Interaction of recalled parental ADHD symptoms and rearing behavior with current attachment and emotional dysfunction in adult offspring with ADHD

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A B S T R A C T

Research into attachment and emotion regulation has shown that children with ADHD are at risk of developing attachment disorders and emotion regulation disturbances, which in part may be due to the rearing style of their parents. No such data exists for adults with persistent ADHD. We hypothesized that current attachment style and emotion processing of adult patients with ADHD may be influenced by the presence of parental ADHD symptoms when the now adult patients were children, assuming that ADHD symptoms of parents have an impact on their parenting style. We examined recalled parental ADHD symptoms and rearing style as well as current attachment and emotion regulation abilities in a sample of 73 adults with ADHD using several self-rating instruments. Recalled prevalence of ADHD symptoms in the mother, and less so in the father, of adult patients with ADHD was significantly associated with partly adverse parental rearing styles, current attachment problems in romantic partnerships and emotion regulation disturbances compared with adult ADHD patients without possibly affected parent. ADHD symptoms in parents of children with ADHD may present a risk factor for attachment problems and poor emotion regulation when ADHD children are grown.

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1. Introduction

Research into attention-deficit hyperactivity disorder (ADHD) has revealed that adults with pervasive ADHD have profound difficulties in emotion regulation and perceive themselves as less socially competent compared with their unaffected counterparts (Friedman et al., 2003). Problems with emotion regulation in children with ADHD are, in part, presumed to be mediated by poor attachment (Magai, 1999). ADHD children are more likely to display disruptive behaviors than non-ADHD children, and the mother–child dyad may be influenced by complex interactions of ADHD-related behaviors in both parents and children, including aversive reactions of the mother, particularly if the mother had ADHD symptoms herself (Barkley et al., 1983; Jacobvitch and Sroufe, 1987; Weinstein et al., 1998; Saile et al., 1999; Lakatos et al., 2000; Biederman et al., 2002a; Tully et al., 2004). For example, parents with children with ADHD were found to be directive, harsher and more demanding in interactions with their offspring compared to controls (Johnston and Mash, 2001; Buhrmester et al., 1992). Moreover, they had higher levels of expressed emotions (EE) (Peris and Hinshaw, 2003), which may exacerbate the developmental risk associated with ADHD per se (Taylor et al., 1996). Magai and McFadden (1995) found that parenting behaviors of mothers of ADHD children were more punitive compared to mothers of non-ADHD children, particularly in situations, which induce fear or guilt in children (Magai and McFadden, 1995). In spite of the rich literature on adverse experiences of ADHD children, however, little is known about the impact of parental ADHD symptoms on rearing behavior (i.e., parenting including attachment behaviors and expression of emotions). Studies to date support the view predicting negative interactions between parental ADHD symptoms and the child’s ADHD symptoms (‘similarity-misfit hypothesis’), which may result in impaired rearing resources and dysfunctional parenting (Arnold et al., 1997; Harvey et al., 2003; Weinstein et al., 1998). However, a recent study suggests that maternal ADHD symptoms may actually ameliorate the impact of child ADHD symptoms on negative parenting (‘similarity-fit hypothesis’) – despite an association between the way child ADHD symptoms are expressed and negative maternal responsiveness to the child’s behavior, and an association of maternal ADHD symptoms and negative expressed emotion (Psychogiou et al., 2008).

In contrast to a growing body of research into rearing styles of mothers towards children with ADHD, there is far less information on parenting of fathers with ADHD children, but the role of presence or absence of paternal ADHD symptoms is completely unknown. Most notably, hardly any data exist on the impact of parental rearing style and ADHD symptoms on attachment styles, i.e., experiences and expressions of emotional bonding, and emotion processing when ADHD individuals are grown. To the best of our knowledge, neither longitudinal studies nor retrospective studies of adults with persistent ADHD exist that have addressed the relation of
their adult attachment styles with recalled ADHD symptoms in their parents. Due to the considerable heritability of ADHD (Swanson et al., 2000) we expected that participants would recall high rates of parental ADHD symptoms. Moreover, in line with findings that parental ADHD is associated with high parental expressed emotion (Peris and Hinshaw, 2003; Taylor et al., 1996) and disturbed family structures (Biederman et al., 2002b), we hypothesized an interaction between negative recalled parenting behaviors and recalled parental ADHD symptoms on the one hand, and current (adult) attachment and emotion processing dysfunctions on the other.

