



Attachment-specific speech patterns induce dysphoric mood changes in the listener as a function of individual differences in attachment characteristics and psychopathology

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Objectives. Early childhood experiences influence cognitive-emotional development, with insecure attachment predisposing to potential psychopathologies. We investigated whether narratives containing attachment-specific speech patterns shape listeners' emotional responses and social intentions.

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Design. First, 149 healthy participants listened to three narratives characteristic for secure, insecure-preoccupied, and insecure-dismissing attachment. Following each narrative, the well-being and interpersonal reactivity as a particular aspect of emotional reactivity of the listener were assessed. Likewise, psychopathological aspects of personality were evaluated. A follow-up study compared 10 psychosomatic patients with a current depressive episode and/or personality disorder with distinct depressive symptoms and 10 age- and gender-matched healthy controls.

Methods. Effects of narratives on listeners' mental state were tested with repeated-measures AN(C)OVA. Mediating effects in the listener (attachment characteristics in the context of personality traits) were explored. Narrative effects were compared between patients and controls.

Results. Listening to insecure attachment narratives reduced well-being in controls. Nevertheless, tendency for social interaction was highest following the insecure-preoccupied narrative. Importantly, listeners' individual attachment characteristics mediated the relationship between well-being/interpersonal reactivity following the insecure-preoccupied narrative and levels of psychopathology. Furthermore, compared with healthy participants, patients showed higher emotional reactivity following exposure to the insecure-preoccupied narrative, represented by lower well-being and lower estimation of friendliness towards the narrator.

Conclusions. Exposure to attachment-specific speech patterns can result in dysphoric mood changes. Specifically, the insecure-preoccupied narrative influenced the listeners' emotional state, which was further mediated by the individual attachment patterns and psychopathological personality characteristics. This deepens the understanding of interpersonal processes, especially in psychotherapeutic settings.

Practitioner points

- In clinical populations, insecure-preoccupied attachment has a high prevalence. In this study, listening to a narrative characteristic of insecure-preoccupied speech patterns resulted in reduced well-being in healthy listeners.
- Patients with depressive symptoms showed a higher emotional reactivity towards the insecure-preoccupied narrative compared to healthy controls.
- While working on (childhood) traumata, for example, in group therapy or inpatient settings, therapists should raise awareness to possible mood changes through discourse-conveyed attachment characteristics in listeners as a 'side effect'.

In humans, attachment is crucial for survival in early life. Thus, humans are born with an innate attachment system, with the bio-psychological function of sustaining close relationships with significant others (Vrtička, 2017). This is especially important in times of need or threat and for developing affect regulation and mentalizing capacities (Fonagy, Gergely, Jurist, & Target, 2002). Experiences with caregivers in early childhood are fundamental for mental health in later life (Strauss & Brenk-Franz, 2016). Via an 'internal working model' (IWM) – comprising mental representations of interactions with others and relational expectations – secure and insecure attachment patterns are developed (Bowlby, 1980, 1988). These traits become an integral part of personality, with long-lasting impacts on the processing of social information, and influence approach and avoidance behaviour in interpersonal relationships (Vrtička & Vuilleumier, 2012). Based on secure attachment, the ability to understand intentional mental states of oneself and others (called mentalizing) is developed. This fundamental capacity allows people to navigate their socially complex world, with constantly altering interpersonal

relationships (Fonagy, Luyten, & Allison, 2015). In almost every psychopathology, mentalizing is compromised (Chung, Barch, & Strube, 2014; Cusi, Nazarov, Holshausen, Macqueen, & McKinnon, 2012). Experience of adverse events (separation, loss, and maltreatment) can result in insecure attachment representations (Weinfield, Sroufe, Egeland, & Carlson, 2008).

Psychopathology

Insecure attachment is a risk factor for mental disorders (Strauss & Brenk-Franz, 2016), and trauma in childhood predisposes to subsequent depressive symptoms (Bowlby, 1980; Buchheim, Strauss, & Kächele, 2002). From an object-relational perspective, anxiously attached individuals are endangered of developing a dependent (anaclitic) type of depression, characterized by loneliness, helplessness, and fear of rejection (Beutel *et al.*, 2004). As these individuals could not fully integrate basic experiences of care in their IWM, they are often dependent on continuous external support and reassurance. Separation, rejection, and object loss are potential triggers for depression (Blatt & Homann, 1992; Bowlby, 1980; Luyten & Blatt, 2011; Sibley, 2007). Consequently, individual capacity for object regulation is a main aspect of mental health and an important factor for healthy relationships and a balanced perception of self-interest (OPD, 2014). Object regulation is a relevant interpersonal skill regarding the structural vulnerability of personality. Structure of personality denotes, in the context of Operationalized Psychodynamic Diagnosis (OPD), throughout the lifetime acquired 'tools' for perception, control, and connection with one's own inner world and other people (Ehrental *et al.*, 2012). These competences are particularly relevant in demanding circumstances and have a determining influence on (social) interactions between oneself and counterparts (Ehrental *et al.*, 2012). The OPD integrates psychological, psychoanalytical, and developmental-psychological structural concepts and discerns the roots of structural impairments analogous to attachment theory in childhood trauma and deprivation, which inhibit the development of fundamental psychological and interpersonal skills (OPD, 2014).

Psychotherapy

In therapeutic relationships, therapists may provide the role of an attachment figure (Dozier & Bates, 2004). Patients enter this relationship with a set of expectations regarding the therapist based upon their IWM. 'Evoking and impact messages' implicitly shape the therapeutic relationship. Every individual develops specific patterns of evoking messages, which trigger particular impact messages in the receiver (Caspar, Berger, Fingerle, & Werner, 2016; Kiesler, 1983). In line with this theory is the complementary concept, which states that submissive behaviour triggers dominant behaviour and vice versa. Conversely, friendly behaviour invites friendly behaviour, and hostile behaviour invites hostile behaviour (Caspar *et al.*, 2016). This construct of interpersonal behaviour closely corresponds to attachment theory (Strauß, 2011) and is also linked to some aspects of the dynamics of transference and countertransference in psychodynamic psychotherapy. The psychodynamic concept of countertransference captures the therapist's emotional reaction to the patient (Kernberg, 1975). In psychoanalysis and psychodynamic therapy, it is important that the therapist reflects his/her countertransference to deepen the understanding of the patient (Kernberg, 2007). Hardy, Stiles, Barkham, and Startup (1998) suggest that therapy outcome is highly dependent on the therapist's appropriate responsiveness to the patient's various interpersonal needs, including the

patient's attachment patterns. Investigating therapists' countertransference in relation to patients' personality disorders, Colli, Tanzilli, Dimaggio, and Lingiardi (2014) established specific relationships between personality disorders and therapists' emotional responses, which aid diagnosis and therapy. Additionally, patient's lower psychological functioning was associated with stronger negative feelings experienced by the therapist. So far, the mechanisms connecting patients' attachment styles and therapists' (interpersonal) reactions are not completely known. Presumably, implicit mechanisms as interpersonal evoking and impact messages play a role in the establishment of a helpful therapeutic alliance.

