

Papers Published Using the Adult Attachment Projective Picture System
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Basic Research

Aikins, J. W., Howes, C., & Hamilton, C. (2009). Attachment stability and the emergence of unresolved representations during adolescence. *Attachment and Human Development, 11*, 491-512.

Author Abstract

This 15-year longitudinal study examined the stability of attachment representations from infancy to adolescence and investigated the emergence of unresolved representations during adolescence in a sample of 47 16-year-olds. Attachment was assessed at 12 months using the Strange Situation Procedure, at 4 years using the modified Strange Situation Procedure, and again at 16 years with the Adult Attachment Projective (AAP). The emergence of unresolved classifications in adolescence (AAP) was associated with higher rates of negative life events, low levels of early mother–child relationship security (an aggregate measure of the 12-month and 4-year measures), negative teacher–child relationship experiences in middle childhood, and low early adolescent friendship quality. The results support the growing body of evidence suggesting that changes in attachment are lawful, while adding to the growing understanding of the emergence of unresolved attachment representations.

Béliveau, M. J., Moss, E. (2005). Contribution to the convergent and divergent validity of the adult attachment projective (French language title: Contribution aux validités convergente et divergente du projectif de l'attachement adulte. *La Revue Internationale de l'Éducation Familiale (International Review of Family Education), 9*, 29-50.

Author Abstract

This study aims to better establish the validity of a new instrument designed to assess the representations of attachment relationships: the adult attachment projective (AAP; George *et al.*, 1997). Using the AAP, 123 mothers about 34 years were categorized detached, autonomous, preoccupied or unresolved. Stressful life events, parental stress, parental helplessness, depression and marital adjustment were also evaluated. The unresolved mothers reported experiencing more stressful events, more parental stress, more difficult to invest the relationship with their child and parental powerlessness than single mothers. Troubled mothers reported living more than parental self stress. Thus, the AAP is connected to generally constructed and associated with the attachment is independent measures rather evaluating the overall psychosocial functioning.

Béliveau, M. J., Moss, E. (2009). The role of stressful life events on the intergenerational transmission of attachment (French language title: Le rôle joué par les événements stressants sur la transmission intergénérationnelle de l'attachement). *European Review of Applied Psychology/Revue Européenne de Psychologie Appliquée (European Review of Applied Psychology / European Journal of Applied Psychology), 59*, 47-58.

Author Abstract

Associations between maternal internal working models (IWM) (adult attachment projective: AAP) [George, C., West, M., Pettem, O., 1997, Manuscrit non publié. Mills College,

Californie], preschool child attachment (separation–reunion procedure) [Cassidy, J., Marvin, R. S., 1992. Attachment organization in preschool children: procedures and coding manual. Manuscript non publié. MacArthur Working Group on Attachment; *Dev Psychol* 24 (1988) 415–526] and stressful life-events were examined in 119 dyads. A convergence for transmission similar to what has been reported in the literature [*Psychol Bull* 117(3) (1995) 387–403] was found (76% for security, $\kappa = 0.53$; $p < 0.001$). Moreover, unresolved mothers with disorganized–controlling children reported more stressful life-events ($F [3, 106] = 4.70$; $p < 0.01$). The present study therefore indicates the importance of including contextual factors [van IJzendoorn, M.H., Bakermans-Kranenburg, M.J., 1997. Intergenerational transmission of attachment: a move to the contextual level.]

Buchheim, A., & George, C. (2011). Attachment disorganization in borderline personality disorder and anxiety disorder. In J. Solomon & C. George (Eds.), *Disorganized attachment and caregiving* (pp. 343-382). New York, NY: Guilford Press. (*Peer-reviewed volume*)

Summary

Research has shown a strong correspondence between unresolved attachment and psychiatric symptoms in clinical samples, however we know little about how unresolved loss is related to adult psychiatric symptoms. Some researchers have called for expansion of the field's understanding of mental health risk and unresolved attachment (e.g., Lyons-Ruth et al., 2003; Spieker et al., 2011). The goals of the current study are to (1) examine the convergent validity of the AAP and AAI in a German sample of psychiatric patients and controls and (2) use the AAP to begin to unravel what may be diagnosis-specific nuances in unresolved attachment in adults diagnosed with borderline personality disorder (BPD) and anxiety disorders. With regard to convergent AAP/AAI validity, AAIs were coded by two reliable AAI judges and AAPs were coded by the authors. All judges except the first author (who coded AAPs) were blind to psychiatric status. AAPs were coded by the second author using English translations. Interjudge AAP reliability was 98% ($\kappa = .97$, $p < .000$). AAP/AAI concordance was 84% for four classification groups ($\kappa = .71$, $p < .000$), 91% for secure vs. insecure ($\kappa = .70$, $p < .000$), and 88% for unresolved vs. resolved ($\kappa = .75$, $p < .000$). The patient groups showed significantly more unresolved attachment than the controls. There were no significant differences in the attachment classification distribution between BPD and anxiety patients, with predominant classifications of preoccupied and unresolved. Trauma patterns were examined using a newly developed “trauma risk screening” coding system developed for the AAP for this study. As predicted, the patients demonstrated significantly greater trauma indicators in their responses to the alone AAP stimuli as compared with the dyadic stimuli. Traumatic content in the responses to each AAP stimulus and class of stimuli (i.e., alone, dyadic) were examined. Results indicated that BPD patients tended to demonstrate the strongest dysregulation in response to fears of being alone combined with isolation, which are related to severe abuse combined with loss of protective attachment figures. Anxiety patients were also dysregulated, but less so than BPD patients. The representations of anxiety patients depicted contradictory models of protective attachment figures in hypothetical stories juxtaposed with shifts in attention to their own threatening personal experiences.

Buchheim, A., George, C., & West, M. (2003). The Adult Attachment Projective (AAP) - Psychometric properties and new research. *Psychotherapie Psychosomatik Medizinische Psychologie (Psychosomatics Psychotherapy Medical Psychology)*, 53, 419-427

Author Abstract

This paper reported on concordant validity and interjudge and test-retest reliability on a sample of 140 study participants of both sexes putting both from healthy volunteers (students, volunteers recruited through newspaper advertisements, Internet) and patients (mothers of children with failure to thrive, dysthymic women). All classifications were done by certified reliable judges from German transcripts. There was significant classification AAP/AAI concordance (N=122) for four classification concordance (92% agreement, kappa = .89, $p < .000$) and secure-insecure concordance (97% agreement, kappa = .80, $p < .000$). The calculations of the inter-rater reliability (N = 140) resulted in 4 groups a match of 97% (kappa = .82, $p < .000$); when comparing the two main groups (secure versus insecure) a match of 97% (kappa = .74, $p < .000$) was achieved. The test-retest reliability was examined for 27 participants, showing for four group comparison, a test-retest agreement of 89% (kappa = .88, $p < .000$) and in two groups (secure vs. insecure) a 100% agreement (kappa = 1, $p < .000$).

Delvecchio, E., Pazzagli, C., Di Riso, D., Chessa, D., & Mazzeschi, C. (2013). Attachment pattern and cognitive skills: An exploratory study in an Italian non-clinical sample. *Perceptual and Motor Skills*, 116, 830-846.

Author Abstract

Bowlby (1973) stated that the attachment relationship between a child and parents might help the child learn many skills important for survival, with a lifelong effect. However, there is a scarcity of research into attachment and intelligence in adulthood. This study examines the relationship between attachment status and cognitive skills in an Italian non-clinical sample of 101 young adults (M age = 22.6 yr.; SD = 1.8). The Adult Attachment Projective Picture Stimuli and the Wechsler Adult Intelligence Scale–Revised were administered to participants and four-way attachment classifications were analyzed regarding participants' IQ. Statistically significant differences were found for Full Scale IQ and Verbal IQ, with Dismissing participants scoring higher than Unresolved participants. Similar results were obtained for two-way attachment patterns with Resolved participants scoring higher than Unresolved. Implications regarding different attachment patterns and the concept of trauma are discussed.

Gander, M., George, C., Pokorny, D., & Buchheim, A. (2017). Assessing attachment representations in adolescents: Discriminant validation of the Adult Attachment Projective Picture System. *Child Psychiatry and Human Development*, 48, 270-282.

Author Abstract

The contribution of attachment to human development and clinical risk is well established for children and adults, yet there is relatively limited knowledge about attachment in adolescence due to the poor availability of construct valid measures. The Adult Attachment Projective Picture System (AAP) is a reliable and valid instrument to assess adult attachment status. This study examines for the first time the discriminant validity of the AAP in adolescents. In our sample of 79 teenagers between 15 and 18 years, 42 % were classified as secure, 34 % as insecure-dismissing, 13 % as insecure-preoccupied and 11 % as unresolved. The results demonstrated discriminant validity for using the AAP in that age group, with no associations

between attachment classifications and verbal intelligence, social desirability, story length or sociodemographic variables. These results poise the AAP to be used in clinical intervention and large-scale research investigating normative and atypical developmental correlates and sequelae of attachment, including psychopathology in adolescence.

George, C., & West, M. (2001). The development and preliminary validation of a new measure of adult attachment: The Adult Attachment Projective. *Attachment and Human Development, 3*, 30-61.

Author Abstract

Describes the development of and the preliminary work to empirically validate the Adult Attachment Projective (AAP), an adult attachment classification system based on the analysis of individual responses to a set of attachment-related drawings. Dimensions of evaluations used by the AAP classification system; Basis of the preliminary validation of the AAP. ABSTRACT FROM AUTHOR

In this paper, we describe the development of and our preliminary work to empirically validate the Adult Attachment Projective (AAP), a new adult attachment classification system that is based on the analysis of individuals' responses to a set of seven attachment-related drawings. The AAP classification system uses evaluations of three dimensions (Discourse, Content and Defensive Processing) to designate four major adult classification groups: Secure, Dismissing, Preoccupied, and Unresolved. Preliminary validation of the AAP is based on 75 participants drawn from three separate samples. The results indicate strong interjudge reliability and convergent agreement between the AAP and Adult Attachment Interview (AAI) classifications. The AAP, thus, appears to be a promising developmental measure for assessing the representation of attachment in adults. Contributions of the AAP to attachment theory and research are discussed. The similarities and differences between AAP stories and other child and adult representational measures are also discussed.

Hédervári-Heller, É., & Antunes, F. M. (2017). Attachment representations of childhood pedagogy students at the beginning of their studies (German language title: Bindungsrepräsentationen Studierender der Kindheitspädagogik zu Beginn des Studiums). *Frühe Bildung, 6*, 151-159.

Author Abstract

The expansion of early childhood day-care programs in Germany is accompanied by a continuously growing demand for high-quality care and, thus, well-trained pedagogues. However, childhood pedagogic departments managing these requirements have been developed only since 2004. In addition to knowledge attainment (professional competence) during studies, the development of self-reflective skills as a fundamental personal competence is also important. The central aim of this pilot study was to investigate the patterns of attachment representation of students by applying the AAP (Adult Attachment Projective, George et al., 1997) at the beginning and at the end of students' studies. Moreover, the inquiry focused on the question of whether intensive work on a person's attachment pattern had a changing effect on the inner attachment organization. In this paper the cross-sectional results of the first data collection regarding the attachment representation of students at the start of their studies from two different universities with childhood pedagogic departments are presented ($n = 59$). The results from the first data collection at the beginning of studies indicate a high percentage of childhood pedagogic

students with an insecurely organized (46 %) and unresolved (41 %) attachment status. The question left open is how the high percentage of insecure attachment representations in this pilot study can be explained.

Müller, J. J., Loetz, C., Altenhofen, M., Frick, E., Buchheim, A., Baumann, K., Man G., & Carlos I. (2015). Attachment and psychosomatic health among Catholic pastoral professionals. *Zeitschrift für Psychosomatische Medizin und Psychotherapie*, 61, 370-383.

Author Abstract

Objectives: The study examines attachment representations and psychosomatic symptoms of Catholic priests and other pastoral professionals in Germany. **Method:** We conducted structured biographical interviews with 83 Catholic pastoral professionals (47 priests, 36 lay pastoral workers). Attachment representations were diagnosed by use of the Adult Attachment Projective Picture System (AAP). Psychosomatic health data (Brief Symptom Inventory—BSI-18) were taken from the associated German Pastoral Ministry Study. **Results:** In the sample, the proportion of secure attachment representations was 23%, of insecure-dismissing 39%, of insecure-preoccupied 18% and of unresolved attachment status 21%. Individuals with secure attachment representation were associated with lower values of psychosomatic stress, while individuals with insecure-dismissing and unresolved attachment status had higher values. **Discussion:** The amount of insecure attachment representations and psychosomatic symptoms is higher than in data from the healthy samples, especially in the cohorts between 1933 and 1945. Data from biographical interviews indicate the significant role of institutional attachment to the Church, in many cases possibly compensating for dysfunctional parental relationships in personal history.

van Ecke, Y. (2007). Unresolved attachment among immigrants: An analysis using the Adult Attachment Projective. *Journal of Genetic Psychology*, 167, 433-442.

