taking a look at the insecure attachment representations (dismissing, preoccupied), the distribution pattern is inverted, as here the prevalence diminishes from group A over group B to group C. The high number of unresolved classifications in the group of mothers of children with ADHD receiving clinical treatment (30.8%) in particular is remarkable. Compared to the mothers of children with ADHD symptoms without clinical treatment (10.5%) they score three times as high, compared with the mothers of children without ADHD (5.3%) even almost six times as high.

In order to test the above-mentioned sequence order hypothesis with respect to the prevalence of insecure and unresolved attachment representations in the respective groups (group A > group B > group C), the attachment classifications were first transformed into an ordinal scale. An attachment security score was constructed according to Main et al. [41], 4 representing autonomous, 3 dismissing, 2 preoccupied, and 1 unresolved attachment representation. The test of the hypothesis itself was then done by means of the k sample test against ordered alternatives (Jonckheere-Terpstra test). This nonparametric trend test allows the testing of an expected order of the medians of the depending variable (attachment representations) under the precondition of an a priori trend hypothesis. In the present case the alternative hypothesis (H_1) tests that the median of the variable 'maternal attachment representation' in group A (mothers of children with ADHD receiving clinical treatment) is larger than the median of group B (mothers of children with ADHD symptoms without clinical treatment) and that this median is again larger than the median of group C (mothers of children without ADHD). This hypothesis is confirmed by the Jonckheere-Terpstra test ($u = 3.78$; $p < 0.001$). Thus, the above-mentioned ordered alternative hypothesis is accepted. It can be noted that the increasing clinical severity in the groups examined here is obviously related to a reduced prevalence of autonomous attachment representations as well as to an increase of insecure and unresolved attachment representations of the mothers.

Discussion

Firstly, the distribution of maternal attachment representations will be discussed. Subsequently, we will discuss the co-occurrence of increased prevalence of insecure and unresolved attachment in the mothers and grave ADHD symptoms in their children.

The distribution of attachment representations in mothers of children with ADHD needing clinical treatment (F = 15.4%; Ds = 38.5%; E = 15.4%; U = 30.8%) is well comparable to the distribution in other so-called clinical samples which were included in a meta-analysis by van Ijzendoorn and Bakermans-Kranenburg [18]. For example, the range for autonomous attachment reported in the literature is between 0 [42] and 24% [43], while the one for unresolved attachment is between 16.7 and 75% [44]. In studies of nonclinical mothers, that were also included in the meta-analysis, the range for autonomous attachment is between 44.9 [45] and 72% [43] and for unresolved attachment between 8.3 [20] and 37% [46]. Our own results regarding the mothers of children without ADHD (group C) with 84.2% autonomous and 5.3% unresolved attachment representations seem somewhat out of line. This, on the one hand, may suggest that this group of mothers experienced an extremely low level of stress. On the other hand, one should point to the fact that our group B mothers, whose ADHD children do not need clinical treatment, would also have been assigned to the nonclinical mothers according to the meta-analytical criteria mentioned above [18]. Calculating the weighed mean values of the prevalence percentage of the attachment representations in groups B and C under this precondition yields the following distribution: F = 71.1%; Ds = 18%; E = 2.5%; U = 7.9% (for B + C). This then amounts to but a slight divergence, limited to unresolved attachment. A limitation to the studies included in the meta-analysis is that sample sizes differ considerably, ranging from 12 to 96 test persons. For the present study as well as for the meta-analysis [18], as far as the distribution of attachment representations in mothers of children with ADHD undergoing clinical treatment is concerned, one has to concede a clearly deviating distribution, with insecure and unresolved participants being strongly overrepresented.