Organized attachment representations and their respective speech patterns

Insecure organized attachment is commonly divided into insecure-dismissing and insecure-preoccupied attachment (Ainsworth, Blehar, Waters, & Wall, 1978; Bowlby, 1988). In adults, attachment representations are discerned using the Adult Attachment Interview (AAI; Hesse, 2008) based on individual speech patterns and discourse characteristics when reflecting upon emotional experiences in childhood. While secure individuals describe such experiences in a coherent manner, insecure-dismissing discourse is characterized by fragmented, abstract, and distancing speech (Hesse, 2008). Insecure-preoccupied individuals present encounters in excessively long, affect-laden narratives with the main focus being on resentment and grievance (Hesse, 2008). Attachment patterns can also be assessed with self-report questionnaires based on attachment-related experiences and feelings in adult relationships, estimating attachment anxiety and avoidance (Bartholomew & Horowitz, 1991; Ehrenthal, Dinger, Lamla, Funken, & Schauenburg, 2009). Generally, securely attached individuals easily approach others and do not worry inappropriately about being rejected. They perceive their partner as reliable and supportive (Cassidy & Shaver, 2008). Avoidant or dismissing individuals are characterized by negative IWMs of others and a relatively positive self-view. Thus, avoidant adults try to evade social interactions, reject their needs for proximity, and have a limited ability to develop intimate relationships. Anxious-preoccupied adults, however, have a negative self-perception but a positive IWM of significant others. Constant worries about abandonment characterize their relationships, along with a strong desire for being loved and supported (Bartholomew, 1990; Strauß *et al.*, 2018). Furthermore, insecure-preoccupied individuals show attachment hyperactivating strategies, reflecting potentially desperate efforts to find a secure base. This hyperactivation of the attachment system is accompanied by a lower capacity for controlled mentalizing and a rapid shift to non-mentalizing states (Nolte, Guiney, Fonagy, Mayes, & Luyten, 2011).

Especially in clinical settings, exposure to attachment-specific (mainly insecure) speech patterns is part of individual and group therapy (Buchheim *et al.*, 2018, 2012). Thus, a better understanding of changes in well-being and reactions towards the speaker induced by these speech patterns is of particular importance to understand a therapist's emotional response and choice of intervention and technique, and, ultimately, to improve the outcomes of psychotherapy (Strauß, 2011; Strauss *et al.*, 2017).

In earlier studies, effects of attachment-specific speech patterns on the counterpart were investigated by presenting AAI excerpts of prototypical secure, insecure-dismissing, and insecure-preoccupied attachment representations to healthy participants and measuring their emotional reaction with self-reports (Kirchmann, Thomas, Brüderle, & Strauß, 2011; Martin, Buchheim, Berger, & Strauss, 2007). Listening to a narrative characteristic of insecure-preoccupied discourse led to the highest impairment of the

listeners' well-being, while listeners' evaluation of friendliness and tendency for friendly social interaction towards the narrator was lowest following the insecure-dismissing narrative (Kirchmann *et al.*, 2011). These results could be replicated (Krause *et al.*, 2017). In a similar paradigm, there was no systematic difference in response between clinically inexperienced listeners (students) and trained therapists to these prototypical attachment narratives (Martin *et al.*, 2007).

The individual differences in personality characteristics that impact changes in well-being and interpersonal reactivity, a more conscious derivative of countertransference reactions, following exposure to attachment relevant content have not been investigated yet.

Hypotheses

We first assessed the impact on well-being and interpersonal reactivity of the listener following exposure to three attachment-specific narratives in a sample of 149 healthy participants. We predicted that exposure to insecure attachment patterns would have the strongest influence on the listener's well-being, associated with low reported friendliness by the narrator. For exposure to the secure narrative, opposite reactions of the listener were expected, accompanied by the highest inclination for social interaction of the listener with the secure narrator. Secondly, we investigated individual influences of personality, including attachment anxiety and avoidance of the listener, individual propensity for dependency, individual capacity for object regulation, and structural vulnerability of personality in general, in the context of exposure to attachment-specific narratives with multiple mediation analyses. We hypothesized that individual propensity for dependency as a main feature of depression would mediate the relationship between attachment characteristics of the listener and the perception of the insecure narratives. As anxiously attached individuals are at risk of developing a dependent type of depression, we expected a strong mediating effect of dependency on the relationship between attachment anxiety and the perception of the insecure narratives. As attachment avoidance represents an opposite personality trait, we expected contrasting effects. Furthermore, we hypothesized that the attachment characteristics of the listener influence the relationship between the perception of the insecure narratives and the individual's capacity for object regulation, as well as the structural vulnerability of personality in general. Insecure-preoccupied individuals have more imbalanced relationships because their need for support outweighs the possibility of giving social support (George & West, 2001; Strauss & Brenk-Franz, 2016). Hence, the individual's capacity for object regulation was hypothesized to be particularly influenced by insecure-preoccupied speech patterns.

We expected that depressive patients would show higher emotional reactivity to insecure attachment narratives compared with controls. Higher emotional reactivity was hypothesized to be reflected by lower well-being and a higher tendency for social interaction with the narrator.

STUDY I

Methods

A total of 149 healthy medical students were recruited at the local university (92 women, mean age = 22.6 years, $SD = 2.5$; for 19 participants information on sex and for 20 participants information on age was not available).

