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The role of experiential avoidance, psychopathology, and borderline personality features in experiencing positive emotions: A path analysis

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ABSTRACT

Background and objectives: Experiential avoidance (EA) is an important factor in maintaining different forms of psychopathology including borderline personality pathology (BPD). So far little is known about the functions of EA, BPD features and general psychopathology for positive emotions. In this study we investigated three different anticipated pathways of their influence on positive emotions.
Methods: A total of 334 subjects varying in general psychopathology &/or BPD features completed an online survey including self-ratings of BPD features, psychopathology, negative and positive emotions, and EA. Measures of positive emotions included both a general self-rating (PANAS) and emotional changes induced by two positive movie clips. Data were analyzed by means of path analysis.
Results: In comparing the three path models, one model was found clearly superior: In this model, EA acts as a mediator of the influence of psychopathology, BPD features, and negative emotions in the prediction of both measures of positive emotions.
Discussion: EA plays a central role in maintaining lack of positive emotions. Therapeutic implications and study limitations are discussed.

1. Background

A central characteristic of borderline personality disorder (BPD) is emotional dysregulation. With regard to this construct, empirical studies found on the one hand intense emotional reactions to BPD-related stimuli such as abuse or abandonment (Arntz, Klokman, & Sieswerda, 2005; Ebner-Priemer et al., 2005; Lobbestael & Arntz, 2010). On the other hand, BPD patients generally experience all kinds of increased negative emotions including anger (Gardner, Leibenluft, O'Leary, & Cowdry, 1991), anxiety (Gratz, Tull, & Gunderson, 2008), sadness, and shame (Rüsch et al., 2007; overview in Rosenthal et al., 2008). Negative affect is particularly relevant in BPD, since negative feelings are strongly associated with other BPD symptoms (Kamphuis, Ruyling, & Reijntjes, 2007; Rosenthal, Rasmussen Hall, Palm, Batten, & Follette, 2005). Furthermore, among the range of BPD symptoms, affective symptoms reflecting areas of chronic dysphoria (e.g., anger and loneliness/emptiness) are among the most stable ones (Zanarini et al., 2007).

Studies in BPD usually focus on negative affect. Only few studies so far investigated the level of positive affect in BPD as well, although positive emotions may take a different course than negative emotions depending on the situation in BPD (Chapman, Rosenthal, & Leung, 2009). Three studies found decreased positive affect in BPD (Dammann et al., 2011; Gratz, 2006; Lenzenweger, Clarkin, Fertuck, & Kernberg, 2004). Reed and Zanarini (2011) investigated positive affective and cognitive states in BPD patients thoroughly and found that BPD patients are far less likely to report experiencing positive states of an affective, cognitive, and mixed nature as compared with axis II comparison participants. These studies all relied on interview and questionnaire data regarding positive emotions. By contrast, one study using emotion induction did not find differences in positive reactivity in BPD as compared to healthy and depressive controls (Jacob et al., 2009). A stronger focus on positive emotions might possibly be very rewarding, as positive emotions can trigger an upward spiral of emotional well-being rather independently of negative emotions (Fredrickson & Joiner, 2002). Furthermore, a high level of positive emotions increases

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stress resilience (Tugade & Fredrickson, 2004; Tugade, Fredrickson, & Barrett, 2004) and sociability (Eid, Riemann, Angleitner, & Borkenau, 2003), and buffers against depression (Wichers et al., 2007); problems in all these domains are typical for BPD. Accordingly, positive psychotherapy, which is based on the principles of positive psychology, has shown to be effective at least in depression (Seligman, Rashid, & Parks, 2006). Thus, increasing positive emotions in BPD may be an important goal of psychotherapy.