Author Abstract

Previous research found that Dutch and Belgian immigrants in California, compared to native Californians, have a high rate of unresolved attachment status, unrelated to time in the United States, to being married, or to their reasons for immigration. This study analyzes attachment at the representational level by comparing responses of 69 immigrants (29 males and 40 females) and 30 natives (12 males and 18 females) to drawings in the Adult Attachment Projective (AAP). Analysis of variance indicates that being unresolved with regard to attachment is linked to greater perception of danger in general $F(1,95) = 7.81, p < 0.01$, and to a lower ability to resolve danger once perceived $F(1,95) = 113.17, p < 0.001$. Resolution of danger in story responses to AAP images shows the immigrant group is most troubled by images of saying goodbye and isolation, but natives are most disturbed by images of illness ($X^2 = 3.71, p = 0.05$).

van Ecke, Y., Chope, R. C., & Emmelkamp, P. M. G. (2005). Immigrants and attachment status: Research findings with Dutch and Belgian immigrants in California. *Social and Personality Psychology*, 33, 657-673.

Author Abstract

Although immigrants are an extremely diverse group, adults who emigrate nearly always experience separation from family of origin, extended family and country. This research examines state of mind with respect to attachment, using the Adult Attachment Projective (George & West, 2003; George, West, & Pettem, 1999), and compares the attachment status of adult Californians who still live near their family of origin in the area in which they were born and raised (m 12, f 18) to that of individuals who emigrated from the Netherlands and Belgium as adults to California (m 29, f 41). The findings showed a significant relationship between being an immigrant and unresolved attachment status ($n = 100$, $X^2 = 5.81$, $p < 0.0160$) unrelated to time in the US, reason for immigration, being married or single. Implications and limitations of these findings are discussed.

Taubner, S., & Juen, F. (2010). Violence in late adolescence—Perspectives of attachment research (German language title: Gewalt in der spätadoleszenz: Perspektiven der Bindungsforschung). *Psychotherapie und Sozialwissenschaft: Zeitschrift für Qualitative Forschung und klinische Praxis (Psychotherapy and Social Science: Journal of Qualitative research and clinical practice)*, 12, 59-77.

Author Abstract

In this study we focus on violent adolescent offenders within an attachment perspective. Inner working models of attachment, arising as individualized expectations and pertaining to the satisfaction and regulation of needs and affects, should have strong impact on the creation of relationships and the way of regulation of affects. Securely attached individuals usually have confidence in the adequate gratification or in the competence of being able to satisfy their need of safety and closeness. Adolescents with avoidant attachment on the other hand expect rejection and consequently try to reduce the impact of others and the impact of attachment itself. As the need for closeness and intimacy is present too, dysregulation of affect appears as a consequence mainly in case of threat of the self. Avoidant and disorganized attachment should consequently be found more often in our sample of adolescent male offenders ($n = 26$) than in a matched control group ($n = 15$). Moreover, dysregulation should mainly appear in case of threat. To assess attachment representation, we used the Adult Attachment Projective Picture System (AAP, George et al., 1999). Our hypothesis was mainly confirmed.

Neurobiological Research

Buchheim, A., Erk, S., George, C. Kächele, H., Ruchow, M., Spitzer, M., Kircher, T., & Walter, H. (2006). Measuring attachment representation in an fMRI environment: A pilot study. *Psychopathology*, 39, 144-152.

Author Abstract

This exploratory study is the first to examine the neural correlates of attachment status in adults. The study examined the feasibility of assessing attachment narratives in the functional magnetic resonance imaging (fMRI) environment by challenging subjects to tell attachment stories to specific attachment pictures from the Adult Attachment Projective (AAP) while being scanned. We investigated theoretically derived hypotheses regarding predicted differences in the brain activation patterns of individuals whose attachment status was organized (resolved) versus disorganized (unresolved) with respect to attachment trauma (e.g., as associated with loss through death, abuse, threat of abandonment). Adult attachment was assessed using the AAP, a

new representational attachment measure that we thought might be suitable for use in the fMRI environment. This measure was used to obtain a preliminary picture of the neural processes associated with the activation of attachment in 11 healthy female adults. Results are reported from a second-level analysis ($p < 0.001$ uncorrected) and confirm that the AAP is a feasible measure for use in a neuroimaging environment. Cerebral activation during continuous speech yielded results consistent with the literature. Brain activation was demonstrated in expected visual and semantic brain regions. Furthermore, we found that the rate of articulation was positively correlated with activation in the right superior temporal gyrus. The results of theoretically derived attachment hypotheses showed no differences at the chosen level of significance when comparing the ‘all attachment pictures’ effect between both groups (resolved vs. unresolved). More interestingly, we found a significant interaction effect between the sequence of pictures and attachment category. Only the unresolved participants showed increasing activation of medial temporal regions, including the amygdala and the hippocampus, in the course of the AAP task. This pattern was demonstrated especially at the end of the AAP task where the pictures are drawn to portray traumatic situations. We interpret these results as confirming our hypothesis, linking unresolved attachment to emotional dysregulation of the attachment system. These results are discussed in relation to assessing attachment in an fMRI environment and future research in this area.

[Buchheim, A., Erk, S., George, C., Kächele, H., Kircher, T., Martius, P., Pokorny, D., Ruchow, M., Spitzer, M., & Walter, H. \(2008\). Neural correlates of attachment trauma in borderline personality disorder: A functional magnetic resonance imaging study. *Psychiatry Research: Neuroimaging*, 163, 223-235.](#)

Author Abstract

Functional imaging studies have shown that individuals with borderline personality disorder (BPD) display prefrontal and amygdala dysfunction while viewing or listening to emotional or traumatic stimuli. The study examined for the first time the functional neuroanatomy of attachment trauma in BPD patients using functional magnetic resonance imaging (fMRI) during the telling of individual stories. A group of 11 female BPD patients and 17 healthy female controls, matched for age and education, told stories in response to a validated set of seven attachment pictures while being scanned. Group differences in narrative and neural responses to “monadic” pictures (characters facing attachment threats alone) and “dyadic” pictures (interaction between characters in an attachment context) were analyzed. Behavioral narrative data showed that monadic pictures were significantly more traumatic for BPD patients than for controls. As hypothesized BPD patients showed significantly more anterior midcingulate cortex activation in response to monadic pictures than controls. In response to dyadic pictures patients showed more activation of the right superior temporal sulcus and less activation of the right parahippocampal gyrus compared to controls. Our results suggest evidence for potential neural mechanisms of attachment trauma underlying interpersonal symptoms of BPD, i.e. fearful and painful intolerance of aloneness, hypersensitivity to social environment, and reduced positive memories of dyadic interactions.

Buchheim, A., Erk, S., George, C., Kächele, H., Martius, P., Pokorny, D., Spitzer, M., & Walter, H. (2016) Neural response during activation of the attachment system in patients with borderline personality disorder: An fMRI study. *Frontiers in Human Neuroscience*, *10*. <https://www.frontiersin.org/articles/10.3389/fnhum.2016.00389>

Author Abstract

Individuals with borderline personality disorder (BPD) are characterized by emotional instability, impaired emotion regulation and unresolved attachment patterns associated with abusive childhood experiences. We investigated the neural response during the activation of the attachment system in BPD patients compared to healthy controls using functional magnetic resonance imaging (fMRI). Eleven female patients with BPD without posttraumatic stress disorder (PTSD) and 17 healthy female controls matched for age and education were telling stories in the scanner in response to the Adult Attachment Projective Picture System (AAP), an eight-picture set assessment of adult attachment. The picture set includes theoretically-derived attachment scenes, such as separation, death, threat and potential abuse. The picture presentation order is designed to gradually increase the activation of the attachment system. Each picture stimulus was presented for 2 min. Analyses examine group differences in attachment classifications and neural activation patterns over the course of the task. Unresolved attachment was associated with increasing amygdala activation over the course of the attachment task in patients as well as controls. Unresolved controls, but not patients, showed activation in the right dorsolateral prefrontal cortex (DLPFC) and the rostral cingulate zone (RCZ). We interpret this as a neural signature of BPD patients' inability to exert top-down control under conditions of attachment distress. These findings point to possible neural mechanisms for underlying affective dysregulation in BPD in the context of attachment trauma and fear.

Buchheim, A., George, C., Gündel, H., Heinrichs, M., Koops, E., O'Connor, M-F., Pokorny, D. (2009) Oxytocin enhances the experience of attachment security. *Psychoneuroendocrinology*, *34*, 1417-1422.

Author Abstract

Repeated interactions between infant and caregiver result in either secure or insecure relationship attachment patterns, and insecure attachment may affect individual emotion-regulation and health. Given that oxytocin enhances social approach behavior in animals and humans, we hypothesized that oxytocin might also promote the subjective experience of attachment security in humans. Within a 3-week interval, 26 healthy male students classified with an insecure attachment pattern were invited twice to an experimental session. At the beginning of each experiment, a single dose of oxytocin or placebo was administered intranasally, using a double-blind, placebo-controlled within-subject design. In both conditions, subjects completed an attachment task based on the Adult Attachment Projective Picture System (AAP). Thirty-two AAP picture system presentations depicted attachment-related events (e.g. illness, solitude, separation, and loss), and were each accompanied by four prototypical phrases representing one secure and three insecure attachment categories. In the oxytocin condition, a significant proportion of these insecure subjects (N = 18; 69%) increased in their rankings of the AAP prototypical "secure attachment" phrases and decreased in overall ranking of the "insecure attachment" phrases. In particular, there was a significant decrease in the number of subjects ranking the pictures with "insecure-preoccupied" phrases from the placebo to the oxytocin

condition. We find that a single dose of intranasally administered oxytocin is sufficient to induce a significant increase in the experience of attachment security in insecurely attached adults.

Buchheim A, Labek K, Taubner S, Kessler H, Pokorny D, Kächele H, Cierpka M, Roth G, Pogarell O, Karch S. (2018). Modulation of Gamma Band Activity and Late Positive Potential in Patients with Chronic Depression after Psychodynamic Psychotherapy. *Psychotherapy and Psychosomatics*, 87, 252-254. Online: <https://www.karger.com/Article/FullText/488090> doi: 10.1159/000488090. PMID:29768272

No abstract available. Reports treatment effects and AAP/AAI convergence. Simple agreement: 94% baseline; 83% following treatment.

Buchheim, A., Viviani, R., Kessler, H., Kächele, H., Cierpka, M., Roth, G., George, C., Kernberg, O. F., Bruns, G., Taubner, S. (2012). Changes in prefrontal-limbic function in major depression after 15 months of long-term psychotherapy. *PLoSOne*, 7.

www.plosone.org

Author Abstract

Neuroimaging studies of depression have demonstrated treatment-specific changes involving the limbic system and regulatory regions in the prefrontal cortex. While these studies have examined the effect of short-term, interpersonal or cognitive-behavioural psychotherapy, the effect of long-term, psychodynamic intervention has never been assessed. Here, we investigated recurrently depressed (DSM-IV) unmedicated outpatients (N = 16) and control participants matched for sex, age, and education (N = 17) before and after 15 months of psychodynamic psychotherapy. Participants were scanned at two time points, during which presentations of attachment-related scenes with neutral descriptions alternated with descriptions containing personal core sentences previously extracted from an attachment interview. Outcome measure was the interaction of the signal difference between personal and neutral presentations with group and time, and its association with symptom improvement during therapy. Signal associated with processing personalized attachment material varied in patients from baseline to endpoint, but not in healthy controls. Patients showed a higher activation in the left anterior hippocampus/amygdala, subgenual cingulate, and medial prefrontal cortex before treatment and a reduction in these areas after 15 months. This reduction was associated with improvement in depressiveness specifically, and in the medial prefrontal cortex with symptom improvement more generally. This is the first study documenting neurobiological changes in circuits implicated in emotional reactivity and control after long-term psychodynamic psychotherapy.

Fraedrich, E. M., Lakatos, K., & Spangler, G. (2010). Brain activity during emotion perception: The role of attachment representation. *Attachment and Human Development*, 12, 231-248.

Author Abstract

To examine emotional face processing in mothers of different attachment representations, event-related potentials were recorded from 16 mothers during presentation of infant emotion faces with positive, negative or neutral emotional expressions within a three-stimulus oddball

paradigm, and frontal asymmetries were assessed. Insecure mothers, as compared to secure ones, showed a more pronounced negativity in the face-sensitive N170 component and a smaller N200 amplitude. Regarding the P300 component, secure mothers showed a stronger response to face stimuli than insecure mothers. No differences were found for frontal asymmetry scores. The results indicate that attachment differences may be related to neuropsychological functioning.

Krause, S., Pokorny, D., Schury, K., Doyen-Waldecker, C., Hulbert, A-L, Karabatsiakis, A., Kolassa, I-T, Gündel, H., Waller, C., & Buchheim, A. (2016). Effects of the Adult Attachment Projective Picture System on oxytocin and cortisol blood levels in mothers. *Frontiers in Human Neuroscience, 10*.