Before discussing the confirmed sequence-order hypothesis concerning the prevalence of insecure and unresolved attachment representations in the examined groups (A > B > C), the contextual model of van Ijzendoorn and Bakermans-Kranenburg [19] will be introduced. By this model the aspects contributing to the attachment-relevant experiences of a child may be identified. In the model, (1) early childhood experiences of parents with their own parents within the family context precede (2) further attachment experiences during childhood in other contexts (e.g. kindergarten, school, peer groups). Based on these experiences IWMs of attachment are constructed which during adolescence lead to a dominant IWM of attachment, figuring as (3) attachment representation. The adult attachment representation and (4) its social context influence (5) parenting behavior. Ultimately the parenting behavior and the (6) specific child characteristics will implement the child's future attachment experiences. Turning to parenting behavior, parental sensitivity including appropriate perception, correct interpretation, and adequate and prompt reaction to the signals of the child are of great importance. Furthermore, this so-defined sensitivity contributes considerably to the quality of the parent-child interaction. As discussed previously, autonomously attached parents have at their disposal optimal preconditions for a sensitive interaction with the child due to their own favorable early attachment experiences and advantageous later attachment relationships (contextual model: levels 1 and 2). One can assume that these preconditions are impaired in insecurely attached parents (dismissing, preoccupied) due to previous detrimental experiences. Due to early childhood attachment experiences of parents classified as unresolved – having experienced e.g. neglect, maltreatment, and abuse or other potentially traumatizing incidents – we plausibly assume a high probability for a severely impaired sensitivity in these cases. Transferring these preconditions to the results of the present study and considering the higher prevalence of insecure and unresolved attachment representations, one will expect mothers of children with ADHD receiving clinical treatment – in comparison to mothers of groups B and C – to tackle their parenthood very poorly equipped with regard to parental sensitivity. In particular, taking into account the research findings regarding the pathogenesis of ADHD [29], the facilitation of a high maternal sensitivity from early childhood on seems to be a protective agent if one aims at minimizing those risks that are known to contribute, by way of a severely impaired quality of parent-child interaction, to the genesis of ADHD [35, 36]. Furthermore, introducing the characteristics typical of ADHD children (e.g. deficits in self-regulation including deficient impulse control and self-soothing; difficulties in integrating cognitive, affective and/or motor functions) into the contextual model [19], it seems obvious that demands for a sensitive interaction with the child will multiply. Consid-

ering the above-mentioned criteria contributing to the genesis of ADHD from an attachment-theoretical perspective, the most unfavorable initial constellation arises for children whose characteristics are known to contribute to ADHD and whose mothers at the same time have an unresolved attachment representation. Finally, within the framework outlined above regarding the dynamics of intergenerational transmission, one may expect a considerable number of children thus predisposed to develop a disorganized attachment. Besides the biogenetic causes for ADHD hitherto verified, elaborate assessment of family history, e.g. insecure or unresolved attachment representation in the mother, will be of importance. In addition to neurobiological and psychological impairments, unfavorable maternal attachment representation therefore may be considered as another possible risk factor for the development of ADHD in a child.

With respect to the treatment of ADHD children our results particularly suggest considering the family context. Current 'mainstream' therapeutic elements for ADHD children, e.g. pharmacotherapy, treatment of possible comorbidities, or behavioral therapeutic self-instruction, should be supplemented with psychotherapeutic intervention focused on the parents' attachment status. Since parental attachment representation is a decisive factor in the intergenerational transmission of attachment, the aim of attachment-focused therapy is the restructuring of insecure or unresolved IWMs. As Bowlby [1] points out, IWMs of attachment are not passive introjects of objects from the past but they are active constructs that may be restructured at any given time. Because mental models function subconsciously to a large extent and therefore tend to resist dramatic change, he regards restructuring as a rather long-term process not easy to cope with. Even 'knowing' about parental attachment representations may suffice in helping to better understand the problems or why existing offers for help fail, e.g. educational counselling or pedagogically guided parent groups. Besides the plead for considering the family context, the attachment-theoretical perspective [47] as well as the results of attachment research [48–50] suggest early interventions to improve the quality of parental sensitivity. Protocols for early intervention have been available for some time, e.g. in the form of the attachment theory-based STEEP™ program [51–53]. Intervention aimed at improving the sensitive interaction of parents with their ADHD child may not only create more favorable preconditions for a secure attachment of the child to its parents. This approach also increases the probability that the parent-child relations are transformed positively which at the same time minimizes one of the major risks for the development of ADHD by enhancing the opportunity for mutually satisfying interaction.

In this pilot study many potentially confounding variables were not taken into consideration. These are, e.g., the child's position in the order of siblings, comorbidities like dissociability or learning disorders, and also the attachment representation of the children. On the mothers' part confounding variables can be ethnic origin, level of education, socioeconomic status, or marital status. In view of this and the above-mentioned differences concerning age range and distribution of male and female children in the three investigated groups conclusions should be made with caution. Further differentiated studies are needed, expanding the array of variables investigated in order to better understand the etiological complexity of ADHD. In particular, the results of the present study suggest that a sophisticated diagnosis of the attachment representations in parents and children may be useful for a better understanding of the family dynamics that influence the pathogenesis of ADHD.

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