However according to clinical experience, high emotion avoidance of BPD patients tends to interfere with emotional work in psychotherapy. A related psychological construct may be experiential avoidance (EA), which gained increasing attention during the last decade. EA is defined as the constant effort to escape and avoid (unpleasant) emotions, thoughts, memories, and other private experiences (Hayes, Wilson, Strosahl, Gifford, & Follette, 1996). Avoidance of emotional experiences is in generally regarded as an important maintaining factor of psychological problems. Accordingly, the construct of EA has high overlap with the psychodynamic concept of defense mechanisms, which are also conceptualized as ways to avoid unpleasant affect and discomfort that resulted from conflicting emotions and motivations (Kramer, 2010). Changing these defensive processes to more mature forms are thought to be a key aspect of psychodynamic treatment. Similarly, experiential therapies argue for the benefits of being fully aware and open to one's entire experience (Greenberg, Watson, & Lietaer, 1998). Furthermore, in the social psychology literature James Gross and colleagues have articulated an emotion regulation model that contrasts suppression based regulation (similar to EA and found to be more harmful in the long run) from reappraisal based strategies (seen as more adaptive in the long run) (overview in Gross, 2002) and research in coping showed the adaptive value of approaching emotional experiences (Austenfeld & Stanton, 2004).

In this study we use the concept of EA, since it is one-dimensional and can therefore easily be integrated with other constructs. Furthermore it has been used in many studies investigating pathogenetic processes in psychological disorders, particularly in BPD, and can easily be assessed via self-ratings. Recent theories suggest a functional role of EA in maintaining psychopathology, mainly negative emotions. Probably EA can be seen as a dysfunctional way of regulating negative emotions (Sloan, 2004) for example in social phobia (Kashdan, Breen, Afram, & Terhar, 2010), chronic pain (Costa & Pinto-Gouveia, 2010), post traumatic stress disorder (Marx & Sloan, 2005), and low self-esteem (Udachina et al., 2009). With regard to positive emotions, EA disrupts pleasant and spontaneous activities and decreases positive affective experiences (Kashdan, Barrios, Forsyth, & Steger, 2006). Thus EA may be part of a vicious circle, both maintaining negative affect and blocking positive affect (Fledderus, Bohlmeijer, & Pieterse, 2010).

In BPD, EA is higher than in psychotherapy outpatients without personality disorder (Gratz et al., 2008) and is closely connected to BPD symptoms including deliberate self-harm, which has the function to avoid aversive experiences (Chapman, Gratz, & Brown, 2006; Gratz et al., 2008; Hulbert & Thomas, 2010; Rosenthal et al., 2005). Furthermore, high EA impairs treatment in BPD, being a predictor for dropout from treatment (Rüsch et al., 2008), and leading to less improvement of depressive symptoms over psychological treatment (Berking, Neacsiu, Comtois, & Linehan, 2009).

However, many questions concerning the meaning of EA in BPD are still open. On the one hand, most studies are correlational and thus cannot test underlying processes (Chawla & Ostafin, 2007). On the other hand, both EA and BPD severity are generally correlated with emotional problems and particularly with psychopathology (Chawla & Ostafin, 2007; Rosenthal et al., 2008). Associations between EA and BPD features might be explained by this overlap as well. To the best of the authors' knowledge, it has not been investigated so far, how BPD features, EA, and psychopathology were associated with the expression of positive emotions and emotional reactivity. Whether either the severity of BPD features or the extent of experiential avoidance plays a mediating role for the expression of positive emotions may have implications for the focus of psychotherapy.

Based on these considerations, the aim of this study is to investigate the role of EA, BPD features, psychopathology, and negative emotions in explaining the lack of positive emotions in people with high BPD features. At this time, three hypotheses concerning the relationship between these variables can be assumed (depicted in Fig. 1): (1) High BPD features and the related emotional dysregulation cause EA, and EA inhibits positive emotions (Kashdan et al., 2006). Since both negative affectivity and high psychopathology are typical, but not specific of BPD, these two variables function as additional predictors for EA in this model (model 1). (2) Studies show a negative influence of high EA on the course of BPD (Berking et al., 2009; Rüsch et al., 2008). Therefore, in model 2, EA affects BPD features, and BPD features have a negative impact on positive emotions. Again, general psychopathology and negative affectivity are regarded as unspecific predictors of BPD features. (3) Since negative affect is at the core of BPD, and EA may mainly serve to regulate aversive emotions (Cheavens et al., 2005; Gratz et al., 2008; Hulbert & Thomas, 2010), model 3 hypothesizes negative emotions as the main factor influencing EA. In this model, EA has an impact both on BPD features and lack of positive affect.