Author Abstract

Oxytocin, a small neuropeptide of nine amino acids, has been characterized as the 'hormone of affiliation' and is stimulated, for instance, in mothers when interacting with their offspring. Variations in maternal oxytocin levels were reported to predict differences in the quality of care provided by mothers. In this study, the Adult Attachment Projective Picture System (AAP) as a valid measure to assess attachment representations was used as an activating attachment-related stimulus. We investigated whether the AAP induces a release of oxytocin in mothers with a secure attachment representation and a stress-related cortisol response in mothers with an insecure attachment representation. Therefore, pre-post effects of AAP administration on plasma oxytocin and serum cortisol levels were investigated in $n = 44$ mothers 3 months after parturition. Oxytocin levels increased from pre to post in the significant majority of 73% participants ($p = 0.004$) and cortisol decreased in the significant majority of 73% participants ($p = 0.004$). Interestingly, no association between alterations in oxytocin and cortisol were found; this suggests taking a model of two independent processes into considerations. These results show that the AAP test procedure induces an oxytocin response. Concerning the results within the four AAP representation subgroups, our hypothesis of a particularly strong increase in oxytocin in secure mothers was not confirmed; however, in secure mothers we observed a particularly strong decrease in cortisol. Effect sizes are reported, allowing the replication of results in a larger study with sufficient sample size to draw final conclusions with respect to differences in OT and cortisol alterations depending on attachment representation. When interpreting the results, one should keep in mind that this study investigated lactating mothers. Thus, the generalizability of results is limited and future studies should investigate non-lactating healthy females as well as males and include a control stimulus condition.

Labek, K., Viviani, R., Gizewski, E. R., Verius, M., & Buchheim, A. (2016). Neural correlates of the appraisals of attachment scenes in healthy controls and social cognition – An fMRI study. *Frontiers in Human Neuroscience, 10*.

Author Abstract

The human attachment system is activated in situations of danger such as potential separation, threats of loss of a significant other and potential insecurity on the availability of the attachment figure. To date, however, a precise characterization of the neural correlates of the attachment system in healthy individuals is lacking. This functional magnetic resonance imaging (fMRI) study aims at characterizing the distinctive neural substrates activated by the exposure to attachment vs. non-attachment scenes. Healthy participants ($N = 25$) were presented scenes from the Adult Attachment Projective Picture System (AAP), a validated set of

standardized attachment-related pictures extended by a control picture stimulus set consisting of scenes without attachment-related content. When compared to the control neutral pictures, attachment scenes activated the inferior parietal lobes (IPLs), the middle temporal gyrus (MTG), and the anterior medial prefrontal cortex (mPFC). These areas are associated with reasoning about mental representations, semantic memory of social knowledge, and social cognition. This neural activation pattern confirms the distinctive quality of this stimulus set, and suggests its use as a potential neuroimaging probe to assess social cognition/mentalizing related to attachment in healthy and clinical populations.

Müller LE, Bertsch K, Bülow K, Herpertz SC, Buchheim A. (2019). Emotional neglect in childhood shapes social dysfunctioning in adults by influencing the oxytocin and the attachment system: Results from a population-based study. *International Journal of Psychophysiology*.136, 73-80. <https://www.ncbi.nlm.nih.gov/pubmed/29859994>. doi: 10.1016/j.ijpsycho.2018.05.011. PMID:29859994

Author Abstract

Early life maltreatment (ELM) is the major single risk factor for impairments in social functioning and mental health in adulthood. One of the most prevalent and most rapidly increasing forms of ELM is emotional neglect. According to bio-behavioral synchrony assumptions, the oxytocin and attachment systems play an important mediating role in the interplay between emotional neglect and social dysfunctioning. Therefore, the aim of the present study was to investigate whether fear and avoidance of social functioning, two important and highly prevalent facets of social dysfunctioning in adulthood, are shaped by emotional neglect, plasma oxytocin levels and attachment representations. We assessed emotional neglect as well as other forms of ELM with the Childhood Trauma Questionnaire, current attachment representations with the Adult Attachment Projective Picture System, and fear and avoidance of social situations with the Liebowitz Social Anxiety Scale in a population-based sample of N = 121 men and women. Furthermore, 4.9 ml blood samples were drawn from each participant to assess peripheral plasma oxytocin levels. Applying a sequential mediation model, results revealed that emotional neglect was associated with lower plasma oxytocin levels which in turn were associated with insecure attachment representations which were related to elevated fear and avoidance of social situations ($a_1d_2b_2: F_{3,117} = 20.84, p < .001$). Plasma oxytocin and current attachment representations hence fully and sequentially mediate the effects of emotional neglect on social fear and avoidance, two important facets of adult social dysfunctioning, confirming bio-behavioral synchrony assumptions.

Petrowski K, Beetz A, Schurig S, Wintermann GB, Buchheim A (2017) Association of attachment disorganization, attachment-related emotion regulation and cortisol response after standardized psychosocial stress procedure: A pilot study. *Psihologija*, 50, 103-116. doi: <https://doi.org/10.2298/PSI130807001P>

Author Abstract

Attachment representations are related to maintaining biological homeostasis, including physiological stress and emotional regulation. Therefore, recent research has focused on attachment stress regulation and hypothalamus pituitary adrenal (HPA) axis reactivity. However, the attachment disorganization underlying emotion regulation associated with the HPA axis response has not yet been investigated. In our study, the attachment representation and the HPA-

axis reactivity by cortisol level before and after the Trier Social Stress Test were assessed in a sample of 98 healthy non-clinical subjects. As expected, approximately 30% of this sample showed a disorganized attachment representation. The subjects' unresolved attachment (breakdown of emotional regulation) showed a prolonged cortisol recovery. No differences were found between the attachment patterns in the increase and the delta of the cortisol response. However, the cortisol reactivity differed significantly for the occurrence of emotional regulation. The subjects with a high occurrence of attachment-related emotion regulation showed a higher cortisol response than the subjects with an unresolved attachment and the ones with a low occurrence of attachment-related emotion regulation. Regulating the negative emotions of stressful situations may require more attention as it might lead to an increased activation of the physiological system.

Clinical Samples

Balint, E. M., Gander, M., Pokorny, D., Funk, A., Waller, C., & Buchheim, A. High prevalence of insecure attachment in patients with primary hypertension. *Frontiers in Psychology*, 7. <https://doi.org/10.3389/fpsyg.2016.01087>

Author Abstract

Early life maltreatment (ELM) is the major single risk factor for impairments in social functioning. Hypertension is a major cardiovascular (CV) risk factor and is predicted by heightened CV reactivity to stress in healthy individuals. Patients with hypertension also show an altered stress response, while insecure attachment is linked to a heightened stress reactivity as well. This is the first study aiming to assess attachment representations in patients with primary hypertension and to investigate their CV responses when their attachment system is activated. We studied 50 patients (38 men, 12 women) with primary hypertension. The Adult Attachment Projective Picture System (AAP), a widely used and validated interview, was performed to measure the patients' attachment representations, and to activate their attachment system. Blood pressure and heart rate were measured after 10 min at rest prior to and directly after the AAP interview. Mood and state anxiety were assessed using the Multidimensional Mood State Questionnaire (MDBF) and the State Trait Anxiety Inventory-State (STAI-S) before and after the experiment. The prevalence of insecure attachment (dismissing, preoccupied, unresolved) in hypertensive patients was predominant (88%), while in non-clinical populations, only about 50% of individuals had insecure attachment patterns. Blood pressure ($p < 0.001$), heart rate ($p = 0.016$), and rate pressure product ($p < 0.001$) significantly increased in response to the attachment interview. Secure attached patients showed the highest rise in systolic blood pressure ($p = 0.020$) and the lowest heart rate compared to the other attachment groups ($p = 0.043$). However, attachment representation showed no significant group or interaction effects on diastolic blood pressure (DBP) and rate pressure product. Insecure attachment was highly over-represented in our sample of patients with primary hypertension. Additionally, a robust CV response to the attachment-activating stimulus was observed. Our data suggest that insecure attachment is significantly linked to primary hypertension, which implies the need for further investigations to evaluate attachment insecurity as a possible risk factor for hypertension.

Bauriedl-Schmidt, C., Jobst, A., Gander, M., Seidl, E.; Sabaß, L., Sarubin, N., Mauer, C., Padberg, F., & Buchheim, A. (2017). Attachment representations, patterns of emotion regulation, and social exclusion in patients with chronic and episodic depression and health controls. *Journal of Affective Disorders, 210*, 130-138.

Author Abstract

The experience of social exclusion (ostracism) is linked to the etiology and maintenance of depression. Most individuals experience emotional stress in states of social exclusion. Insecurely attached individuals, especially with an unresolved trauma, show maladaptive coping in response to social stress. The present study examines (a) the differences with regards to attachment representations in episodic (ED) and chronic depressive (CD) inpatients and (b) how ostracism affects their emotional actions. Methods: Patients with CD (n=29) and ED (n=23) and healthy control subjects (n=29) were interviewed using the Adult Attachment Projective Picture System (AAP), a valid measure to assess attachment representation; and played a virtual ball tossing game simulating social exclusion (Cyberball). Multiple depression-related risk and protective factors were considered. We hypothesized that CD patients show the most severe attachment disorganization and are emotionally most affected by the social exclusion situation. Moreover, we explored the interaction between ostracism and attachment. Results: Contradicting our hypotheses, ED and CD individuals were almost akin with regards to their attachment insecurity/disorganization and reactions to Cyberball. An emotionally altered reaction to social exclusion was identified in the insecure-disorganized depressive subgroup. Limitations: Small sample size hampering further subgroup analyses. The ED sample may include single CD subjects with recent manifestation. Conclusions: The pattern of emotion regulation in the depressive groups matches with findings from clinical studies, including attachment research. The relationship between attachment representations and ostracism should be further investigated in larger samples of depressive individuals.

Benoit, M., Bouthillier, D., Moss, E., Rousseau, C., Brunet, A. (2009). Emotion regulation strategies as mediators of the association between level of attachment security and PTSD symptoms following trauma in adulthood. *Anxiety, Stress and Coping, 23*, 101-118.

Author Abstract

Although, a link between attachment and posttraumatic stress disorder (PTSD) symptoms has been established, the mechanisms involved in this link have not yet been identified. Furthermore, attachment has been systematically measured by self-report questionnaires, which are prone to perceptual bias. The first goal of this study was to examine the link between PTSD symptoms and attachment security level, as measured with a security index created from the Adult Attachment Projective interview. The second goal was to test emotion regulation strategies as mediators of this link. Participants were recruited in hospital emergency rooms following trauma exposure in adulthood. The results showed that a higher level of attachment security was associated with fewer PTSD symptoms at one and three months posttrauma. The results also showed that substance use and emotion-focused strategies mediated the association between attachment and PTSD symptoms. Theoretical and clinical considerations that follow from these outcomes are discussed.

Bernheim D, Gander M, Keller F, Becker M, Lischke A, Mentel R, Freyberger HJ, Buchheim A. (2019) The role of attachment characteristics in dialectical behavior therapy for patients with borderline personality disorder, *Clinical Psychology Psychotherapy*, 26, 339-349. doi: 10.1002/cpp.2355. PMID: 30667573

Author Abstract

Attachment characteristics play a key role in understanding borderline-specific problems with respect to childhood maltreatment. The aim of this study was to investigate how attachment representations may influence the trajectory of change in a 1-year outpatient dialectical behavior therapy (DBT) for patients with borderline personality disorder (BPD). Attachment representations were assessed in 26 BPD patients and 26 healthy controls (HC) using the Adult Attachment Projective Picture System (AAP) before treatment. Borderline and global symptom severity and interpersonal problems were examined before, during, and after completing the intervention. Analysis of variance and stepwise hierarchical regression analyses were used to explore the course of symptomatology. As expected, BPD patients displayed a predominance of unresolved attachment in the AAP compared with HC, by showing a lack of ability to integrate attachment related trauma. Whereas both resolved and unresolved attachment groups revealed significant improvement in symptom severity during treatment, dimensional AAP scores showed differences. Patients with higher scores in "synchrony" demonstrated more indicators of mutual care in their narratives to dyadic pictures and displayed a significantly stronger decrease of interpersonal problems than patients with lower synchrony scores. Assessing attachment representations prior to DBT might provide a helpful insight into individual attachment related resources or lack of these capacities. Responsiveness and synchrony in dyadic interactions with significant others are crucial for healthy interpersonal relations. A stronger therapeutic focus on the patient's capacity to show synchrony in dyadic attachment situations might improve the patient's interpersonal problems towards sensitive and mutual interaction.

Bernheim D, Gander M, Kriegel M, Becker M, Lischke A, Mentel R, Freyberger HJ, Buchheim A (2018). Veränderung von Bindungsmerkmalen im Verlauf einer Dialektisch Behavioralen Therapie für Borderline-Patientinnen. (Change of attachment characteristics in the course of Dialectic Behavioral Therapy for borderline patients) *Zeitschrift für Psychiatrie, Psychologie und Psychotherapie (Journal of Psychiatry, Psychology, and Psychotherapy)*, 66, 119–131. <https://doi.org/10.1024/1661-4747/a000347>. doi: 10.1024/1661-4747/a000347

Author Abstract

Binding organization is a central feature in understanding the psychopathology of borderline personality disorder (BPS) in the context of affective and interpersonal problems. In this pilot study, binding-related traits of 26 BPS patients and 26 age- and educational-matched healthy control volunteers were collected using various methods before, during and after a one-year ambulatory DBT intervention. Method: Binding representations were recorded using the Adult Attachment Projective Picture System (AAP). Using parametric and non-parametric tests, changes in the attachment style (ASQ) and subjective assessments of affectivity, autobiographical relevance, and emotional valence of personalized sentences were collected from their own AAP interviews before, during, and after the one-year DBT intervention. Results: As expected, BPS patients in AAP had significantly more unprocessed traumas (disorganized

binding representation), a higher proportion of traumatic-dysregulatory markers in narratives, and AAP pictures potentially inducing loneliness and abandonment (monadic pictures), a stronger attachment anxiety, and avoidance (ASQ) and more BPS-associated emotions with greater autobiographical relevance and emotional valence in confronting personalized sentences of their own AAP interview. After one year of DBT, attachment anxiety and avoidance were significantly reduced in the BPS group, and attachment safety was significantly enhanced (ASQ). With autobiographical relevance preserved, DBT patients responded with personalized sentences from their own AAP interview, indicating fewer BPS-associated emotions, more acceptability, and reduced emotional valence, resembling control subjects. Conclusion: There was some evidence that changes could be made in the direction of a stronger attachment safety and intrapsychic integration of attachment-related autobiographical aspects in the context of ambulatory DBT for BPS patients. Establishing a safe therapeutic alliance with positive bonding experiences requires a sufficient one-year intervention period.