Participants listened to three prototypical narratives representing secure-autonomous, insecure-dismissing, or insecure-preoccupied attachment representations in a randomized order. Before presentation of each narrative, the participants conducted simple arithmetic calculations for 90 s as a distraction. At baseline and after listening to each narrative, participants described their emotional state using questionnaires (Figure 1). Additional questionnaires assessed individual differences in personality traits. Participants completed the experiment while sitting in an interference-free experimental room (for more details, please see Supplementary material).

Participants answered six questionnaires.

The well-being of the listeners following each narrative was measured with the well-established German *well-being scale* ('Befindlichkeits-Skala'; Zerssen, 1976). Participants rated their current well-being on 28 oppositional pairs of feelings, for example, 'At the moment I feel . . . pessimistic' or '. . . optimistic' or 'neither nor'. High scores on this state measurement indicate low well-being. Interpersonal reactivity of positive and negative quality, which reflects a more conscious derivative of countertransference reactions and captures a predisposition to emotionally engage with the speaker, was assessed with a 16-item *countertransference questionnaire* adapted from Martin *et al.* (2007) (e.g., 'Do you feel any indescribable dislike for the person?'). The questionnaire is based on Mertens' theoretical model of countertransference reactions (Mertens, 2005) and measures conscious aspects of the context-specific attitude of the listener to relate to the narrator.

Another aspect of interpersonal reactivity, namely interpersonal expectations, operationalized as friendliness dispositions, was assessed with the *Impact Message Inventory* (IMI, Fingerle, 1998). This questionnaire is associated with the interpersonal circumplex model. We used the 8-item subscale 'friendly', which measures on a 4-point Likert scale ('not at all' to 'exactly') the estimation of friendliness when being confronted

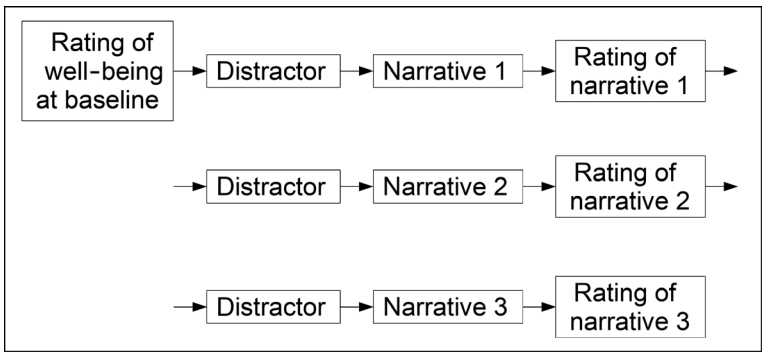


Figure 1. Study design. The experiment started with a rating of well-being at baseline; then, a short distractor task (90 s of simple calculations) was conducted before participants listened to the first narrative. After the narrative, participants were asked to rate their well-being and their feelings towards the narrative. Then, the block distractor–narrative–rating of narrative was performed a second and a third time, so every participant listened to all three narratives (secure, insecure-preoccupied, and insecure-dismissing) in a counterbalanced order. Additionally, the Experiences in Close Relationships Questionnaire – Revised (ECR-R), Depressive Experiences Questionnaire (DEQ), and Operationalized Psychodynamic Diagnosis (OPD)-Structure Questionnaire were assessed without relation to the ratings of narratives.

with a person (e.g., ‘When I would be with this person, I have the feeling you just have to like this person’). Friendliness as used here describes a feeling of liking this person, of getting support from him/her and of trust. High scores indicate high estimations of friendliness, representing that the listener feels very friendly towards the narrator.

Personality characteristics were assessed with three additional questionnaires.

Participants’ individual attachment style was assessed with the German version of the *Experiences in Close Relationships Questionnaire – Revised* (ECR-R; Ehrental *et al.*, 2009). This 36-item questionnaire evaluates individual needs, emotions, and behaviour in close relationships (e.g., ‘I am afraid of losing my partner’s love’). Items are rated on a 7-point Likert scale (‘not at all’ to ‘exactly’), resulting in corresponding high or low scores on an attachment avoidance (AV) and an attachment anxiety (AX) scale.

The German version of the 66-item *Depressive Experiences Questionnaire* (DEQ; Blatt, D’Afflitti, & Quinlan, 1976) was used to assess the participants’ individual dependency. The dependency scale of the DEQ captures the delineated main features of depression and includes items of neediness and connectedness (Rude & Burnham, 1995; Zuroff, Moskowitz, & Côté, 1999) of the participants, representing fear of rejection in relationships and a general dependency on others (e.g., ‘If I fail to live up to expectations, I feel unworthy’), expressed by high scores.

The 95-item *OPD-Structure Questionnaire* (Ehrental *et al.*, 2012), based on the OPD system, was developed to measure essential variables of psychodynamic theory. It assesses potential psychopathological characteristics of personality in terms of self-reported (dysfunctional) behaviour and relationship patterns, intra- and interpersonal functioning, and psychic structure, on a 5-point Likert scale (e.g., ‘Others often experience my behaviour completely different to what it was meant to be’). High scores indicate a high impact in a corresponding psychodynamic context.

All questionnaires showed good validity (see Supplementary material).

Statistical analyses were performed in SPSS (IBM SPSS Statistics for Windows, version 20.0., IBM Corp., Armonk, NY, USA). Repeated-measures analysis of variance (rmANOVA) was conducted to test for effects of narrative on listeners’ well-being ($n = 145$), interpersonal reactivity ($n = 147$), and evaluation of friendliness ($n = 146$). The statistical threshold was Bonferroni corrected for the number of rmANOVAs ($p < .017$, representing $p < .05$). These results were previously published within a validation process of the shortened narratives (Krause *et al.*, 2017).

Individual attachment characteristics (AX and AV, as measured by the ECR-R) of the listener, and their influence on well-being, interpersonal reactivity, and friendliness, were further investigated with repeated-measures analysis of covariances (rmANCOVAs). Assumptions for rmANOVA were tested. If assumption of sphericity was violated, the Greenhouse–Geisser correction was applied (Greenhouse & Geisser, 1959). The statistical threshold was Bonferroni corrected for number of rmANCOVAs ($p < .017$, representing $p < .05$). Likewise, *post-hoc* *t*-tests were controlled for multiple comparisons using Bonferroni correction.