Given these three possible pathways how the levels of BPD features, psychopathology, negative emotions and EA could be

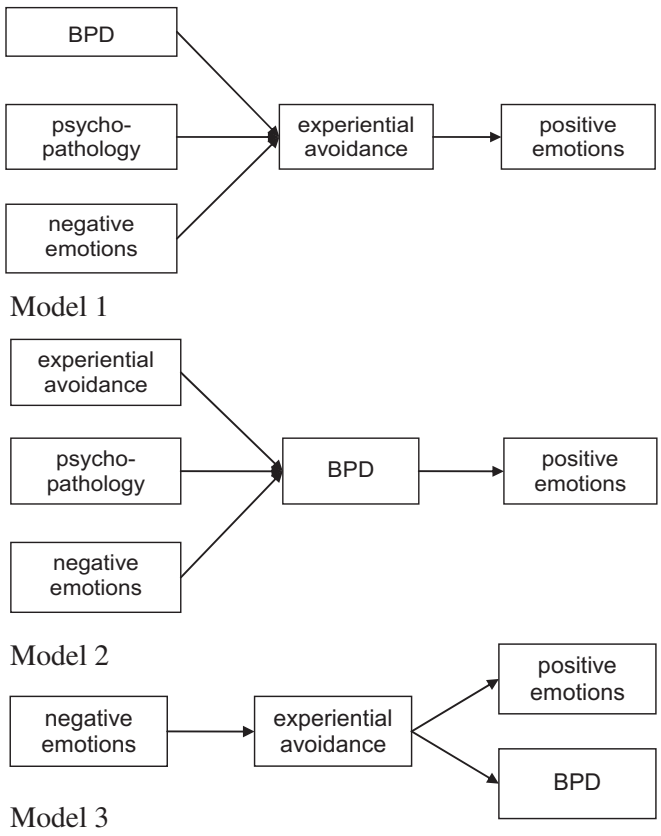

Fig. 1. Three different models of the relationship between experiential avoidance, borderline personality disorder (BPD) symptoms, psychopathology, negative emotions and positive emotions.

associated with the capability of experiencing positive emotions, primary objective of this study was, to compare these three models using path analysis. Since we do not assume a generally different pathway in healthy subjects, in patients with a diagnosis of BPD, and in patients with other psychological disorders, a mixed sample was used to enhance variance in the important variables. Prior research showed different results depending on whether positive emotions in BPD were assessed via self-report (questionnaires or interviews) vs. via actual positive reactivity after emotion induction. Therefore both questionnaire data and positive emotional reactivity were employed in this study.

2. Methods

2.1. Procedures and materials

2.1.1. Questionnaires

The Borderline Symptom List (BSL; Bohus et al., 2007) was used to assess *severity of BPD features*. The short 23-items version is a one-dimensional measure of global BPD severity (Wolf et al., 2009). Answers are given on a 5-point scale from 0 ("not at all") to 4 ("very strong"). The short BSL has proven to be valid in discriminating BPD patients from other patient groups (mean $d = 1.13$ for group differences between patients with BPD and patients with major depression, attention deficit hyperactivity disorder, post traumatic stress disorder, or anxiety disorders respectively) and reliable both regarding internal consistency (Cronbach's alpha .94–.97) as well as test-retest-reliability ($r = .82$; Wolf et al., 2009). *Experiential avoidance* was assessed with the 10-item version of the Acceptance and Action Questionnaire (AAQ-II) (Hayes et al., 2004; http://contextualpsychology.org/), with 7-point answering formats from 0 ("never") to 6 ("always"). This measure was available as the latest version of the AAQ-II when the study was conducted (item examples: "I am not afraid of my feelings"; "When I feel depressed or anxious, I am unable to take care of my responsibilities."). *Psychopathology* was assessed with the SCL-K9 (Klaghofer & Brähler, 2001), a one-dimensional 9-item short version of the Symptom Check List SCL-90-R (Derogatis, 1977) with 5-point response format from 0 ("not at all") to 4 ("very strong"). It comprises from each of the 9 SCL-90–R scales the item showing the highest correlation with the Global Severity Index (GSI-90), and correlates with the GSI-90 at $r = .93$ (Cronbach alpha = .87).