2. Methods

2.1. Participants

One hundred forty-two outpatients were contacted by mail and requested to participate in the study. Seventy-three patients (51.4%) sent back complete questionnaires and gave full informed consent. Application of all scales was approved by the ethic committee of the medical school of the Ruhr-University, Bochum. The sample comprised 46.6% female and 53.4% male individuals with a mean age of 40 years (range 18–66 years, S.D. = 9.7). There were no significant age differences between males and females. The mean graduation was 3.3 (2 = secondary school level; 3 = higher education entrance qualification; 4 = university degree). 53.5% of the subjects had been diagnosed with ADHD combined type, 46.5% had been given the diagnosis of ADHD predominantly inattentive type according to DSM-IV criteria, using the short version of the Wender Utah Rating Scale (German WURS-4) (Rösler et al., 2004) to retrospectively assess childhood ADHD symptoms, and interview-based rating instrument to assess DSM-IV criteria for an ADHD in adulthood (the interview contains a scale [0–3] to rate the extent of ADHD symptoms, i.e. inattentiveness, hyperactivity, and impulsivity) (Rett-Junginger et al., 2002). All ratings were performed by an experienced psychiatrist (M.A.E.) within the outpatient unit for adults with ADHD of our hospital. No significant differences between ADHD subtypes emerged regarding age (t = 1.02; df = 62.73; P = 0.31), education (U = 548.5; P = 0.33), and gender (χ² = 1.24; df = 1; P = 0.27). The mean number of comorbid axis-I disorders was 1.57 (range 0–4; S.D. = 1.04), the mean number of comorbid axis-II disorders was 1.60 (range 0–3; S.D. = 1.18); no gender differences emerged regarding the frequencies of additional axis-I or axis-II comorbidity. Participants were socially well adapted, none was currently charged with any offences, and none was diagnosed with antisocial personality disorder. Moreover, none had a current major depression episode. 27.8% were unmarried, 20.8% were on antidepressants with catecholaminergic reuptake properties only, 31.5% were treated with methylphenidate alone, and 19.4% received a combination of methylphenidate with an antidepressant.

2.2. Assessments

Referring to the DSM-IV-based ADHD-checklist introduced by Rösler et al. (2004) we designed an instrument which allowed for assessing ADHD symptoms according to the DSM-IV-A criterion for ADHD at item and symptom domain levels, and for overall estimation of a possible parental ADHD (i.e., prevalence of fulfilled criterion A for one of the three ADHD subtypes – at least 6 (out of 9) inattention symptoms but less hyperactivity/impulsivity symptoms for the predominantly inattentive type, at least 6 (out of 9) hyperactivity/impulsivity symptoms but less inattention symptoms for the predominantly hyperactive–impulsive type, and at least 6 symptoms in each of the two symptom domains for the combined type). Participants were asked to think themselves back to the age of 4 to 10 years and to recall ADHD symptoms of their parents at that age. Each of the 18 parental criterion-A ADHD symptoms had to be rated on a 4-point Likert scale with 0 = not at all, 1 = slightly – occurred occasionally, 2 = moderately – occurred often, and 3 = highly – occurred almost all the time.

To study attachment aspects, we applied three self-report instruments; first, we used the German version (FEI) of the Questionnaire of Recalled Parental Rearing Behavior (QRPRB) (Schnuchter et al., 1999), originally published as EMBU (Peris et al., 1980). The 24 item QRPRB addresses recalled parental rearing behavior, separately for father and mother. It comprises factor-analytically derived dimensions of a) rejection and punishment, b) emotional warmth, and c) control and overprotection. Secondly, we applied the German “Beziehungspezifische Bindungsskalen für Erwachsene” (BBE) which can best be translated as “Relationship-Specific Attachment Scale for Adults” (RASA), a questionnaire comprising 14 items for the assessment of current attachment styles with regard to the mother, the father, and the intimate partner (Asendorpf et al., 1997). The RASA focuses on the examination of relationships on two dimensions, namely “secure–anxious” and “dependent–independent.” Thirdly, we administered the German version of the Adult Attachment Scale (AAS), reflecting attachment-related attitudes, to measure to what extent a subject feels (1) comfortable with closeness and intimacy, (2) comfortable with dependency or (3) anxiety about rejection or abandonment (Schmidt et al., 2004).