Buchheim, A., & George, C. (2011). Attachment disorganization in borderline personality disorder and anxiety disorder. In J. Solomon & C. George (Eds.), *Disorganized attachment and caregiving* (pp. 343-382). New York, NY: Guilford Press. (*Peer-reviewed volume*)

Summary

Research has shown a strong correspondence between unresolved attachment and psychiatric symptoms in clinical samples, however we know little about how unresolved loss is related to adult psychiatric symptoms. Some researchers have called for expansion of the field's understanding of mental health risk and unresolved attachment (e.g., Lyons-Ruth et al., 2003; Spieker et al., 2011). The goals of the current study are to (1) examine the convergent validity of the AAP and AAI in a German sample of psychiatric patients and controls and (2) use the AAP to begin to unravel what may be diagnosis-specific nuances in unresolved attachment in adults diagnosed with borderline personality disorder (BPD) and anxiety disorders. With regard to convergent AAP/AAI validity, AAIs were coded by two reliable AAI judges and AAPs were coded by the authors. All judges except the first author (who coded AAPs) were blind psychiatric status. AAPs were coded by the second author using English translations. Interjudge AAP reliability was 98% ($\kappa = .97, p < .000$). AAP/AAI concordance was 84% for four classification groups ($\kappa = .71, p < .000$), 91% for secure vs. insecure ($\kappa = .70, p < .000$), and 88% for unresolved vs. resolved ($\kappa = .75, p < .000$). The patient groups showed significantly more unresolved attachment than the controls. There were no significant differences in the attachment classification distribution between BPD and anxiety patients, with predominant classifications of preoccupied and unresolved. Trauma patterns were examined using a newly developed "trauma risk screening" coding system developed for the AAP for this study. As predicted, the patients demonstrated significantly greater trauma indicators in their responses to the alone AAP stimuli as compared with the dyadic stimuli. Traumatic content in the responses to each AAP stimulus and class of stimuli (i.e., alone, dyadic) were examined. Results indicated that BPD patients tended to demonstrate the strongest dysregulation in response to fears of being alone combined with isolation, which are related to severe abuse combined with loss of protective attachment figures. Anxiety patients were also dysregulated, but less so than BPD patients. The representations of anxiety patients depicted contradictory

models of protective attachment figures in hypothetical stories juxtaposed with shifts in attention to their own threatening personal experiences.

Buchheim, A., George, C., Liebl, V., Moser, A., & Benecke, C. (2007). Affective facial behavior of borderline patients during the adult attachmentprojective (German language title: *Mimische affektivität von patientinnen mit einer borderline-persönlichkeitsstörung während des adult attachment projective*), *Zeitschrift für Psychosomatische Medizin und Psychotherapie*, 53, 339-354.

Author Abstract

Objective: In this study we investigated for the first time the facial activity of patients with Borderline Personality Disorder (BPD) compared to healthy controls during the Adult Attachment Projective (AAP). The AAP is a valid interview measure for assessing adult attachment representation. The attachment system is activated by eight attachment-related pictures. The subjects are asked to tell a story about each picture. Methods: The affective facial behavior during the AAP interview in 15 female patients with BPD and 14 healthy women was coded using EMFACS. Affective facial behavior was compared between diagnostic and attachment groups (resolved versus unresolved trauma). Results: As expected, there were a significantly higher number of BPD patients in the category 'unresolved trauma' of the AAP. The BPD patients also showed significantly more disgust during the attachment task as compared to controls. Conclusions: The two main results are discussed in the context of frequent traumatic experiences such as sexual abuse and emotional neglect suffered by BPD patients through their attachment figures.

Buchheim, A., Erk, S., George, C., Kächele, H., Kircher, T., Martius, P., Pokorny, D., Ruchow, M., Spitzer, M., & Walter, H. (2008). Neural correlates of attachment trauma in borderline personality disorder: A functional magnetic resonance imaging study. *Psychiatry Research: Neuroimaging*, 163, 223-235.

Author Abstract

Functional imaging studies have shown that individuals with borderline personality disorder (BPD) display prefrontal and amygdala dysfunction while viewing or listening to emotional or traumatic stimuli. The study examined for the first time the functional neuroanatomy of attachment trauma in BPD patients using functional magnetic resonance imaging (fMRI) during the telling of individual stories. A group of 11 female BPD patients and 17 healthy female controls, matched for age and education, told stories in response to a validated set of seven attachment pictures while being scanned. Group differences in narrative and neural responses to “monadic” pictures (characters facing attachment threats alone) and “dyadic” pictures (interaction between characters in an attachment context) were analyzed. Behavioral narrative data showed that monadic pictures were significantly more traumatic for BPD patients than for controls. As hypothesized BPD patients showed significantly more anterior midcingulate cortex activation in response to monadic pictures than controls. In response to dyadic pictures patients showed more activation of the right superior temporal sulcus and less activation of the right parahippocampal gyrus compared to controls. Our results suggest

evidence for potential neural mechanisms of attachment trauma underlying interpersonal symptoms of BPD, i.e. fearful and painful intolerance of aloneness, hypersensitivity to social environment, and reduced positive memories of dyadic interactions.

Buchheim, A., George, C., Liebl, V., Moser, A., Benecke, C. (2007). Affective facial behavior of borderline patients during the Adult Attachment Projective (German language title: *Mimische Affektivität von Patientinnen mit einer Borderline-Persönlichkeitsstörung während des Adult Attachment Projective*). *Zeitschrift Psychosomatische Medizin und Psychotherapie (Journal of Psychosomatic Medicine and Psychotherapy)*, 53, 339-354.

Author Abstract

In this study we investigated for the first time the facial activity of patients with Borderline Personality Disorder (BPD) compared to healthy controls during administration of the Adult Attachment Projective (AAP). The affective facial behavior during the AAP interview in 15 female patients with BPD and 14 healthy women was coded using EMFACS. Affective facial behavior was compared between diagnostic and attachment groups (resolved versus unresolved trauma). Consistent with previous adult attachment studies, there was a significantly higher number of BPD patients with unresolved attachment. The BPD patients showed significantly more disgust during the attachment task as compared to controls. The results demonstrate validity for the AAP as a representational measure of adult attachment and are discussed in the context of frequent traumatic experiences such as sexual abuse and emotional neglect suffered by BPD patients through their attachment figures.

Buchheim A, Viviani R, & Walter H. (2013). Attachment narratives in depression: A neurocognitive approach. *Journal of Consciousness Studies*, 20, 292-305.

Author Abstract

Attachment is the way we relate to others. The way we attach to others is developed early childhood, can be impaired by early traumatic life events, and is disturbed in many psychiatric disorders. Here we give a short overview about attachment patterns in psychiatric disorders with a focus on depression, and discuss two recent empirical studies of our own that have investigated attachment related brain activation using fMRI and the Adult Attachment Projective Picture System. In the first study with patients with borderline personality disorder we used a paradigm in which patients produced narratives in response to attachment pictures and measured brain activity while participants were talking. Our results are consistent with the view that BPD pathology might be correlated with traumatic attachment fear related to autobiographic abuse and loss experiences. In the second study we investigated patients with major depression undergoing therapy in a longitudinal design. In this study we used a design with individualized stimuli that were extracted from narratives produced outside of the scanner. We found that patients, as compared to healthy controls, showed differences in a pre-post comparison. The significant correlation of changes in the subgenual cingulate and medial prefrontal cortex with symptom improvement provides evidence that these regions are involved in mediating therapy related effects.

Buchheim, A., West, M., Martius, P., & George, C. (2004). The activation of the attachment system in borderline patients using the Adult Attachment Projective (German language title: Die Aktivierung des Bindungssystems durch das Adult Attachment Projective bei Patientinnen mit einer Borderline Persönlichkeitsstörung - ein Einzelfall). *PTT: Persönlichkeitsstörungen Theorie und Therapie (PTT: personality disorders theory and therapy)*, 8, 230-242.

Author Abstract

George et al. (1999) developed a new projective measure, the Adult Attachment Projective (AAP), to assess attachment representation in adults. In our study we administered for the first time the AAP in Borderline patients. The clinical relevance of the AAP is demonstrated using a single case of our study. We discuss the AAP findings referring on results from the Adult Attachment Interview and Fonagy's model of mentalization.

Buchheim A, Viviani R, Kessler H, Tabner S, Kächele H, Roth G, Pogarell O, Karch S, Labek K (2019) Neurophysiological changes in depressed patients with unresolved attachment during long-term psychotherapy. *Psychother Psychosom* 88 (suppl 1): 19. [Online: <https://www.karger.com/Article/Pdf/502467>. doi: 10.1159/000502467]

Author Abstract

Background: Neurophysiological studies on depression confirm that successful psychotherapy leads to changes in specific neural circuits involved in emotional processing. Previous findings of increased sustained gamma-band responses to negative stimuli were found in depressed individuals, who elaborated specifically on negative stimuli. Several studies report that insecure, especially unresolved attachment is overrepresented in depression. The present EEG study focused on electrophysiological responses to attachment-related emotional information in depressed patients with unresolved attachment and their potential change during long-term psychotherapy. **Methods:** The study included unmedicated depressed patients (n=17) and healthy participants (n=13). Attachment representations were measured using the Adult Attachment Interview (AAI). Participants' electrophysiological responses to pictures of the Adult Attachment Projective Picture System combined with personalized attachment related sentences were contrasted with neutral descriptions at the beginning (t1) and after 15 months of psychodynamic psychotherapy (t2). **Results:** At baseline, patients showed significantly more unresolved trauma than controls (p=.005). After treatment, patients' unresolved classifications improved to organized patterns (p=.016). Effects of attachment pattern were sought in the difference in gamma-band activity between time 2 and time 1. As expected, the contrast personalized vs. neutral description trials revealed a significant effect of unresolved attachment (t=-2.28, p=.04) in a model including sex and age as confounding covariates. **Conclusions:** Normalization of gamma band activity associated with improved attachment status may be interpreted as a remission from a state of sustained and prolonged elaboration of emotional material. Our data may provide further evidence on the effectiveness of long-term psychodynamic psychotherapy in depression.

Buchheim, A., Ziegenhain, U., Peter, A., von Wietersheim, H., Vicari, A., Kolb, A., & Schulze, U. (2007). Unresolved experiences of loss and anxiety disorders: A trans-generational pilot study with mothers and their children (German language title: Unverarbeitete Verlusterfahrungen und Angststörungen: Eine transgenerationale Pilotstudie bei Müttern und deren Kindern). *Nervenheilkunde: Zeitschrift für interdisziplinäre Fortbildung (Neurology: Journal of Interdisciplinary Training)*, 26, 1130-1135.

Author Abstract Aim of the study was to examine for the first time in Germany the trans-generational relationship between maternal anxiety disorders and the psychopathological development of their children in the context of attachment. In order to identify attachment related risk factors mothers and children were both examined using established attachment measures. According to our hypothesis a high percentage of the mothers with an anxiety disorder were classified with an insecure attachment representation, especially with a predominance of the category "unresolved loss." Children of these mothers also showed a high percentage of insecure attachment patterns, but a lower percentage of disorganized attachment than expected. The psychiatric examination of the children revealed an evidence of increased psychosocial stress and an impairment of psychosocial functioning, though not reaching the severity of a psychiatric diagnosis. These results are discussed with respect to the chance of interdisciplinary cooperation. The importance of timely preventive intervention for this patient group, which is still not systematically implemented in health care provision, is emphasized.

Fizke, E., Buchheim, A., & Juen, F. (2013) Activation of the attachment system and mentalization in depressive and healthy individuals - an experimental control study. *Psihologija*, 46, 161-176.

Author Abstract

From a developmental and clinical point of view attachment theory and mentalization are closely connected and have become increasingly important to understand the origins of psychopathological development. However, very little is known about how exactly different inner working models of attachment are related to diverse mentalizing abilities and this is particularly true for adult populations – healthy as well as clinical populations. In the present study, we investigated this relation with a sample of inpatients diagnosed with depression and a sample of healthy individuals. In an experimental setting the attachment system was activated using the Adult Attachment Projective Picture System (AAP). Mentalization was assessed during activation and in comparison to a control condition using a modified version of the Reading the Mind in the Eyes Test (RMET). We expected that an activation of the attachment system i) diminishes the capacity to take another's perspective in individuals with unresolved state of mind, ii) has no impact in individuals with secure attachment representation and iii) is dependent of clinical status in individuals with insecure (but organized) working models of attachment. Overall, these hypotheses were confirmed. However, the impact of clinical status on mentalization in insecure attachment has to be further explored. We summarize that attachment state of mind has a mediating influence on mentalization basically in such situations where the attachment system is activated.