Positive and negative emotions were measured with the Positive and Negative Affect Schedule PANAS, short version (Thompson, 2007), which consists of 5 items per scale (positive: determined, attentive, alert, inspired, active; negative: afraid, nervous, upset, ashamed, hostile) with 5-point answer format from 1 ("very slightly or not at all") to 5 ("very much"). The short form of the PANAS has good internal consistency (Cronbach's alpha around .75 in different validation samples) and test-retest reliability ($r = .84$; Thompson, 2007). Participants were asked to rate the experience of the respective emotion "in general" (trait version of the PANAS).

2.1.2. Positive emotional reactivity in response to positive movie segments

Positive emotional reactivity was operationalized with reactions to positive movie segments. Movies are in general particularly suitable for the induction of emotions (Gross & Levenson, 1995; Westermann, Spies, Stahl, & Hesse, 1996). Two different movie segments were used to cover different facets of positive emotions. Movie segments were discussed both with psychologically healthy people and BPD patients from the surroundings of the authors and selected according to their potential to induce positive emotions in both groups. In the so called "Choir Scene (Oh Maria)" (3:25 min) from the movie "Sister Act" (Emile Ardolino, 1992) a church choir, lead by Whoopi Goldberg, starts singing a slow spiritual song which develops into a swinging gospel song and attracts many people to enter the church. It has already been used in studies with BPD patients (Staebler, Gebhard, Barnett, & Renneberg, 2009), and creates an amused, joyful, and peaceful atmosphere by showing human-beings connected through the joy of music. In the very funny slapstick "Chase Scene" (3:11 min) from the movie "What's up, Doc?" (Peter Bogdanovich, 1972), young Barbra Streisand and her partner Ryan O'Neal rush through San Franscisco on a bicycle, followed by different comical figures. Before and after each movie segment, participants rated their momentary state of the emotions joy, fun, anxiety, and sadness (in randomized order) on a visual analog scale. Residuals of the change scores of joy and fun were used as measure of actual positive emotional reactivity.

2.1.3. Study procedure

The study was hosted using an online survey software (http://www.unipark.info/). To reach a mixed sample including BPD patients, other psychiatric patients, and healthy subjects, the study was promoted online and with flyers in the private and professional surroundings of the authors, and among inpatients and outpatients in the Universitary Medical Centers in Freiburg and Mainz and in the Hamburg Institute for Training in CBT IVAH. In addition, promotion of the study was distributed via internet in different BPD internet forums and on the sites of BPD self-help organizations.

When a possible participant activated the study link, he or she was firstly informed about a contact address; time needed for the assessments; anonymity; voluntariness of study participation; possibility to stop study participation at any given moment; no reimbursement. Participants gave informed consent by activating a confirmation button. This procedure was approved by the local ethical committee of the University Medical Center of Freiburg. Data sampling lasted from March to July, 2010. After giving informed consent, participants were asked for sociodemographic information. In the following, questionnaires and positive movie segments were presented in randomized order. Participants could forward to the next site only if they had answered all questions on the site before. At the end of the assessments, participants were asked whether they found the study entertaining, boring, or tiring, and to rate the sound and picture quality of the movie clips.