PROCESS Macro for SPSS (version 2.13) (Hayes, 2013) was used to test for mediating effects of attachment characteristics in the context of personality traits and outcome (dependency: $n = 125$, OPD: $n = 124$). Assumptions of mediation analysis were confirmed beforehand. To ensure sufficient power, we conducted power analysis and controlled for multiple comparisons (see Supplementary material). When the hypothesized models allowed, multiple mediation models were tested.

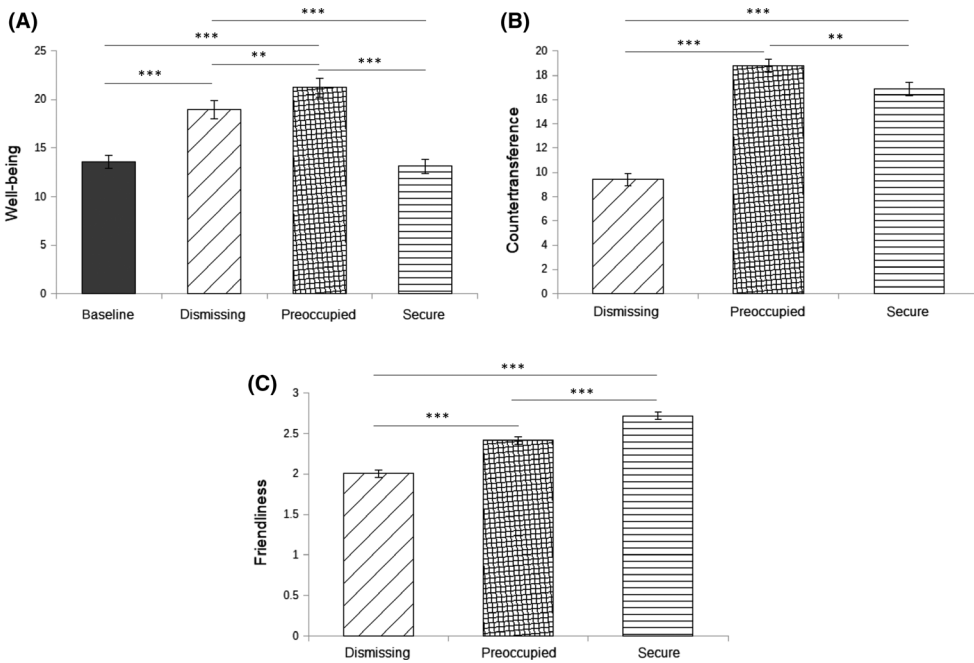


Figure 2. Well-being (A), countertransference reactions (B), and friendliness (C) following listening to the different narratives. $***p < .001$; $**p < .01$. The bars represent the standard error of the mean.

Results

Results of well-being, interpersonal reactivity, and friendliness are briefly reported here (see Figure 2, Supplementary material and Krause *et al.*, 2017 for details). Exposure to insecure narratives reduced the listener's well-being, compared with well-being before any intervention. Participants' tendency to engage in potential positive social interaction with the narrator (interpersonal reactivity) was lowest for the insecure-dismissing prototype and highest for the insecure-preoccupied attachment representation. The insecure-dismissing narrative was evaluated as the least friendly, whereas the secure narrative was considered the friendliest.

Influence of personality traits on individual well-being and interpersonal reactivity following the narratives

Individual dependency of the listener explained the effect of AX or AV on interpersonal reactivity only after listening to the insecure-preoccupied narrative (full mediation; Baron & Kenny, 1986), with effects for AX and AV acting in opposite directions (Figure 3). The relationship between attachment characteristics and interpersonal reactivity following the insecure-dismissing and secure narratives, however, was not mediated by dependency. There were no mediating effects between attachment characteristics and friendliness following the different narratives.

Moreover, we investigated influences of personality traits, measured with the OPD-Structure Questionnaire, on the perception of the prototypical attachment narratives with multiple mediation analysis (mediators: AX and AV).

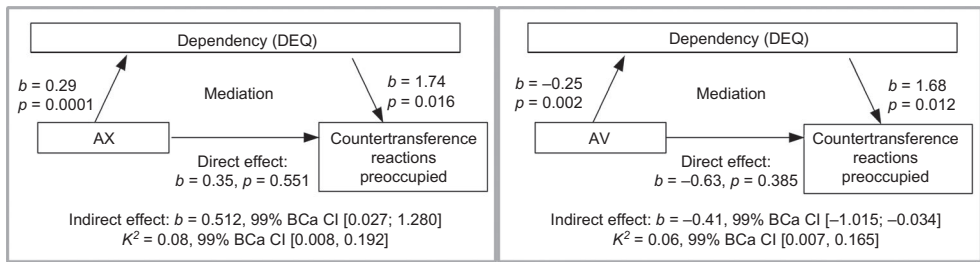


Figure 3. Positive (AX) versus negative (AV) relationship of dependency as a (full) mediator. AX = attachment anxiety, AV = attachment avoidance, b = unstandardized regression coefficient, BCa CI = bias-corrected and accelerated confidence intervals based on 10,000 bootstrap samples, DEQ = Depressive Experience Questionnaire, κ^2 = effect size (Preacher & Kelley, 2011), p = p -value.