Delvecchio, E., Di Riso, D., Lis, A., & Salcuni, S. (2016). Adult attachment, psychological adjustment, and well-being in drug-addicted in-patients. *Psychological Reports, 118*, 587-607.

Author Abstract

In recent years, attachment studies have gathered overwhelming evidence for a relation between insecure attachment and drug addiction. The existing literature predominantly addresses attachment styles and little attention is given to attachment-pattern-oriented studies. The current study explored how attachment, social adjustment, and well-being interact in 40 (28 men, 12 women; ages 20-52 years, $M=32.3$, $SD=9.4$) inpatients with drug addiction. The Adult Attachment Projective Picture System (AAP), the Social Adjustment Scale-Self-report (SAS-SR), and the General Health Questionnaire-28 (GHQ-28) were administered. Descriptive statistics were computed as well as differences between patterns of attachment in all variables were measured. None of the inpatients showed a secure attachment pattern: 7 scored as dismissing (18%), 5 preoccupied (12%) and 28 unresolved (70%). AAP stories were mainly connected with themes of danger, lack of protection, and helplessness. Inpatients classified as unresolved reported significantly higher maladjustment on the SAS-SR and GHQ-28 than those with resolved attachment patterns. Implications for clinicians and researchers are presented.

Delvecchio, E., Di Riso, D., Salcuni, S., Lis, A., & George, C. (2014). Attachment and anorexia: Dysregulated defense and pathological mourning. *Frontiers in Psychology, 5*. doi.org/10.3389/fpsyg.2014.01218

Author Abstract

The role of defensive exclusion (Deactivation and Segregated Systems) in the development of early relationships and related to subsequent manifestations of symptoms of eating disorders was assessed using the Adult Attachment Projective Picture System (AAP). Fifty-one DSM-IV diagnosed women with anorexia participated in the study. Anorexic patients were primarily classified as dismissing or unresolved. Quantitative and qualitative analyses of defensive exclusion were carried out. Results showed potential benefits of using the AAP defense exclusion coding system, in addition to the main attachment classifications, in order to better understand the developmental issues involved in anorexia. Discussion concerned the processes, such as pathological mourning, that may underlie the associations between dismissing and unresolved attachment and anorexia. Implications for developmental research and clinical nosology are discussed.

Gallichan, D.J., & George, C. (2016) Attachment in intellectual and developmental disability. In H. K. Fletcher, A. Flood, D.J. Dougal (Eds., pp. 197-222) *A clinician's guide to practice and research*. Wiley-Blackwell.

Gallichan, D., & George, C. (2018). The Adult Attachment Projective Picture System: A pilot study of inter-rater reliability and face validity with adults with intellectual disabilities. *Advances in Mental Health and Intellectual Disabilities, 12*, 57-66. doi:10.1108/AMHID-11-2017-0036

Author Abstract

Purpose The purpose of this paper is to assess whether the Adult Attachment Projective (AAP) Picture System is a reliable and face valid measure of internal working models of attachment in adults with intellectual disabilities (ID). **Design/methodology/approach** The AAPs of 20 adults with ID were coded blind by two reliable judges and classified into one of four groups: secure, dismissing, preoccupied, or unresolved. Inter-rater reliability was calculated using κ . Six participants repeated the assessment for test-retest reliability. Two independent experts rated ten cases on the links between the AAP analysis and the clinical history. **Findings** There was significant agreement between AAP judges, $\kappa=0.677$, $p<0.001$. Five out of six participants showed stability in their classifications over time. The majority of expert ratings were “good” or “excellent”. There was a significant inter-class correlation between raters suggesting good agreement between them $r=0.51$ ($p<0.05$). The raters’ feedback suggested that the AAP had good clinical utility. **Research limitations/implications** The inter-rater reliability, stability, face validity, and clinical utility of the AAP in this population is promising. Further examination of these findings with a larger sample of individuals with ID is needed. **Originality/value** This is the first study attempting to investigate the reliability and validity of the AAP in this population.

Gander M, Buchheim A, Bock A, Steppan M, Sevecke K, Goth K (2020) Unresolved attachment mediates the relationship between childhood trauma and impaired personality functioning in adolescence. *Journal of Personality Disorders 34*: 468 [e-View Ahead of Print. https://doi.org/10.1521/pedi_2020_34_468]

Author Abstract

The present study investigates the mediating effect of attachment trauma on the relationship between childhood maltreatment and personality functioning in 199 adolescents (12-18 years) using a novel approach of an in-depth analysis of attachment-related traumatic contents during an attachment interview (AAP). Our findings demonstrate that adolescents with a high amount of traumatic attachment-related material show a lower resilience when facing traumatic childhood experiences, resulting in a greater severity of personality dysfunction. In particular, the associations between emotional abuse and neglect and the domains of identity, empathy, self-direction, and intimacy were mediated by the severity of attachment trauma. These results advance our understanding of the different nuances of attachment-related traumatic material and how they might shape personality structure in an adolescent age group.

Gander, M., Schiestl, C., Dahlbender, R., Ronel, J., & Buchheim, A. (2018). Facial behavior during an attachment interview in patients with complicated grief. *Journal of Nervous and Mental Disease, 206*, 340-349.

Author Abstract

The present study investigated differences in various aspects of facial behavior among female patients with complicated grief (CG; $n = 18$) and healthy controls ($n = 18$) during the assessment of their attachment representation using the Adult Attachment Projective Picture System. All patients were classified with an unresolved attachment status. On a behavioral level, they demonstrated longer gazing behavior away from the interviewer and the picture stimuli, more speech pauses, less smiling toward the interviewer, and more crying, especially in response to stimuli portraying the theme of loss. Focusing on the in-depth analysis of death-related stimuli using the Facial Action Coding System, patients demonstrated less facial affective behavior, less disgust, and less smiling in response to these stimuli compared with the healthy controls. The impaired capacity of patients with CG responding in an affective appropriate manner regarding bereavement might be interpreted as a specific emotion dysregulation when their attachment and mourning system is activated.

Gander M, Sevecke K, Buchheim A (2018) Disorder-specific attachment characteristics and experiences of childhood abuse and neglect in adolescents with anorexia nervosa and a major depressive episode. *Clinical Psychology and Psychotherapy*, 25, 894-906. doi: 10.1002/cpp.2324.

Author Abstract

For the first time, the present study investigates disorder-specific attachment characteristics and childhood trauma in adolescent inpatients with anorexia nervosa ($n = 30$, girls/boys: 28/2, age: $M = 14.84$, $SD = 1.20$), a major depressive episode ($n = 30$, girls/boys: 27/3, age: $M = 15.14$, $SD = 1.50$), and controls ($n = 60$, girls/boys: 44/16, age: $M = 16.10$, $SD = 1.20$). We used the Structured Clinical Interview to diagnose Axis I disorders, the Adult Attachment Projective Picture System to classify attachment representations, and the Childhood Trauma Questionnaire to assess child maltreatment. Our findings demonstrate an overrepresentation of the unresolved attachment status in the patient samples. A one-way analysis of variance succeeded by Bonferroni post hoc tests indicated that adolescents with anorexia nervosa show more isolation and dissolution of boundaries between life and death when confronted with situations of solitude. Although they report moderate to severe levels of traumatic childhood experiences, they tend to minimize those. Adolescents with a major depressive episode report higher levels of emotional abuse and neglect in their childhood, leaving them in a state of failed protection and danger during attachment distress. Integrating these attachment-related characteristics into specific psychotherapeutic interventions might be associated with a better outcome in that age group.

George, C., West, M. (2011). The Adult Attachment Projective Picture System: Integrating attachment into clinical assessment. *Journal of Personality Assessment*, 93, 407-416.

Author Abstract

This article summarizes the development and validation of the Adult Attachment Projective System (AAP), a measure we developed from the Bowlby-Ainsworth developmental tradition to assess adult attachment status. The AAP has demonstrated excellent concurrent validity with the Adult Attachment Interview (George, Kaplan, & Main, 1984/1985/1996; Main & Goldwyn, 1985-1994; Main, Goldwyn, & Hesse, 2003), interjudge reliability, and test-retest reliability, with no effects of verbal intelligence or social desirability. The AAP coding and classification system and application in clinical and community samples are summarized. Finally, we introduce

the 3 other articles that are part of this Special Section and discuss the use of the AAP in therapeutic assessment and treatment.

Herrmann, A.S., Beutel, M.E., Gerzymisch, K., Lane, R. D., Pastore-Molitor, J., Wiltink, J., Zwerenz, R., Banerjee, M., & Subic-Wrana, C. (2018). The impact of attachment distress on affect-centered mentalization: An experimental study in psychosomatic patients and healthy adults. *PLoS ONE*. 13, 1-18. doi: 10.1371/journal.pone.0195430.

Author Abstract

Introduction: We investigated the impact of attachment distress on affect-centered mentalization in a clinical and a non-clinical sample, comparing mentalization in a baseline condition to mentalization under a condition of attachment distress.

Methods: The sample consisted of 127 adults who underwent inpatient psychosomatic treatment, and 34 mentally healthy adults. Affect-centered mentalization was assessed by analyzing participants' narratives on interpersonal situations in a baseline condition with the Levels of Emotional Awareness Scale (LEAS), and an experimental condition inducing attachment distress with the Adult Attachment Projective Picture System (AAP). Unlike the LEAS, the AAP is specifically designed to trigger attachment distress. In both conditions, the narratives were evaluated using the LEAS scoring system. Additionally, we assessed the impact of childhood trauma on affect-centered mentalization with the Childhood Trauma Questionnaire (CTQ).

Results: While the non-clinical sample displayed the same level of affect-centered mentalization in both conditions, the majority of the clinical sample reached higher scores in the attachment distress condition. There was no strong relationship between reported trauma and mentalization scores.

Discussion: Our findings lend strong empirical support to the assumption that affect-centered mentalization is modulated by attachment-related distress. Several possible explanations for the differences between and within the clinical and the non-clinical sample are discussed.

Jahnke-Majorkovits AC, Buchheim A. (2018), Bindungsbezogene Kurzintervention im Rahmen stationärer Behandlung bei Jugendlichen. [Attachment Based Short Intervention during inpatient treatment of adolescents]. *Praxis Kinderpsychologie*

Kinderpsychiatrie, 67,367-385. <https://www.vr-elibrary.de/doi/10.13109/prkk.2018.67.4.367#.W5ZY0sJ9iHs>. doi: 10.13109/prkk.2018.67.4.367. PMID:29716464

Author Abstract

Attachment Based Short Intervention During Inpatient Treatment of Adolescents In clinical attachment research the established and economic Adult Attachment Projective Picture System (AAP) has been increasingly used in the past few years to assess the attachment representations in adults and recent studies demonstrated sufficient validity for assessing attachment representations in adolescents. Apart from coding attachment classifications, the AAP provides useful and clinically valid information concerning attachment related defences, aspects of capacity to act and synchrony in relationships and emotion regulation strategies with respect to attachment related traumatic experiences. These valuable aspects with respect to individual resources led to the conceptualization to implement the AAP in the therapeutic setting as a feedback tool. In this pilot case we report on an adolescent patient in an inpatient setting. The therapist received an individualized feedback on the

patients' AAP to focus on specific attachment related themes used as a short intervention respective an add-on treatment. This paper presents the first results of this new approach by demonstrating the potential therapeutic effects and process of therapy.

Jobst, A., Padberg, F., Mauer, M-C, Daltrozso, T., Bauriedl-Schmidt, C., Sabass, L., Sarubin, N., Falkai, P., Renneberg, B., Zill, P., Gander, M., & Buchheim, A. (2016). Lower oxytocin plasma levels in borderline patients with unresolved attachment representations. *Frontiers in Human Neuroscience, 10*. doi: 10.3389/fnhum.2016.00125

Author Abstract

Interpersonal problems and affective dysregulation are core characteristics of borderline personality disorder (BPD). BPD patients predominantly show unresolved attachment representations. The oxytocin (OT) system is associated with human social attachment and affiliative behavior, and OT dysregulation may be related to distinct attachment characteristics. Here, we investigated whether attachment representations are related to peripheral OT levels in BPD patients. Twenty-one female BPD patients and 20 age-, gender-, and education-matched healthy controls (HCs) were assessed with clinical scales and measures of interpersonal and attachment-related characteristics, including the Adult Attachment Projective Picture System (AAP). Plasma OT concentrations were measured prior to and during social exclusion in a virtual ball tossing game (Cyberball). The majority of BPD patients (63.2%) but no HCs showed unresolved (disorganized) attachment representations. In this subgroup of patients, baseline OT plasma levels were significantly lower than in BPD patients with organized attachment representations. This pilot study extends previous findings of altered OT regulation in BPD as a putative key mechanism underlying interpersonal dysregulation. Our results provide first evidence that altered OT plasma levels are related to disorganized attachment representations in BPD patients.