2.2. Statistical analysis

First, participants who gave their informed consent for participation in the study, but did not complete the study were compared with completers with respect to sample characteristics. Second, a Multivariate Analysis of Variance (MANOVA) with time and movie as within subject factors and the emotions joy, fun, anxiety, and sadness as dependent variables was conducted to assure that emotional status was changed by the movie segments (manipulation check). As an estimate of effect sizes, partial eta square values (η^2) were calculated.

Third, path analyses were conducted using sum scores of the BSL, AAQ, PANAS (sum scores for both positive and negative emotions), and the SCL-K9. As measures of change in positive emotional status, standardized residuals of a linear regression were used. Thereby, emotional status (joy, fun) before watching the movie segment was used as a predictor and the emotional status after watching the movie segment as the dependent variable. In doing so, 4 different standardized residual scores were computed, since both emotions were rated before and after both movie segments. According to the three models described above, three different path models were specified using both a stable indicator of positive emotions (PANAS Score) and the standardized residuals as dependent variables. Since it is recommended to evaluate

covariance structure models using multiple criteria (Kline, 2005), we used the following indices to compare the three models: Chi-Square statistics, the Comparative Fit Index (CFI), the Tucker Lewis Index (TLI), the Root Mean Square Error of Approximation (RMSEA), the Standardized Root Mean Square Residual (SRMR), and the Bayes Information Criterion (BIC). For the CFI and TLI, values $>$ .95 constitute good fit (Hu & Bentler, 1999), and values $>$ .90 are seen as indicative of acceptable fit to the data. RMSEA and SRMR should be close to zero, whereas an RMSEA $\leq$ .05 and an SRMR $\leq$ .08 indicate close fit (Brown & Cudeck, 1993; Hu & Bentler, 1999); the BIC should be small, but there is no existing rule of thumb. Path analyses were conducted with MPlus 4.1 (Muthén & Muthén, 2006) remaining analyses were carried out using SPSS®, Version 18. For the best fitting model, we tested for the influence of gender and BPD severity by using multigroup path analysis using gender and dichotomized score on BPD symptom severity according to the BSL, respectively, as grouping variables. As a cut-off score for the dichotomization, the mean BSL score was used, which has been found in a group of BPD patients in the German validation study of the BSL (Wolf et al., 2009).

2.3. Sample characteristics

A total of 1336 subjects visited the study web page. Of these, 625 (46.8%) gave informed consent and started the assessment. Of these 625 subjects, 334 (53.4%) completed the study. Only complete data sets were taken into the analysis. The 334 completers did not differ from the dropouts with respect to any of the sociodemographic variables. Of the 334 completers, 282 (84.4%) were female, 119 (35.6%) of the participants reported their marital status as single at the time of the assessment. 151 (45.2%) reported to be currently in psychiatric or psychotherapeutic treatment, 60 (18.0%) had been in such treatment earlier in their life, and 123 (36.8%) had never been in treatment. Of those with current or earlier treatment experience, 65 (19.5%) had been in outpatient treatment only, while 146 (43.7%) reported inpatient treatment. Data on age, years of education, questionnaire scores and Cronbach's alpha of all questionnaires in our sample are given in Table 1.

With regard to BPD severity, the mean BSL score of 36.6 in our sample lies between the scores of the BPD sample ($m = 47.2$) and the mean values of patient comparison samples (patients with anxiety disorder: $m = 25.1$; patients with major depression: $m = 31.7$) in the validation study (Wolf et al., 2009). The 75% percentile of BSL scores in our sample is a score value of 60, which indicates a high BPD severity according to the findings of Wolf et al. (2009). With regard to psychopathology, the SCL-K9 score also indicates a high psychopathology in this sample. In the German validation study of the SCL-90, different mixed psychiatric inpatient samples had mean scores around 2.1 (Rief, Greitemeyer, & Fichter, 1991), while healthy samples reached .5. In another study of our own group using the SCL-K9 version, a mixed psychiatric inpatient group displayed a mean value of 1.79, and a healthy comparison group scored with .71 (Jacob et al., in press). However, since no diagnostic interviews were conducted, we cannot conclude regarding actual psychiatric diagnosis in the sample.