We assessed emotion regulation using two other self-report instruments; first, we applied the 20-item Toronto Alexithymia Scale (TAS-20), which examines difficulties to perceive and express emotions, and to determine the degree of externally oriented cognitive style (Taylor et al., 1992). Second, in order to complement TAS-20 with more subjective and self-related emotional facets, we used the German “Skala zum Erleben von Emotionen” (SEE), translated “Experience of Emotions Scale” (EES) (Behr and Becker, 2004). This instrument allows for the assessment of a subject’s attitudes towards his or her own emotions.

2.3. Statistical analyses

Statistical analyses were carried out using SPSS version 12.0 for Windows. Since all subscale scores were normally distributed, we conducted two-tailed ANCOVAs to compare groups with and without a possibly ADHD-affected mother, or father respectively, eliminating confounding effects on the independent variables (i.e., attachment and emotion processing scales) of a possible ADHD prevalence in the complementary parent. Pearson’s correlations were used to test for associations between recalled parental ADHD symptoms and recalled rearing style variables on the one hand, and current attachment and emotion processing scales on the other hand.

3. Results

3.1. Gender differences

The only significant gender difference that emerged was that men experienced significantly less emotionality (as measured using the Experience of Emotions Scale, EES) compared to women (t(17,57) = 2.56; df = 69.99; P = 0.013); no gender differences emerged in the other questionnaire scores.

3.2. Retrospective ratings of parental ADHD symptoms

Subjects’ retrospective ratings of parental ADHD symptoms revealed that 24.7% of the subjects recalled full criterion-A ADHD symptomatology, i.e. possible ADHD, in both parents, 13.7% only in their mothers, 26% only in fathers, and 35.6% of the participants reported no significant ADHD symptoms in either parent.

3.3. Differences between subjects with and without a mother with possible ADHD

Subjects who reported ADHD symptoms in their mothers recalled significantly more “rejection and punishment” (as measured using the Questionnaire of Recalled Parental Rearing Behavior, QRPRB) by their mothers compared to participants without a putatively affected mother (df = 1; F(1,57) = 4.97; P = 0.03), but recalled significantly less “rejection and punishment” (QRPRB) (df = 1; F(1,57) = 5.98; P = 0.018) and significantly more “emotional warmth” (QRPRB) by their fathers (df = 1; F(1,57) = 4.46; P = 0.039). Compared to participants without a mother with putative ADHD, individuals with a possibly affected mother reported to feel significantly more comfortable with dependency (as measured using the Adult Attachment Scale, AAS) (df = 1; F(1,56) = 9.04; P = 0.004), and to feel significantly more anxious about rejection or abandonment (df = 1; F(1,56) = 5.28; P = 0.026) (see Fig. 1).

3.4. Differences between subjects with and without a father with possible ADHD

No significant group differences were found.

3.5. Correlations of recalled maternal or paternal ADHD symptoms with recalled rearing style

Recalled maternal ADHD symptoms correlated positively with “rejection and punishment” by the mother (as measured using the Questionnaire of Recalled Parental Rearing Behavior, QRPRB) (inattentiveness: r = 0.35; P < 0.01; hyperactivity: r = 0.42; P < 0.01; impulsivity: r = 0.47; P > 0.01), and negatively with “emotional warmth” of the mother (QRPRB) (inattentiveness: r = −0.39; P < 0.01; hyperactivity: r = −0.33; P < 0.01; impulsivity: r = −0.42; P < 0.01). In
The extent of recalled maternal inattentive ADHD symptoms correlated positively with “comfort with closeness and intimacy” (AAS) (n = 71; r = 0.27; P < 0.05) and “comfort with dependency” (AAS) (n = 71; r = 0.25; P < 0.05), but inversely associated with a “secure attachment style” regarding the mother (RASA) (n = 60; r = −0.28; P < 0.05), and also negatively with an “externally oriented cognitive style” (TAS-20) (n = 72; r = −0.24; P < 0.05).

The extent of recalled paternal inattentive ADHD symptoms correlated positively with “comfort with closeness and intimacy” (AAS) (n = 55; r = 0.29; P < 0.05) and positively with “body-related symbolization of emotions” (EES) (n = 56; r = 0.29; P < 0.05). The severity of recalled paternal hyperactive ADHD symptoms correlated positively with current “experience of lack of emotions” (EES) (n = 55; r = 0.29; P < 0.05) and positively with current “experience of emotion regulation” (EES) (n = 55; r = 0.36; P < 0.01). The severity of recalled paternal impulsive ADHD symptoms correlated positively with current “experience of emotion regulation” (EES) (n = 56; r = 0.26; P < 0.05).