Joubert, D., Webster, L., & Hackett, R. K. (2012). Unresolved attachment status and trauma-related symptomatology in maltreated adolescents: An examination of cognitive mediators. *Child Psychiatry and Human Development, 43*, 471-483.

Author Abstract

Attachment theory has received increasing interest as a framework allowing for a more refined understanding of the potential consequences of early relational trauma on psychological and social adjustment. Research has provided support for the role of disorganized attachment, both as a sequela of traumatic experiences and as a risk factor for subsequent maladjustment. This study investigated the associations between unresolved/disorganized attachment, cognitive functioning, and dissociative symptomatology in a sample of 60 adolescents with a history of maltreatment. A model with cognitive efficiency as a mediator variable was tested using hierarchical multiple regression analysis, with a bootstrapping procedure to examine indirect effects. Results provided support for the association between unresolved attachment, cognitive efficiency (but not verbal or thinking ability), and dissociation. Working memory was a strong mediator of the link between attachment and dissociation. These results highlight the importance of assessing attachment status and cognitive functioning in the context of clinical work with maltreated youth. In addition, it is proposed that greater attention be paid to internal models of attachment relationships and how they impact psychosocial functioning at different levels in maltreated populations.

Juen F, Arnold L, Meissner D, Nolte T, Buchheim A (2013). Attachment Disorganization in different clinical groups: What underpins unresolved attachment? *Psihologija*, 46, 127-140.

Author Abstract

This paper summarizes findings and clinical implications of research on attachment disorganization in diverse clinical groups. Disorganized/unresolved attachment is overrepresented in these groups compared to healthy control participants, but disorder specific characteristics of this attachment pattern are still poorly understood. The focus of this study was to explore defensive processes in participants whose narratives were classified as disorganized/unresolved using the Adult Attachment Projective Picture System (AAP). Besides the predominance of disorganized attachment, clinical participants demonstrated more “segregated system material” especially in stories representing aloneness and more “Personal Experience material” compared to healthy individuals. Within the disorganized/ unresolved clinical individuals, BPD and PTSD patients showed the highest proportion of attachment disorganization and were less able to use other attachment-related defenses to maintain organized. Furthermore, PTSD patients were emotionally overwhelmed by the projective attachment scenes compared to the other clinical groups as indexed by an incapacity to complete sections of the AAP. BPD and addicted patients were characterized by a high degree of self-other boundary confusion. Depressive and schizophrenic patients showed a high overall defensive intensity to remain organized.

Kissgen, R., Krischer, M., Kummetat, V., Spiess, R., Schleiffer, R., & Sevecke, K. (2009). Attachment representation in mothers of children with attention deficit hyperactivity disorder. *Psychopathology*, 42, 201-208.

Author 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.

Mazzeschi, C., Pazzalgi, C. Laghezza, L., Radi, G., Battistina, D., & De Feo, P. (2014). The role of both parents' attachment pattern in understanding childhood obesity.

Frontiers in Psychology, 5. doi: 10.3389/fpsyg.2014.00791

Author Abstract

Within the research on the determinants of child obesity a relatively new approach is the use of attachment theory to explore the mechanisms underlying children's obesity risk, especially considering emotion regulation strategies in the parent-child relationship. Few are the empirical researches that have addressed this issue. The empirical investigations have used self-report measures to assess adult attachment. In attachment studies, the use of interview methods and/or performance-based instruments is advised to evaluate the entire range of possible adult attachment patterns and comprehensively explain the emotional strategies, correlates, and consequences of individual differences in attachment system functioning. The aim of this study was to explore the extent to which both parents' attachment patterns serve as self-regulative mechanisms related to childhood overweight/obesity by the Adult Attachment Projective Picture System (AAP) in a sample of 44 mothers and fathers of children referred for obesity. Insecure attachment was found a risk factor for both mothers and fathers. Also unresolved/disorganization was found to play a significant role in childhood obesity. The role of the father's attachment was explored and findings suggested considering etiology and treatment of childhood obesity.

Pallini, S., Alfani, A., Marech, L., & Laghi, F. (2017) Unresolved attachment and agency in victims of intimate partner violence. (2017) . *Psychology and Psychotherapy: Theory, Research and Practice*, 90, 177-192.

Author Abstract

Objectives Women victims of IPV are more likely insecurely attached and have experienced childhood abuse, which according to the attachment theory is deeply related to disorganized attachment. This case-control study was performed with the aim to compare the attachment status and the defensive processing patterns of women victims of IPV (cases) with women with no experiences of IPV (controls). **Methods** Cases were 16 women with an age range from 26 years to 51 years. The control group included 16 women with an age range from 26 years to 59 years. Women's states of mind in regard to attachment were evaluated with the Adult Attachment Projective Picture System, which allows classifying attachment status and defensive mechanisms. **Results** Compared with control group, most IPV women resulted having an unresolved attachment status and describing characters less capable to draw upon internal resources, that is, internalized secure base, and less capable to act than controls. Women victims of IPV used significantly more words referring danger and failed protection than controls. **Conclusions** The results evidenced the strong effectiveness of the AAP on analysing the psychological attitudes of women victims of IPV. The dramatic events lived by the women victims of IPV are so dominant in their minds that they invade their stories. This could represent a clue of emotional dysregulation. **Practitioner points:** The use of AAP improves the understanding of the agency of self and of the specific levels of trauma experienced by IPV victims, on clarifying their frightening/frightened dynamic, typical of the disorganized attachment relationship, which undermines their activity of mentalization. The therapist will assume the stance of a secure base and then both promoting exploration and

contrasting impotence, humiliation, and subordination that IPV women have experienced., This therapeutic interpersonal context will be functional to reach two different but related therapeutic goals: (1) to facilitate the rebuilding of agency (through an activation of subject to explore concrete strategies for exiting from IPV), (2) to explore attachment-related segregated systems from awareness, and to integrate them in memory.

Schiltz, P., Walger, P., Krischer, M., von Gontard, A., Wendrich, D., Kribs, A., Roth, B., & Lehmkuhl, G. (2013). Attachment in very low birth weight infants (1500 g) and their mothers (German language title: Bindungsqualität bei selir kleinen Frühgeborenen (1500 g) und ihren Müttern). *Praxis der Kinderpsychologie und Kinderpsychiatrie (Practice of Child Psychology and Child Psychiatry)*, 62, 142-154.

Author Abstract

A long hospital stay, along with the worries about the survival and the possible disabilities the child might suffer from, mark the start into life of very low birth weight premature infants (VLBW). The goal of this trial was to study the stability of the attachment representations of very low birthweight infants (birthweight < 1500 g) and the accordance of the attachment representations of the children and their primary care givers. In continuation of the *Kölner Frühgeborenen Studie*, we measured the attachment patterns of 40 VLBW children at the age of seven and their mothers. For the children we used the *Geschichtenergänzungsverfahrens zur Bindung (GEV-B)* and for the mothers the *Adult Attachment Projective (AAP)* to determine the attachment representation. The attachment representations first corresponded to a normal distribution pattern and shifted over time to a more insecure attachment. We could not determine a significant link between the attachment patterns of the child and their mother.

Subic-Wrana, C., Beetz, A., Langenbach, M., Paulussen, M., Beutel, M. (2007). Connections between unresolved attachment trauma and retrospectively remembered childhood traumatisation in psychosomatic inpatients. *Journal of Psychosomatic Research*, 61, 399-410.

Author Abstract

In contrast to the organized secure (F) or insecure attachment (Ds, E) classifications (Ainsworth et al. 1969; George et al. 1985) by which consistent affective and behavioural patterns of attachment behaviour are described, the disorganized attachment status U (Main 1986) is characterised by inconsistencies in attachment related affect, thinking and behaviour. Populations in psychotherapeutic in-treatment are characterised by a high prevalence of the disorganized attachment status and childhood traumatisation. To date, there is little empirical evidence about the way in which a history of childhood traumatisation may interfere with actual attachment disorganisation and what impact the connection of these different types of trauma has on symptom formation and severity. Patients (n=46, main diagnoses: major depression, somatoform and eating disorders) were assessed with the AAP (Adult Attachment Projective), the CTQ (Childhood Trauma Questionnaire), the CATS (Child Abuse and Trauma Scale), self-report measures for symptom severity (SCL 90 R, STAI, BDI) and a measure for cognitive-emotional development (LEAS). At admission, 50% of the patients presented a disorganised attachment status (U); among patients with an organized attachment status insecure-ambivalent attachment

was dominant. The correlation between attachment status, severity of childhood traumatisation and symptom severity and formation are presented and discussed.

Subic-Wrana, C., Beetz, A., Wiltink, J., & Beutel, M. (2011). Unresolved attachment and remembered childhood trauma inpatients undergoing psychosomatic inpatient treatment (German language title: Aktuelles bindungstrauma und retrospektiv erinnerte kindheitstraumatisierung bei patienten in psychosomatischer akutbehandlung). *Zeitschrift für Psychosomatische Medizin und Psychotherapie (Journal of Psychosomatic Medicine and Psychotherapy)*, 57, 325-342.

Author Abstract

Objective: Clinical populations are characterised by a high level of childhood trauma and unresolved attachment status (U). Unresolved attachment status indicates the inability to integrate attachment-related dangers. Little is known about the interaction of traumatic childhood experiences and an unresolved attachment status. Method: We administered the Adult Attachment Projective Picture System (AAP) to 45 newly admitted psychosomatic inpatients. Childhood trauma (CTQ) and distress were assessed by self-report questionnaires, and cognitive-emotional development was evaluated with the Levels of Emotional Awareness Scale (LEAS). We explored whether unresolved (U) and resolved (R) attachment status differentiated the sample with regard to childhood trauma, distress and cognitive-emotional development. Results: 53 % of the sample was characterized by the attachment status U; physical abuse and neglect as well as emotional neglect were correlated with a diminished ability to integrate trauma indicators in the AAP. A resolved attachment status was related to higher LEAS scores. Conclusion: The level of cognitive-emotional development may mediate the actual integration of attachment-related dangers and the interaction between actual attachment-related anxiety and past traumatic experiences.

Taubner, S., Zimmermann, L., Ramberg, A., & Schröder, P. (2016). Mentalization mediates the relationship between early maltreatment and potential for violence in adolescence. *Psychopathology*, 49, 236-246.

Author Abstract

Aim: The present study investigates the role of attachment representation and mentalization as possibly protective factors in the relationship between early maltreatment and potential for violence in adolescence. Methods: For the current study, 161 adolescents, aged 14-21 years, were recruited from high schools and youth psychiatry. Early maltreatment was assessed by the Childhood Experiences of Care and Abuse Questionnaire, attachment was assessed using the Adult Attachment Projective Picture System, and mentalization was coded with the Reflective Functioning Scale from Adult Attachment Interviews. Potential for violence was operationalized using the Reactive-Proactive Aggression Questionnaire, and the presence of conduct disorder was assessed by the Structured Clinical Interview. Using structural equation modeling, reflective functioning and attachment were tested as mediators on the direct effect of early maltreatment on potential for violence. Results: There was a direct effect of early maltreatment on potential for violence. Furthermore, this direct effect was partially mediated by reflective functioning but not by attachment representations. Discussion: The results contribute to the idea

that mentalization serves as a protective factor that may suspend the pathway from early maltreatment to violence in adolescence. Because of the transformation of attachment patterns into generalized cognitive models of attachment, attachment in adolescence may have a less pronounced effect on violence in this specific developmental phase. Future studies should test for further group differences in community and clinical groups, which was not possible in the present study due to the limited sample size.

Von Wietersheim, P. J., Holzinger, K., Zhou, X., & Pokorny, D. (2014). Attachment in AAP episodes and family relationships in CCRT-LU narratives of patients with bulimia nervosa and healthy controls. *Journal of Psychosomatic Research*, 76, 519-519.

Author Abstract

The study aim was to compare attachment patterns, mother-daughter relationship, and family environment in bulimia nervosa (BN) patients and healthy controls. Participants were 30 female patients with BN recruited from hospitals in Germany. The control group was matched in age and education status and had no history of eating disorders. Participants were assessed using two structured interviews, the AAP and CCRT-LU (Core Conflict Relationship Theme-LU). Participants also filled out the SCL-90-R, EDI-2 (Eating Disorder Inventory), FES (Family Environment Scale), and ECR-S (Experiences of Close Relationship-short version). Patients with BN had significantly fewer secure attachments and more unresolved attachments than healthy controls. BN patients described significantly more disharmonious experiences with and negative descriptions of their mothers. Results suggest adding a family dynamic view into eating disorder research.

Webster, L., & Hackett, R. K. (2007). A comparison of unresolved and resolved status and its relationship to behavior in maltreated adolescents. *School Psychology International*, 28, 365-378.

Author Abstract

This exploratory investigation sought to both gain a better understanding of the mental representations of attachment in high risk, maltreated adolescents and how, if at all, unresolved attachment representations are related to behavioural maladjustment. Parent ratings, self-report ratings and attachment state of mind were obtained from 34 adolescents with a history of maltreatment. Results showed that maltreated adolescents with unresolved states of mind in regard to attachment were rated higher on maladaptive behaviour and lower on adaptive behaviour than maltreated adolescents who were resolved. Implications for school-based mental health intervention and future research are discussed.