Table 1
Sociodemographic and psychometric data of $N = 334$ participants.

Variable	*M* (*SD*)	Cronbach's alpha
Age	32.8 (10.3)	
Years of education	14.3 (3.0)	
AAQ	29.4 (16.6)	.768
BSL	36.6 (27.9)	.975
SCL-K9	1.87 (1.05)	.909
PANAS negative emotions	12.3 (4.9)	.846
PANAS positive emotions	14.5 (4.7)	.856

Table 2
Pre and post ratings of fun, joy, anxiety, and sadness.

		Fun (*M*, *SD*)	Joy (*M*, *SD*)	Anxiety (*M*, *SD*)	Sadness (*M*, *SD*)
Movie 1	Pre	17.8 (23.9)	29.1 (27.9)	34.4 (34.9)	43.8 (37.4)
(Sister Act)	Post	42.6 (32.6)	49.3 (33.5)	21.8 (30.3)	30.3 (33.0)
Movie 2	Pre	18.1 (23.8)	30.7 (28.7)	35.5 (35.4)	44.6 (36.6)
(What's up Doc)	Post	44.4 (35.7)	36.3 (31.9)	24.7 (30.9)	30.7 (33.5)

3. Results

3.1. Manipulation check

3.1.1. Evaluation of sound and picture quality and the study in general

Only very few participants reported bad sound ($n = 13$; 3.9%) or picture ($n = 6$; 1.8%) quality of the movie clips. Similarly, only small numbers of participants rated the study as boring ($n = 14$; 4.2%). Thirty-two participants (9.6%) found the study tiring, and $n = 101$ (30.2%) rated the study as not entertaining.

3.1.2. Emotion induction

Mean and standard deviation values of emotion ratings before and after the movie segments are given in Table 2. In the MANOVA with movie (movie 1, movie 2) and time (pre and post) as within-subject factors, and emotions as measurements, we found significant main effects both for time and movie, and a significant interaction time*movie. The strongest effect was the time effect (multivariate *partial* $\eta^2 = .63$), for which all univariate tests were highly significant. Effects for movie (multivariate *partial* $\eta^2 = .139$) and for time*movie (multivariate *partial* $\eta^2 = .167$) were weaker and mainly due to an univariate effect for joy, since movie 1 had a stronger effect on joy than movie 2.

3.2. Path analyses

In the path analyses, all three models showed acceptable fit according to most of the applied criteria. However, model 3 had an RMSEA of .134, which indicates poor fit. In comparison, model 1 was superior to the other models with respect to all fit criteria but the BIC, which is lower in Model 3. Since model 3 had an RMSEA indicating poor fit, this model was rejected as well as model 2. Table 3 shows the fit indices of the models 1 to 3.

In Fig. 2, standardized estimates of model 1 are depicted. Standardized coefficients predicting EA range from .14 (negative emotions) to .41 (psychopathology) and are all significant ($p < .01$). EA strongly predicts (low) positive emotions as measured by the PANAS ($r = -.59$); path coefficients of EA and the standardized residuals are small but significant ($-.18$ to $-.24$, $p < .01$). However, regarding the dependent variables (PANAS, standardized residuals) there are medium to high correlations between the emotional change in the two movie segments (fun/joy movie with fun/joy movie2) with $r = .40$ for fun and $r = .65$ for joy. Residual variances of

Table 3
Goodness of fit for 3 models investigated in the path analysis.