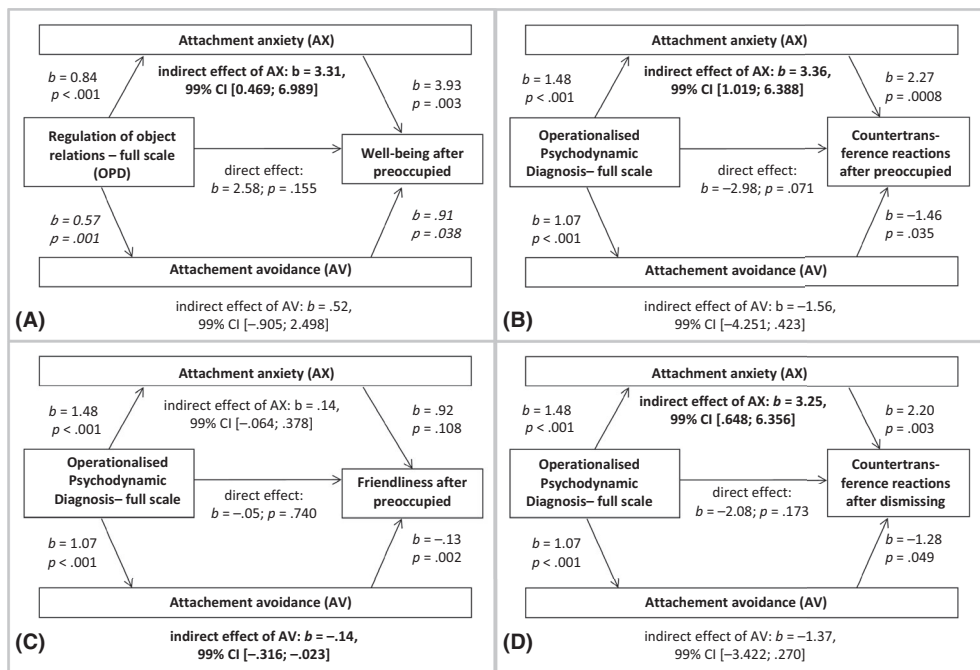


Figure 4. Significant mediation analysis with well-being/countertransference reactions/friendliness following the insecure narratives as dependent variable, OPD as independent variable, and attachment anxiety and avoidance as mediators.

AX mediated the relationship between the individual's capacity for object regulation (OPD) and well-being following the insecure-preoccupied narrative, while AV did not show a significant mediating effect (Figure 4A).

We explored general mediating effects of individual structural deficits. In this model, well-being, interpersonal reactivity, and evaluation of friendliness were investigated as dependent variables, the full scale of the OPD as independent variable, and AX and AV as mediators (Figure 4 and Table 1). There were no mediating effects on well-being, but AX showed a mediation effect on interpersonal reactivity following the insecure-preoccupied

narrative (Figure 4B). However, AV mediated the relationship between OPD full scale and friendliness following the insecure-preoccupied narrative (Figure 4C). AX further mediated the relationship between OPD full scale and interpersonal reactivity following the insecure-dismissing narrative (Figure 4D). There were no mediation effects concerning well-being and friendliness ratings following the insecure-dismissing narrative (Table 1). The relationships between OPD full scale and well-being, interpersonal reactivity, and friendliness following the secure narrative were overall not mediated by attachment characteristics (Table 1).

STUDY 2

Methods

Ten patients (six male, age $M = 42.0$ years, $SD = 11.9$) and ten healthy controls (six male, age $M = 36.7$ years, $SD = 11.2$), matched for age and sex, were included.

Patients were recruited at the Department of Psychosomatic Medicine and Psychotherapy at the local University Hospital. Patients were experiencing a current depressive episode and/or personality disorder with distinct depressive symptoms, diagnosed by a medical doctor according to ICD-10 criteria (Dilling, 2011). Three patients were receiving medication: The first was on mirtazapine, vitamin D, and calcium; the second L-thyroxine, tramadol, and pregabalin; and the third amitriptyline, tapentadol, and L-dopa. No antidepressant medication was taken on the day of the assessment. Controls were recruited via public advertisements and assessed with the German version 5.0.0 of the Mini-International Neuropsychiatric Interview, the Hamilton Depression Scale, and the Young Mania Rating Scale to confirm absence of mental disorders (Sheehan *et al.*, 1998) according to ICD-10 criteria. Controls with current or prior psychiatric, neurological, or other medical diseases were excluded.

The study was approved by the institutional ethical review board of the local university, and all participants provided written informed consent according to the Declaration of Helsinki.

The same experiment as described for study 1 was conducted, but it was implemented as part of an electroencephalography–functional magnetic resonance imaging (fMRI) study, which was previously reported (Borchardt *et al.*, 2018). The narratives were similar to study 1 but were consequently presented and rated in the MRI scanner.

In study 2, the well-being scale, countertransference questionnaire, and IMI were used. The scales were presented while the participant was in the MRI scanner, by using the software Presentation (Neurobehavioral Systems, Berkeley, CA, USA). Participants were trained to respond via button presses to questions. Statistical analyses were also performed in SPSS. Well-being, interpersonal reactivity, and friendliness were examined using 3×2 mixed ANOVAs with the within-subjects factor of narrative (insecure-dismissing/insecure-preoccupied/secure) and the between-subjects factor of group (patients/controls). Assumptions for mixed ANOVA were tested (see Supplementary material). *Post-hoc t*-tests were controlled for multiple comparisons with Bonferroni correction. *Post-hoc* power analyses were conducted with GPower (Faul, Erdfelder, Lang, & Buchner, 2007).

Results

Well-being showed a significant main effect of group, $F(1, 18) = 6.56$, $p = .02$, partial $\eta^2 = .27$; power($1-\beta$) = 1.

Table 1. Summary of the non-significant mediation analysis with well-being/countertransference reactions/friendliness following the different narratives as a dependent variable, OPD as an independent variable, and attachment anxiety or avoidance as mediators

Narrative	Dependent variable (Y)	Independent variable (X)		Mediators (M)	Significance/Indirect effect of X on Y
		Well-being	OPD full scale		
Insecure-preoccupied	Well-being	AX, AV	No Mediation TOTAL: $b = 4.21$, 99% BCa CI (-1.168; 9.850) AX: $b = 3.95$, 99% BCa CI (-0.793; 9.535) AV: $b = 0.26$, 99% BCa CI (-2.339; 3.331)		
	Well-being	AX, AV	No Mediation TOTAL: $b = 2.71$, 99% BCa CI (-2.570; 7.904) AX: $b = 1.12$, 99% BCa CI (-3.822; 6.414) AV: $b = 1.59$, 99% BCa CI (-1.003; 4.993)		
Secure	Evaluation of friendliness	AX, AV	No Mediation TOTAL: $b = -0.01$, 99% BCa CI (-0.299; 0.258) AX: $b = 0.14$, 99% BCa CI (-0.113; 0.407) AV: $b = -0.15$, 99% BCa CI (-0.358; 0.001)		
	Well-being	AX, AV	No Mediation TOTAL: $b = 0.53$, 99% BCa CI (-3.069; 4.226) AX: $b = -0.89$, 99% BCa CI (-4.372; 2.276) AV: $b = 1.42$, 99% BCa CI (-0.755; 4.463)		
	Countertransference reaction	AX, AV	No Mediation TOTAL: $b = 1.05$, 99% BCa CI (-3.065; 5.061) AX: $b = 2.06$, 99% BCa CI (-1.382; 6.035) AV: $b = -1.01$, 99% BCa CI (-3.394; 1.185)		
	Evaluation of friendliness	AX, AV	No Mediation TOTAL: $b = 0.52$, 99% BCa CI (-0.177; 0.280) AX: $b = 0.10$, 99% BCa CI (-0.101; 0.320) AV: $b = -0.05$, 99% BCa CI (-0.215; 0.093463)		