Webster, L., Hackett, R. K., Joubert, D. (2009). The association of unresolved attachment status and cognitive processes in maltreated teens. *Child Abuse Review*, 18, 6-23.

Author Abstract

This exploratory investigation sought to gain a better understanding of the mental representations of attachment in maltreated adolescents, and how, if at all, unresolved attachment representations are related to cognitive processes in this population. Measures of cognitive functioning, attachment state of mind and parent ratings on attention were obtained from 38 adolescents with a history of maltreatment. Results showed that maltreated adolescents with unresolved states of

mind in regard to attachment scored significantly lower on measures of cognitive processes of attention, working memory and cognitive efficiency, even when intelligence was controlled for in the analyses. Theoretical considerations, implications for future research and clinical implications are discussed.

West, M., & George, C. (2002). Attachment and dysthymia: The contributions of preoccupied attachment and agency of self to depression in women. *Attachment and Human Development, 4*, 278-293.

Author Abstract

The present research evaluated a conceptual model that links preoccupied attachment to dysthymic disorder in women. From an original community sample of 420 women, 129 women were identified with depressive symptomatology as assessed by the Centre for Epidemiological Studies Depression scale (CES-D). Twenty-four of these 129 women were diagnosed as dysthymic disorder according to the Structured Clinical Interview for DSM-III-R-non-patient edition (SCID-NP). Attachment patterns were assessed using the Adult Attachment Projective (AAP). The results indicate that preoccupied attachment was associated with dysthymia. Discussion concerns the processes that may underlie the association between preoccupied attachment and depression, with attention to the possibly complicating factor of unresolved mourning.

Webster, L., & Joubert, D. (2011). The use of the Adult Attachment Projective Picture System with assessments of adolescents in foster care. *Journal of Personality Assessment, 93*, 417-426.

Author Abstract

Child maltreatment has been associated with a host of negative outcomes including impaired social relationships (Rogosch, Cicchetti, & Aber, 1995), depression (Toth, Manly, & Cicchetti, 1992), poor self-concept and motivation (Vondra, Barnett, & Cicchetti, 1990), and delinquency and conduct problems (Cook et al., 2005; Grotevant et al., 2006; McCabe, Lucchini, Hough, Yeh, & Hazen, 2005; Ryan & Testa, 2005). An assessment of the mental representation of attachment relationships could offer additional relevant and useful information to the evaluation of youth in foster care, and could inform treatment and placement considerations. The Adult Attachment Projective Picture System (AAP) is a relatively new measure of internal representations of attachment based on the analysis of a set of stimuli designed to systematically activate the attachment system (George, West, & Pettem, 1997). This article considers the use of the AAP with a maltreated adolescent in a clinical setting and uses a case study to illustrate the components of the AAP that are particularly relevant to case conceptualization and interventions.

Clinical Application and Case Studies

Bernheim D, Gander M, Keller F, Becker M, Lischke A, Mentel R, Freyberger HJ, Buchheim A (2019) The role of attachment characteristics in dialectical behavior therapy for patients with borderline personality disorder, *Clin Psychol Psychother* [Epub ahead of print, online Jan.22, 2019. doi: 10.1002/cpp.2355. PMID: 30667573]

Author Abstract

Attachment characteristics play a key role in understanding borderline-specific problems with respect to childhood maltreatment. The aim of this study was to investigate how attachment representations may influence the trajectory of change in a 1-year outpatient dialectical behavior therapy (DBT) for patients with borderline personality disorder (BPD). Attachment representations were assessed in 26 BPD patients and 26 healthy controls (HC) using the Adult Attachment Projective Picture System (AAP) before treatment. Borderline and global symptom severity and interpersonal problems were examined before, during, and after completing the intervention. Analysis of variance and stepwise hierarchical regression analyses were used to explore the course of symptomatology. As expected, BPD patients displayed a predominance of unresolved attachment in the AAP compared with HC, by showing a lack of ability to integrate attachment related trauma. Whereas both resolved and unresolved attachment groups revealed significant improvement in symptom severity during treatment, dimensional AAP scores showed differences. Patients with higher scores in "synchrony" demonstrated more indicators of mutual care in their narratives to dyadic pictures and displayed a significantly stronger decrease of interpersonal problems than patients with lower synchrony scores. Assessing attachment representations prior to DBT might provide a helpful insight into individual attachment related resources or lack of these capacities. Responsiveness and synchrony in dyadic interactions with significant others are crucial for healthy interpersonal relations. A stronger therapeutic focus on the patient's capacity to show synchrony in dyadic attachment situations might improve the patient's interpersonal problems towards sensitive and mutual interaction.

Bernheim, D., Gander, M., Kriegel, S., Mathias, B., Lischke, A., Mentel, R., Freyberger, H. J., & Buchheim, A. (2018). Change in attachment characteristics during dialectic behavioral therapy for borderline patients. (German language title: Veränderung von Bindungsmerkmalen im Verlauf einer Dialektisch Behavioralen Therapie für Borderline-Patientinnen. *Zeitschrift für Psychiatrie, Psychologie und Psychotherapie*, 66, 119-131.

Author Abstract

Background: Attachment organization is considered as one major constituting factor in the development of a Borderline-Personality Disorder, especially in the context of the patients' affective and interpersonal problems. In this pilot study several attachment related measures were administered to 26 patients with Borderline Personality Disorder (BPD) and 26 matched healthy controls. Assessments were before, during and after one year of outpatient treatment with Dialectic Behavior Therapy (DBT). Measures: Attachment representations were assessed with

the Adult Attachment Projective Picture System (AAP). We examined changes of attachment styles and subjective evaluations of affective, emotional and autobiographic valence of personalized sentences from the participants' own AAP interviews by using parametric and non-parametric tests before, during and after one year of DBT treatment. Results: As expected BPD patients showed a significant higher proportion of unresolved trauma (disorganized attachment representation) in the AAP, a higher amount of traumatic-dysregulating makers in AAP narratives in response to AAP pictures inducing potential emotional states like abandonment or loneliness (monadic pictures), a higher score on attachment anxiety and avoidance (ASQ) and a higher amount of BPD relevant affects related to enhanced autobiographic and emotional valence when confronted with their personalized sentences from their own AAP narratives. After one year of DBT treatment the patients' high scores on attachment anxiety and avoidance were substantially decreased, and attachment security was increased significantly. Patients still evaluated the personalized sentences as autobiographically relevant, however after DBT treatment they showed less BPD-specific emotions, a higher acceptance and reduced emotional valence, comparable to the evaluations of healthy controls. Conclusion: The pilot study confirmed changes of attachment features towards attachment security and an improved capacity to emotionally integrate attachment related autobiographical features in the course of DBT treatment. To ensure a secure therapeutic alliance with positive attachment experiences in the therapeutic relationship we suggest that one year of treatment is an appropriate time frame.

Buchheim, A. (2006). Neurobiology and attachment: Recent research results and a single case study on borderline personality disorder (German language title: Neurobiologie und Bindung: Neuere Forschungsbefunde und eine Einzelfalluntersuchung am Beispiel der Borderline-Persönlichkeitsstörung. *PTT: Persönlichkeitsstörungen Theorie und Therapie*, 10, 162-174.

Author Abstract

Individuals with borderline personality disorder (BPD) are characterized by their extreme, emotional instability and by disorganized/unresolved attachment relationships as the result of severe emotional neglect and abusive childhood experiences. In the introduction neuroimaging studies on the hyperreactivity in borderline patients and studies on human attachment in healthy samples are reported. In clinical attachment in healthy samples are reported. In clinical attachment research talking about attachment is an important approach to identify the subject's mental defensive processes and the corresponding emotional-cognitive dysregulation. We developed a paradigm to neural correlates of attachment narratives using functional magnetic resonance imaging (fMRI). First results with healthy subjects using the Adult Attachment Projective in an fMRI environment will be summarized. A single case on a patient with borderline personality disorder will demonstrate how the attachment system can be activated in the course of the AAP task in the scanner. It will be shown that this activation induces on a neural and linguistic level specific emotional responses associated with fear and severe abandonment concerns. It will be discussed that the combination of experiences of sexual abuse and the loss of a significant attachment figure might contribute to the development of this disorder.

Buchheim, A., Labek, K., Walter, S., & Viviani, R. (2013). A clinical case study of a psychoanalytic psychotherapy monitored with functional neuroimaging. *Frontiers, 7*. doi: 10.3389/fnhum.2013.00677

Author Abstract

This case study describes 1 year of the psychoanalytic psychotherapy using clinical data, a standardized instrument of the psychotherapeutic process (Psychotherapy process Q-Set, PQS), and functional neuroimaging (fMRI). A female dysthymic patient with narcissistic traits was assessed at monthly intervals (12 sessions). In the fMRI scans, which took place immediately after therapy hours, the patient looked at pictures of attachment-relevant scenes (from the Adult Attachment Projective Picture System, AAP) divided into two groups: those accompanied by a neutral description, and those accompanied by a description tailored to core conflicts of the patient as assessed in the AAP. Clinically, this patient presented defense mechanisms that influenced the relationship with the therapist and that was characterized by fluctuations of mood that lasted whole days, following a pattern that remained stable during the year of the study. The two modes of functioning associated with the mood shifts strongly affected the interaction with the therapist, whose quality varied accordingly (“easy” and “difficult” hours). The PQS analysis showed the association of “easy” hours with the topic of the involvement in significant relationships and of “difficult hours” with self-distancing, a defensive maneuver common in narcissistic personality structures. In the fMRI data, the modes of functioning visible in the therapy hours were significantly associated with modulation of the signal elicited by personalized attachment-related scenes in the posterior cingulate ($p = 0.017$ cluster-level, whole-volume corrected). This region has been associated in previous studies to self-distancing from negatively valenced pictures presented during the scan. The present study may provide evidence of the possible involvement of this brain area in spontaneously enacted self-distancing defensive strategies, which may be of relevance in resistant reactions in the course of a psychoanalytic psychotherapy.

Buchheim, A., Viviani, R., Kessler, H., Kächele, H., Cierpka, M., Roth, G., George, C., Kernberg, O. F., Bruns, G., & Taubner, S. (2012). Neuronal changes in chronic depressed patients during psychoanalytic psychotherapy. Functional magnetic resonance imaging study with an attachment paradigm (German language title: Neuronale Veränderungen bei chronisch-depressiven Patienten während psychoanalytischer Psychotherapie: Funktionelle-magnetresonanztomographie-studie mit einem Bindungsparadigma). *Psychotherapeutische Umschau, 57*, 219-226.

Author Abstract

Neuroimaging studies of depression have examined the effect of short-term, interpersonal or cognitive-behavioral psychotherapy. The effect of long-term, psychoanalytic treatment has not been assessed so far. In this study (Buchheim et al. 2012, PLoS One 7:e33745) recurrently depressed (DSM-IV) unmedicated outpatients ($n = 16$) and control participants matched for sex, age, and education ($n = 17$) were investigated for the first time before and after 15 months of psychoanalytic psychotherapy. Participants were assessed with the Adult Attachment Projective Picture System (AAP) to evaluate attachment representations. Moreover participants were scanned at two time points, presenting AAP pictures combined with personalized core sentences previously extracted from the AAP interviews, contrasted with non-

personalized, neutral descriptions of the AAP pictures. Patients showed a higher percentage of disorganized attachment representations at the beginning of treatment compared to controls and these disorganized patterns changed to organized patterns after 15 months. Patients showed a higher activation in the left anterior hippocampus/amygdala, subgenual cingulate and medial prefrontal cortex before treatment and a reduction in these areas after 15 months. This reduction was associated with improvement in depressiveness specifically and in the medial prefrontal cortex with symptom improvement more generally (Buchheim et al. 2012, PLoS One 7:e33745).

Finn, S. (2011). Use of the Adult Attachment Projective System (AAP) in the middle of long-term psychotherapy. *Journal of Personality Assessment*, 93, 427-433.

Author Abstract

This article relates how the Adult Attachment Projective Picture System (AAP) was used as a midtherapy intervention with a middle-aged man being treated for relationship difficulties. The man, who was identified via the AAP as having a dismissing attachment status, had difficulties committing to psychotherapy, presumably because he was terrified of experiencing the underlying depression and grief revealed on his Rorschach and AAP. Reading an AAP-based description of his attachment status helped the man become aware of his characteristic defenses against painful affect, and gave him the motivation to stay in therapy while experiencing and getting support for his unresolved mourning. This work led to the man's experiencing less ambivalence about intimate relationships. There are several important ways that the AAP augments a traditional personality assessment battery and is useful in conducting a long-term psychotherapy.

Gallichan, D. J., & George, C. (2014). Assessing attachment status in adults with intellectual disabilities: The potential of the Adult Attachment Projective Picture System. *Advances in Mental Health and Intellectual Disabilities*, 8, 103-119.