There were no correlations of recalled paternal “rejection and punishment” (QRPRB) with any of the attachment or emotional subscales. Recalled paternal “emotional warmth” (QRPRB) correlated positively with a “secure attachment style” regarding the father (RASA) (n = 60; r = 0.30; P < 0.05). Recalled paternal “control and overprotection” (QRPRB) correlated positively with “comfort with closeness and intimacy” (AAS) (n = 64; r = 0.25; P < 0.05), with “anxiety about rejection or abandonment” (AAS) (n = 64; r = 0.32; P < 0.05), with an “anxious attachment style” regarding the mother (n = 58; r = 0.34; P < 0.01), with “body-related symbolization of emotions” (EES) (n = 65; r = 0.27; P < 0.05), and negatively with an “externally oriented cognitive style” (TAS-20) (n = 65; r = −0.26; P < 0.05) (Table 1).

4. Discussion

Research into attachment in children with ADHD has shown that insecure attachment may occur more often if one or both parents of the ADHD child have persistent ADHD symptoms (Magai, 1999). By contrast, there is a paucity of empirical work into attachment style and emotion regulation in adults with ADHD in relation to the presence or absence of ADHD symptoms in their parents. To our knowledge, no studies exist that have focused on the relationship between current attachment and emotion regulation with recalled parental ADHD symptoms and rearing style. We were, therefore, interested in the question whether recalled maternal or paternal ADHD symptoms and recalled parental rearing style would interact with current attachment styles and emotional processing in adults with persistent ADHD.

The most important finding was that adults with persistent ADHD with a possibly affected mother differed significantly from ADHD subjects without possible maternal ADHD in that they recalled more maternal rejection and punishment by their mother, but less rejection and punishment and more emotional warmth by their father. The latter result may be due to a compensatory mechanism in terms of counterbalancing ADHD-charged mother–child interactions.

Furthermore, possible maternal ADHD was combined with more comfort with dependency and more anxiety about rejection or abandonment. All three recalled maternal ADHD symptom domains, i.e., inattention, hyperactivity, and impulsivity, as well as recalled deficient maternal parenting behaviors, i.e., ‘rejection and punishment’ and ‘control and overprotection’, were associated with an insecure (and anxious) attachment style. Strikingly, we found no differences as to current attachment patterns and emotion processing between participants with possibly affected father compared to those without evidence for a possible paternal ADHD.
The strength of recalled maternal hyperactivity as well as maternal control and overprotection were inversely associated with an externally oriented current cognitive style, although the latter finding was no longer significant when paternal ADHD symptoms were covaried out. Possibly, this result reflects a self-blaming or depressive mode of emotion processing, which might be a consequence of increased punitive behavior of an ADHD mother towards her ADHD child, especially in case of fearful and self-blaming infant behavior (Magai and McFadden, 1995).

In contrast, ADHD adults who indicated a possible paternal ADHD had less unpleasant memories about their fathers’ rearing behavior. However, these individuals reported more recalled paternal rejection and punishment and less emotional warmth, but no persistent attachment or emotional disturbances were found. This could reflect differential importance of maternal and paternal emotional availability for later attachment formations to romantic partners and emotion regulation. We also found statistically significant (though relatively weak) correlations between possible parental ADHD symptoms and recalled problematic parental rearing styles, and between disturbed current attachment profiles and emotion processing. Again, most attachment and emotional features referred to recalled maternal rather than paternal ADHD symptoms and rearing behaviors. In particular, recalled maternal ADHD symptoms and rearing behaviors seemed to be associated with current attachment disturbances, whereas paternal ADHD symptoms and rearing behaviors appeared to be associated with current emotion processing disturbances. This finding might indicate independent (assortative mating) effects of parental psychopathological interaction on rearing behavior and outcome; e.g., antisocial men are frequently in a relationship with depressed women, however, antisocial behavior in fathers and depression in mothers are independently associated with conduct disorder and depression in their offspring (Marmorstein et al., 2004). Unfortunately we were not able to depict these assortative mating effects directly and in detail, i.e., based on an assessment of parental psychiatric symptoms and diagnoses.