Note. AV = attachment avoidance; AX = attachment anxiety; b = unstandardized regression coefficient; BCa CI = bias-corrected and accelerated confidence intervals based on 10,000 bootstrap samples; OPD = Operationalized Psychodynamic Diagnosis.

Post-hoc t-tests for each narrative condition between groups revealed a significant effect of the insecure-preoccupied narrative, $p = .003$, Bonferroni corrected; $t(18) = 4.00$. Patients showed lower well-being after listening to the insecure-preoccupied narrative ($M = 32.57$, $SD = 11.02$) compared with controls ($M = 15.69$, $SD = 7.56$; Figure 5A). Interpersonal reactivity showed a significant main effect of narrative, $F(2, 36) = 4.24$, $p = .02$, partial $\eta^2 = .19$; power($1-\beta$) = 1. *Post-hoc* Bonferroni tests indicated that following the insecure-preoccupied narrative, listeners had a significantly ($p = .035$) higher tendency for social interaction ($M = 16.22$, $SD = 5.02$) than following the insecure-dismissing narrative ($M = 11.15$, $SD = 6.26$; Figure 5C).

Friendliness ratings revealed a significant main effect of group, $F(1, 18) = 14.54$, $p = .001$, partial $\eta^2 = .45$; power($1-\beta$) = 1. In a *post-hoc t*-test for each narrative condition between groups, there was a significant effect for the insecure-preoccupied narrative, $p = .027$, Bonferroni corrected; $t(18) = -2.93$. Patients showed lower friendliness scores after listening to the insecure-preoccupied narrative ($M = 2.52$, $SD = 0.33$) compared with controls ($M = 2.98$, $SD = 0.37$; Figure 5B). Tests without significant results are listed in the Supplementary material.

Discussion

Insecure attachment has a high prevalence in clinical populations (e.g., Strauss & Brenk-Franz, 2016), and consequently, exposure to narratives of insecurely attached individuals is one of the interpersonal experiences of clinical practice for both patients (e.g., in group therapy) and psychotherapists. Gaining an idea of the effects on the listener is therefore of interest for a better understanding of interpersonal processes, especially in psychotherapy but also in other medical settings where patient–physician relationships are critical (Strauss & Brenk-Franz, 2016).

Exposure to insecure attachment narratives, particularly insecure-preoccupied content, reduced the subjective feeling of well-being in the (healthy) listener. Nevertheless, the listeners showed the highest tendency for social interaction with the insecure-preoccupied narrator. This result could be explained by distress and a sense of helplessness being induced in the listener by the affect-laden speech patterns in an insecure-preoccupied narrative, describing conflicts and a grievance-filled desire for closeness with the caregiver, which implicitly might try to elicit caregiving, but also overburdens the listener. The urge to take care of the insecure-preoccupied narrator is reflected by a higher tendency of the listener for social interaction. Listeners were, for example, more inclined to talk to the insecure-preoccupied narrator about her problems. In the secure narrative, challenges in early childhood were also described, but in a reflected, more coherent, and less affect-laden way. As insecure-dismissing speech patterns are characterized by abstract and fragmented speech, it might be more difficult for the listener to access the childhood relationships of the narrator when listening to the insecure-dismissing narrative.

Secondly, we investigated individual differences in terms of the listeners' personality characteristics in the context of exposure to attachment-specific narratives. The hypothesis that individual propensity for dependency as a main feature of depression would mediate the relationship between the attachment characteristics of the listener and the perception of insecure narratives was confirmed for the insecure-preoccupied narrative. Individual differences regarding the listener's dependency mediated the relationship between individual attachment characteristics, interpersonal reactivity, and