Authors Abstract

Purpose – The purpose of this paper is to explore the potential of the Adult Attachment Projective Picture System (AAP) as a measure of attachment state of mind in adults with intellectual disabilities. The AAP is a free response picture system method of assessing patterns of adult attachment with established validity and reliability in community and clinical samples. **Design/methodology/approach** – The paper reports on five cases of adults with intellectual disabilities who were administered the AAP as part of routine clinical work. The AAP administration procedure was modified to take account of the participants' intellectual disabilities. **Findings** – It was possible to code and classify each AAP using the established coding and classification system. The authors coded four cases blind to each other's classification; they agreed on classifications for three cases and reached consensus on the fourth. The AAP analysis showed strong correspondence with case history material. **Originality/value** – The AAP demonstrates the potential to assess attachment state of mind in adults with intellectual disabilities and is the first developmental measure of attachment status that has shown potential in this population. The paper discusses clinical application of the AAP and directions for future research.

Gander, M., Diamond, D., Buchheim, A., & Sevecke, K. (2018). Use of the Adult Attachment Projective Picture System in the formulation of a case of an adolescent refugee with PTSD. *Journal of Trauma and Dissociation*, *19*, 572-595.

doi:10.1080/15299732.2018.1451803

Author Abstract

Forced displacements and their psychosocial consequences in adolescent refugees and their families have received increasing attention in recent years. Although supportive family relations play a key role in buffering the impact of traumatization in adolescents, parental ability to provide such is often subject to extreme pressure. Under conditions of forced dislocation and fear, maladaptive interpersonal strategies in the parent-child relationships may develop, contributing to the onset of psychopathology. We explore new aspects of attachment-related issues for the understanding and treatment of adolescent refugees who have experienced multiple traumas in their childhood. We used a multimethod assessment battery including the Adult Attachment Projective Picture System (AAP), the Structured Clinical Interview, the Youth Self Report and the Wechsler Intelligence Scale in an adolescent boy with post-traumatic stress disorder (PTSD). Our subject was an adolescent refugee from the Middle East who demonstrated an unresolved attachment when confronted with loss and fear. His responses on the AAP evoked aspects of insecure-unresolved attachment, including his belief that it is not safe to trust in attachment figures, his limited access to traumatic attachment experiences, his impaired ability to take concrete actions when dealing with threatening attachment situations and the unintentional role-reversal shed new light on our understanding of his traumatic experiences, family functioning and psychopathological symptoms. Our results demonstrate the utility of the AAP in an adolescent refugee with PTSD by expanding our knowledge of a diverse range of experiences across the interpersonal, cognitive, cultural and developmental contexts that formed the basis for an individualized treatment plan.

George, C. and A. Buchheim (2014). "Use of the Adult Attachment Projective Picture System with a severely traumatized patient: A psychodynamic perspective." *Frontiers in Psychology*, *5*. doi: 10.3389/fpsyg.2014.00865

Author Abstract

The Adult Attachment Projective Picture System (AAP) is a valid representational measure of internal representations of attachment based on the analysis of a set of free response picture stimuli designed to systematically activate the attachment system (George & West, 2012). The AAP provides a fruitful diagnostic tool for psychodynamic-oriented clinicians to identify attachment-based deficits and resources for an individual patient in therapy. This paper considers the use of the AAP with a traumatized patient in an inpatient setting and uses a case study to illustrate the components of the AAP that are particularly relevant to a psychodynamic conceptualization. The paper discusses also attachment-based recommendations for intervention.

George, C., Isaacs, M., & Marvin, R. S. (2011). Incorporating attachment assessment into custody evaluations: The case of a 2-year old and her parents. *Family Court Review*, *49*, 483-500.

Author Abstract

Attachment with parents is central to a child's development. It is well-established that the quality of this attachment in early childhood is a strong predictor of development and psychological functioning throughout the life span. One of the primary issues in custody evaluations is assessing the quality of the child's attachment to each parent and the parents' capacity to foster security, and to consider what this might mean for short and medium term decisions about their care. The nature of attachment measures are summarized, and the combined use of three attachment-caregiving instruments in a custody evaluation is illustrated through the case of a toddler whose parents were engaged in a high conflict divorce. The case study demonstrates how, in addition to standard clinical observations, including a set of attachment-based instruments with a standardized psychological test battery provided information critical to a recommendation for custody and parent visitation.

Isaacs, M., George, C., & Marvin, R. S. (2011). Utilizing attachment measures in custody evaluations: Incremental validity. *Journal of Child Custody*, 6, 139-162.

Author Abstract

The American Psychological Association Guidelines for Child Custody Evaluations in Divorce Proceedings (American Psychological Association, 1994) stresses the need for a multi-method evaluation, reasoning that by considering data from different approaches, we can best insure the validity of our findings in making custody recommendations. One of the primary issues in custody evaluations is assessing the quality of the child's attachment to each parent and parents' potential for supporting the child's attachment security. The case study presented in this article demonstrates how research-based standardized assessments of the child's attachment and parents' adult attachment and caregiving adds to the validity of a standardized psychological test battery typically utilized in making custody recommendations.

Jahnke-Majorkovits, A-C, & Buchheim, A. (2018). Attachment based short intervention during inpatient treatment of adolescents. (German language title: Bindungsbezogene Kurzintervention im Rahmen stationärer Behandlung bei Jugendlichen) *Praxis der Kinderpsychologie und Kinderpsychiatrie*, 67, 367-385.

Author Abstract

In clinical attachment research the established and economic Adult Attachment Projective Picture System (AAP) has been increasingly used in the past few years to assess the attachment representations in adults and recent studies demonstrated sufficient validity for assessing attachment representations in adolescents. Apart from coding attachment classifications, the AAP provides useful and clinically valid information concerning attachment related defences, aspects of capacity to act and synchrony in relationships and emotion regulation strategies with respect to attachment related traumatic experiences. These valuable aspects with respect to individual resources led to the conceptualization to implement the AAP in the therapeutic setting as a feedback tool. In this pilot case we report on an adolescent patient in an inpatient setting. The therapist received an individualized feedback on the patients' AAP to focus on specific attachment related themes used as a short intervention respective an add-on treatment. This paper presents the first results of this new approach by demonstrating the potential therapeutic effects and process of therapy.

Lis, A., Mazzeschi, C., Di Riso, D., Salcuni, S. (2011). Attachment, assessment, and psychological intervention: A case study of anorexia. *Journal of Personality Assessment*, 93, 434-444.

Author Abstract

Attachment patterns and personality dimensions have always been considered important to the development and adaptation of the individual. The first aim of this article was to address some basic questions about the place of attachment in a multimethod assessment when compiling a complete picture of the patient's personality functioning. The second aim was to present the Adult Attachment Projective Picture System (AAP; George & West, 2001) as a valid and productive assessment measure. Based on a single case study of an anorexic young woman, the article demonstrates how the AAP is integrated with the Rorschach Comprehensive System (Exner, 1991, 1993) and other assessment tools in both the assessment and in developing a treatment plan.

Pazzagli, C., Laghezza, L., Manaresi, F., Mazzeschi, C., & Powell, B. (2014). The Circle of Security Parenting and parental conflict: A single case study. *Frontiers in Psychology*, 5. doi: 10.3389/fpsyg.2014.00887.

Author Abstract

The Circle of Security Parenting (COS-P) is an early attachment based intervention that can be used with groups, dyads, and individuals. Created in the USA and now used in many countries, COS-P is a visually based approach that demonstrates its central principles through videos of parent/child interactions. The core purpose of the COS-P is to provide an opportunity for caregivers to reflect on their child's needs and on the challenges each parent faces in meeting those needs. Even though there is a wide range of clinical settings in which child/parent attachment is an important component of assessment there is limited empirical data on when and how attachment-based interventions are appropriate for specific clinical profiles and contexts. The aim of this paper is to present a clinical application of COS-P in order to explore and reflect on some specific therapeutic tasks where it works and on some clinical indicators and contexts appropriate for its application. A single case study of a father, "M." (43 yrs. old) in conflict for the custody of his 5yrs old daughter is reported. The Adult Attachment Projective Picture System (AAP), the Parenting Stress Index, the Strengths and Difficulties Questionnaire, and the Parental Alliance Measure, were administered pre- and post-intervention. The clinical significance analysis method revealed that numerous changes occurred in the father. The AAP showed improvements in the level of agency of self. M. made gains in his capacity to use internal resources and to increase his agency of self. M. was classified as recovered in his perception of the child's functioning and as improved in his parenting stress and parenting alliance with the mother. Considerations on specific contexts and clinical indicators for the application of COS-P are proposed.

Salcuni, S., Di Riso, D., & Lis, A., (2014). "A child's nightmare. Mum comes and comforts her child." Attachment evaluation as a guide in the assessment and treatment in a clinical case study. *Frontiers in Psychology*, 5. doi: 10.3389/fpsyg.2014.00912.

Author Abstract

There is a gap between proposed theoretical attachment theory frameworks, measures of attachment in the assessment phase and their relationship with changes in outcome after a

psychodynamic oriented psychotherapy. Based on a clinical case study of a young woman with Panic Attack Disorder, this paper examined psychotherapy outcome findings comparing initial and post-treatment assessments, according to the mental functioning in S and M-axis of the Psychodynamic Diagnostic Manual (PDM). Treatment planning and post-treatment changes were described with the main aim to illustrate from a clinical point of view why a psychodynamic approach, with specific attention to an “attachment theory stance”, was considered the treatment of choice for this patient. The Symptom Check List 90 Revised (SCL-90-R) and the Shedler-Westen Assessment Procedure (SWAP-200) were administered to detect patient’s symptomatic perception and clinician’s diagnostic points of view, respectively; the Adult Attachment Interview (AAI) and the Adult Attachment Projective Picture System (AAP) were also administered as to pay attention to patient’s unconscious internal organization and changes in defense processes. A qualitative description of how the treatment unfolded was included. Findings highlight the important contribution of attachment theory in a 22-month psychodynamic psychotherapy framework, promoting resolution of patient’s symptoms and adjustment. From p. 11: In this case, “the child signals his attachment need after a “nightmare” (Segregated System in AAP) and the mother is able to provide a contingent and soothing answer, containing the potential breakdown of the attachment system and resolving the Segregated System. Both AAI and AAP classified Matilde as secure with somewhat dismissing or restricted feelings in attachment without elements of unresolved abuse or trauma. However, both tools detected some shortcomings about fears of separation and danger. The AAI was not able to draw attention in an exhaustive way to how Matilde experienced abandonment fears and felt scared without the presence of her parents. Instead the AAP clearly depicted this nuance, under a secure pattern, showing that her attachment was threatened by painful attachment-related feelings of loss, and by a nightmare (in Bed picture), a signal of danger. In both tools she demonstrated her ability to re-organize herself, but these disturbing feelings kept being alive underneath her reorganized secure pattern.”

[Smith, J.D., & George, C., \(2012\). Therapeutic assessment case study: Treatment of a woman diagnosed with metastatic cancer and attachment trauma. *Journal of Personality Assessment*, 94, 1-14.](#)

Author Abstract

This article presents a Therapeutic Assessment (TA) case study of a woman recovering from 4 years of intense medical treatment for stage IV cancer. The inclusion and utility of using the Adult Attachment Projective Picture System (AAP) in the TA is highlighted. The client's attachment classification as unresolved helped identify that her current experiences with dissociation and problems restructuring her life following cancer remission were related to severe childhood sexual abuse, which she had suppressed for decades. The AAP also provided information regarding the unconscious defensive processes the client employed to cope with attachment distress and her inability to find comfort and support from others. These findings were instrumental in guiding the subsequent psychotherapy. The TA process, particularly the assessor–client relationship, facilitated an experience of containing her previously unintegrated and dysregulated affect. A single-case experiment using daily measurements suggested that participation in TA coincided with symptomatic improvements in multiple domains. These improvements were maintained during 4 months of biweekly psychotherapy after the completion of the TA. This case illustrates the applicability of the TA model in health care settings

demonstrates the usefulness of the AAP in the context of TA, and provides empirical support for the effectiveness of the TA model in initiating symptom improvement.

Symons, D., Clark, S.E., Tarabulsky, G.M., Hawkins, E., & Carrey, N. (2017). Adult attachment representations using the Adult Attachment Picture Projective, child abuse history, and psychopathology in a small high-risk sample of women. *Acta Psychopathologica*, 3, DOI: 10.4172/2469-6676.100144

Author abstract

Context: Attachment theory serves as a basis for examining relationship trauma and psychopathology and how these vary across adult attachment classifications. **Objective:** To examine differences in abuse history, psychopathology, and personality disorders between different adult attachment categories in a high-risk sample of mothers. **Methods:** Participants were 18 very high-risk mothers, 14 of which had formal maltreatment concerns about parenting of their own children. All completed the Childhood Trauma Questionnaire, Millon Clinical Multiaxial Inventory–III, Beck Depression Inventory–II (BDI), and the Adult Attachment Picture Projective (AAP) was administered to assess adult attachment representations. **Results:** Using clinical cutoff scores, very high levels of significant child abuse history (66%), Axis II Personality Disorders (94%), and Axis I Clinical Syndrome scores (44%) were found. On the AAP, none of the women were secure, four were dismissing, five were preoccupied, and nine unresolved. All women classified as preoccupied but none as dismissive reported clinical levels of psychopathology, with women unresolved being somewhat intermediate. The BDI results corroborated that many problems revolved around anxiety and depression, although other problems were found. Abuse history findings followed the same pattern as psychopathology. High rates of personality disorders were present in all groups, although Cluster B problems were most common.

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