The study has several other weaknesses. First, we exclusively used self-rating instruments in a heterogeneous sample of ADHD patients with two different ADHD subtypes, within a retrospective design. Second, we had to deal with potential emotional and cognitive recall biases both regarding parental ADHD symptoms and rearing behavior. E.g., some studies suggest that parental recall of ADHD symptoms of their offspring lacks validity, but recall of parental ADHD symptoms and behavior may be even sketchier. However, the Questionnaire of Recalled Parental Rearing Behavior, for example, is considered to yield valid and reliable information with relatively little risk of producing false memories (Arrindell and van der Ende, 1984; Schumacher et al., 1999). Third, estimation of possible parental ADHD symptoms and prevalence is based on the DSM-IV A-criterion only; e.g., the impairment and childhood prevalence criteria could not be assessed. Fourth, the relation of former oppositional defiant disorder, as a frequent comorbidity in childhood ADHD, and parenting could not be frequent comorbidity in childhood ADHD, and parenting could not be assessed. Fifth, data on participants’ current marital status, social relationships, and on the overall socioeconomic level of their families in the past is missing. Sixth, a possible selection bias may have occurred since only 50% of participants’ current marital status, social relationships, and on the overall socioeconomic level of their families in the past is missing. Sixth, a possible selection bias may have occurred since only 50% of participants completed all questionnaires. E.g., patients who refused to participate might have been influenced by their belief that there was a connection between their upbringing and their present status, thus possibly exaggerating recalled parental behavior and ADHD symptoms. Finally, lack of a control group reduces the validity of our study.

### Table 1
Correlations of recalled maternal or paternal ADHD symptoms and rearing behavior with attachment and emotion processing.

<table>
<thead>
<tr>
<th>Attachment and emotional subscales</th>
<th>Maternal inattentiveness</th>
<th>Maternal hyperactivity</th>
<th>Maternal impulsivity</th>
<th>Maternal inattentiveness</th>
<th>Maternal hyperactivity</th>
<th>Maternal impulsivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Secure (vs. anxious) attachment towards mother (RASA)</td>
<td>−0.44*</td>
<td>−0.51**</td>
<td>−0.55**</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Dependent attachment towards partner (RASA)</td>
<td>0.31*</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Feeling anxious about rejection or abandonment (AAS)</td>
<td>0.27*</td>
<td>ns</td>
<td>0.26*</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Feeling comfortable with closeness and intimacy (AAS)</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>0.29*</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Ability to express emotions (TAS-20)</td>
<td>ns</td>
<td>−0.28*</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Externally oriented cognitive style (TAS-20)</td>
<td>ns</td>
<td>−0.39*</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Experiencing body-related symbolization of emotions (EES)</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>0.29*</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Experiencing emotion regulation (EES)</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>0.36**</td>
<td>0.26*</td>
</tr>
<tr>
<td>Experiencing lack of emotions (EES)</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>0.29*</td>
<td>ns</td>
</tr>
<tr>
<td>Maternal rejection and punishment</td>
<td>−0.53**</td>
<td>0.65**</td>
<td>−0.28*</td>
<td>ns</td>
<td>0.30*</td>
<td>ns</td>
</tr>
<tr>
<td>Maternal emotional warmth</td>
<td>ns</td>
<td>0.54**</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Maternal control and overprotection</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>ns</td>
<td>0.32*</td>
<td>ns</td>
</tr>
<tr>
<td>Paternal rejection and punishment</td>
<td>ns</td>
<td>ns</td>
<td>0.27*</td>
<td>ns</td>
<td>ns</td>
<td>0.25*</td>
</tr>
<tr>
<td>Paternal emotional warmth</td>
<td>ns</td>
<td>ns</td>
<td>0.25*</td>
<td>ns</td>
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<tr>
<td>Paternal control and overprotection</td>
<td>ns</td>
<td>ns</td>
<td>0.31*</td>
<td>ns</td>
<td>ns</td>
<td>0.27*</td>
</tr>
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</table>

*P < 0.05.
**P < 0.01.
However, this pilot investigation is among the first to point to important, possibly causal, associations between parental, particularly maternal, ADHD symptoms and rearing behaviors with current attachment styles and emotion regulation in adults with persistent ADHD. Our results seem to support the hypotheses that ADHD individuals with likewise affected mother might be at special risk to develop attachment disturbances, whereas ADHD individuals with an affected father might be at special risk to develop emotion processing disturbances. This ought to be studied further using controlled and prospective study designs.

References