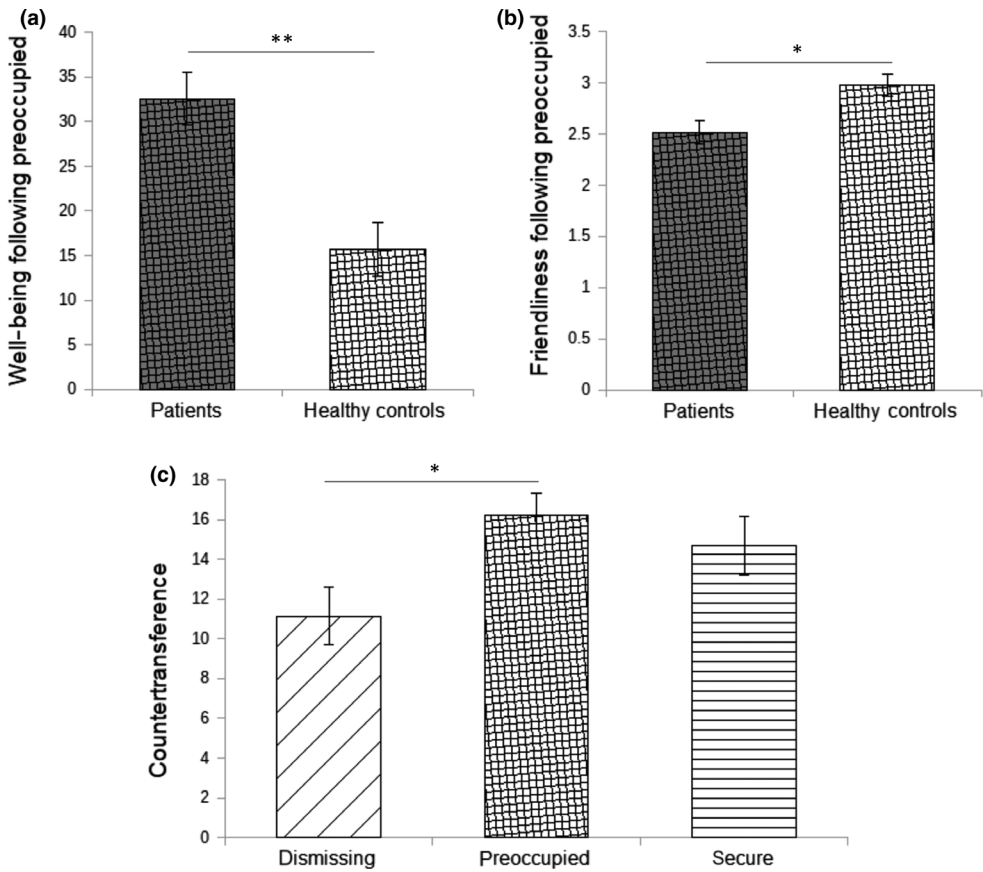


Figure 5. (A, B) Group differences in reactivity towards the insecure-preoccupied narrative. Patients showed lower well-being (A, $p = .003$, Bonferroni corrected) following listening to the insecure-preoccupied narrative and rated this narrative less friendly compared to healthy controls (B, $p = .027$, Bonferroni corrected). (C) Patients and healthy controls ($n = 20$) showed a significantly higher tendency for social interaction with the narrator of the insecure-preoccupied narrative compared to the insecure-dismissing one ($p = .035$, Bonferroni corrected). ** $p < .01$; * $p < .05$. The bars represent the standard error of the mean.

friendliness, following the insecure-preoccupied narrative. Dependency is a core psychopathological feature of depressive symptoms and is characterized by the basic wish for reward in clinging and infantile relationships with dominant others. Blatt, Quinlan, Chevron, McDonald, and Zuroff (1982) discriminated between a dependent (anaclitic) and a self-critical (introjective) type of depression. While patients with self-critical depression are characterized by feelings of worthlessness and guilt, patients with dependent depression mainly experience feelings of loneliness and helplessness. In primary attachment relationships of dependently depressive patients, experiences of adequate care were insufficient and thus have not been internalized. Accordingly, these individuals continuously seek external support and reassurance and crave being loved and guarded, often eliciting negative and hostile reactions. Separation, rejection, and object loss in turn are potential triggers of depressive resentment. Anxiously attached individuals

are at risk of developing a dependent type of depression (Beutel *et al.*, 2004; Blatt, 1995) and use hyperactivating strategies that involve upregulation of emotions (Mikulincer, Shaver, & Pereg, 2003) resulting in impaired mentalizing. Depressed mood is again hypothesized to lead to higher stress levels, accompanied by dysfunctions in mentalizing (Luyten, Lemma, & Target, 2012), resulting in a lower ability to cope with stress and leading to a 'vicious cycle of increasingly depressed mood' (Fischer-Kern & Tmej, 2019, p. 165). Accordingly, individual dependency can explain an increase in emotional responses and reduced well-being following the presentation of narratives with content that might activate the attachment system (in our case, experiences of rejection and disregard), especially in anxiously attached listeners. However, avoidant individuals use downregulation to deal with disturbing emotions (Mikulincer & Shaver, 2005; Nielsen *et al.*, 2017). We further hypothesized that attachment characteristics of the listener would influence the relationship between the perception of the insecure narratives and the individual's capacity for object regulation, and structural vulnerability of the personality in general. Considering individual differences with regard to the capacity for object regulation, there was a mediation effect particularly of attachment anxiety of the listener on the relationship between the listener's well-being following the insecure-preoccupied narrative and object regulation. The latter is the main factor for relationship satisfaction and balanced perception of self-interest (OPD, 2014). The negative self-perception and preoccupation with worries about abandonment in relationships characteristic of anxiously attached individuals (Strauß *et al.*, 2018) illustrate this mediating role of attachment anxiety, which is further explained by lower mentalizing capacities (Luyten & Fonagy, 2015). Considering the structural vulnerability of personality in general, individual attachment characteristics mediated the relationship between friendliness/interpersonal reactivity following the insecure narratives and the OPD full scale. Generally, high attachment avoidance or anxiety is associated with higher levels of depressive symptoms (Conradi, Kamphuis, & de Jonge, 2018). This interrelation between attachment insecurity and psychopathology illustrates our results regarding the individual reactivity towards the insecure narratives. According to Hankin, Kassel, and Abela (2005), a potential mediating factor of the association between insecure attachment and depressive and/or anxious symptoms is interpersonal stressors. Moreover, in psychotherapeutic relationships a higher attachment security of the therapist was related to a better therapeutic alliance and a better outcome of therapy, particularly in structurally more severely impaired patients (Schauenburg *et al.*, 2010).

Lastly, we hypothesized that depressive patients show higher emotional reactivity to insecure attachment narratives compared with healthy controls, which was confirmed for the insecure-preoccupied narrative. In the second study, a higher tendency for positive social interaction with the narrator of the insecure-preoccupied narrative compared with the insecure-dismissing narrative was revealed. Patients showed higher emotional reactivity towards the insecure-preoccupied narrative, represented by lower well-being and lower estimation of friendliness compared with healthy controls. This increased emotional reactivity of the patients towards the insecure-preoccupied narrative may be partly explained by a general negative bias in the processing of emotional stimuli in major depressive disorder (Bourke, Douglas, & Porter, 2010; Naranjo *et al.*, 2011). Thus, the insecure-preoccupied narrative evoked the strongest effects in the listener, both in healthy controls with regard to their personality characteristics and in patients, who generally display an increased load of psychopathological personality characteristics and might also be particularly sensitive to attachment-related emotional issues.

Apart from the organized attachment styles, a disorganized attachment pattern exists, characterized by a conflict between the attachment system and a survival defence system during interactions with the caregiver, as the attachment figure interrupts caregiving repeatedly with neglect or maltreatment. Accordingly, ‘the caregiver becomes at the same time the source and the solution of the infant’s alarm’ (Main & Hesse, 1990, p. 163). This conflict results in contradictory behaviours (Liotti, 2017). Disorganized attachment plays an important role in the development of psychopathology in general (Liotti, 2011). Since disorganized attachment has a much higher load of disturbed attachment characteristics compared to organized attachment, it would be interesting to investigate its influences on the listener’s emotional state.

Clinical implications

Insecure attachment is a risk factor for mental health (Cassidy, Jones, & Shaver, 2013). This accounts for both patients’ attachment characteristics and those of the patients’ direct environment. Understanding and awareness of attachment-specific schemata can help us gain insights into the course of depression and improve treatment outcome. Attachment-specific interaction patterns are, however, also relevant for the therapeutic alliance. For example, attachment anxiety was positively associated with the number of psychiatrists/psychologists seen by individuals, while attachment avoidance was negatively associated with beliefs about the efficacy of psychotherapy (Adams, McWilliams, Wrath, Adams, & Souza, 2017). Hyperactivating strategies of anxiously attached individuals can result in exaggerating distress, whereas deactivating strategies of avoidantly attached individuals can, for example, result in trivializing problems and rejecting help (Strauss & Brenk-Franz, 2016; Strauß & Schwark, 2007). Regarding the interaction between patient and therapist attachment styles, there is evidence that patients and therapists with oppositional attachment styles experience the therapeutic alliance as more profitable (Strauss & Petrowski, 2017). The benefit of opposing attachment styles might be explained by natural variations in the preoccupied and dismissing attachment strategies of the therapist, which help him/her to resist the patient’s maladaptive patterns and expectations but respond in a ‘collisional’ way that creates a corrective emotional experience for the patient (Bernier & Dozier, 2002; Bucci, Seymour-Hyde, Harris, & Berry, 2016; Mallinckrodt, 2010). Psychotherapy can address these patterns, and the therapist may support the patient by serving as a ‘secure base’ with his/her mental and emotional abilities and reflections on the patient’s attachment experiences, including attachment experiences with the therapist (Reiner, Bakermans-Kranenburg, Van IJzendoorn, Fremmer-Bombik, & Beutel, 2016). One goal of psychotherapy is to increase the mentalizing capacities of the patient (Allen & Fonagy, 2006; Levy *et al.*, 2006), as poor mentalizing is linked to low executive attention and has been associated with high fluctuations in mental states, which again influence the therapeutic alliance (Levy, Beeney, Wasserman, & Clarkin, 2010). Notably, a differentiated capacity to understand the mind of the other is linked to an improved therapeutic alliance, which in turn predicts clinical outcome (Dimaggio, Maillard, MacBeth, & Kramer, 2019). This suggests that narratives told by individuals with poor theory of mind might have a negative impact on the listener (i.e., therapist), thereby affecting clinical outcome.

Our results indicate a complex interplay between attachment-specific narratives and their impact, depending on the interpersonal predispositions of the listener. This is of special importance for mental health professionals, particularly those providing psychotherapy, in attempting to manage interpersonal challenges as a result of both patient factors and extensive reciprocity between their own attachment and mentalizing

capacities (Cologon, Schweitzer, King, & Nolte, 2017; Klasen, Nolte, Möller, & Taubner, in press; Schauenburg *et al.*, 2010).

As mentioned above, although we know about relationships between patients' (and therapists') attachment and outcomes, we still do not know the mechanisms playing a role in the complex psychotherapeutic interaction. One element of this interaction probably is the implicit response to patients' expectations and interpersonal plans (Caspar *et al.*, 2016). These are likely to influence the therapist's responses or – put in psychodynamic terms – countertransference. This in turn might lead to specific reactions that either recapitulate the patients' experiences or lead to their correction. Accordingly, it is essential to better understand how interpersonal characteristics of patients implicitly influence therapists' response, as there is some potential for improving psychotherapists' training in interpersonal competence.

Limitations

First, only behavioural measures were used to assess the influences of listening to different prototypical attachment narratives. Regarding the IMI, only the friendly subscale was used here owing to feasibility constraints of the MRI environment. This subscale was chosen as it had the strongest evidence for discerning differential reactivity patterns in earlier studies investigating attachment narratives (Kirchmann *et al.*, 2011; Martin *et al.*, 2007). Nevertheless, the other subscales should be considered in future experiments. The participants of study 1 were medical students in their early curriculum without clinical experience. This sample is representative of neither the general population nor psychotherapists, and therefore, the results cannot be generalized. Another limitation is the small sample size in study 2. Although power was sufficient to detect medium to large effects, it was too low to detect small effects. Owing to the small sample size, we could not perform rmANCOVA and mediation analysis. Moreover, effects of medication status were not studied. Following our promising findings, this should be addressed in future investigations as, for example, increasing serotonin levels were found to enhance agreeable social behaviour in humans (Young, 2013). Another limitation is that no narrative of disorganized attachment was used. The discourse of disorganized individuals is characterized by trauma, dissociated memory, and prolonged silences. These characteristics are difficult to capture in a 4-min interview excerpt. Nevertheless, the emotional reactivity of listeners following exposure to a disorganized narrative should be investigated, as disorganized attachment is crucial in psychopathology.

Conclusion

Confrontation with attachment-specific speech patterns can result in individually characteristic dysphoric mood changes. Listening to the insecure-preoccupied narrative particularly influenced the emotional condition of (healthy) listeners, mediated by participants' individual attachment patterns and psychopathological characteristics of personality. Patients with depressive symptoms showed higher sensitivity towards the insecure-preoccupied narrative. This insight is of particular interest considering the fact that insecure-preoccupied attachment has a high prevalence in clinical populations. Thus, the narratives of patients are potentially rich in attachment-specific speech patterns that might induce a similar emotional reactivity in the listener to that found in this study. While working on (childhood) traumata and other attachment-related issues like losses, therapists should raise more awareness of the possibly higher emotional reactivity of the

listeners as an important but inevitable ‘side effect’. Awareness of these issues could be of use in reflecting underlying (un-)conscious mechanisms in both therapeutic and daily life encounters.

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Conflicts of interest

Dr. Walter performed studies as an employe of institutions which received research support from HEEL and from Janssen Pharmaceutical Research unrelated to this investigation. Dr. Walter has not received any personal financial compensation from third parties. Other authors declare no competing financial interests.

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Supporting Information

The following supporting information may be found in the online edition of the article:

Appendix S1. Supplementary material.