Model	χ^2(df)	*p*	CFI	TLI	RMSEA	SRMR	BIC
Model 1	20.04 (15)	.17	.99	.99	.03	.02	14,560.06
Model 2	51.78	<.001	.97	.93	.06	.03	14,591.80
Model 3	69.61 (6)	<.001	.95	.75	.14	.03	12,778.15

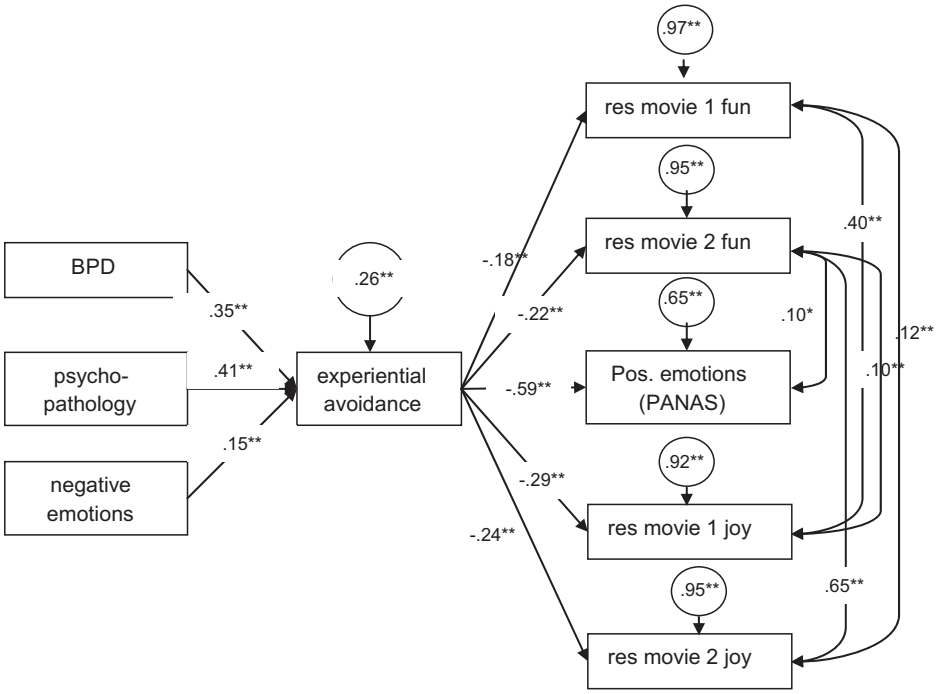

Fig. 2. Path model for model 1. *Notes*: Arrows are regression coefficients, double-headed arrows correlation coefficients. Depicted are only significant correlations. Rectangles indicate variables, circles residual variances.

dependent variables ranged from .26 (EA) to .97 (residual score fun movie 1). Additional separate analyses for male and female participants and for subjects with high and low BPD features revealed comparable model fit indices for all subgroups. In addition to model fit, the associations between the tested variables were comparable for both men and women. However, in the multigroup-path analysis with high and low BPD features we found substantially reduced associations with EA and the other variables. This can be explained by a substantially restricted variance of EA (ceiling effect) in the group with high features compared to the group with low BPD features.

4. Discussion

In this study we tested the function of EA in relation to BPD features, pathology and negative emotions in experiencing positive emotions. Three different models were tested. Model 1 met all criteria for close fit (Chi-square test non-significant; CFI and TLI $>$ .95; RMSEA$<$.05; SRMR$<$.08). Model 2 indicated still acceptable fit regarding CFI, TLI, RMSEA, and SRMR, however the Chi-square test was highly significant. Model 3 did not meet several of the criteria for good fit. Thus we regard model 1 as superior over the other 2 models. According to this model, EA is influenced significantly by BPD features, general psychopathology, and negative affect. Positive affect, however, is predicted by EA.

Both indicators of positive emotions, i.e. PANAS positive trait emotion score and the residuals of joy and fun ratings after positive movie clips were significantly predicted by EA. Compared to the PANAS positive emotion score, fun and joy ratings after the movie clips were less reliable, as shown by a high amount of residual variance in the model. Furthermore, they were to a lesser degree predicted by EA with small path coefficients ($<$.3), and correlations between the PANAS positive emotion score and residuals of joy and fun ratings were low. This indicates that trait positive affect as measured by the PANAS and positive reactivity may be different constructs. Research studies investigating positive affect mainly use self-rated trait measures such as the PANAS. Studies investigating state positive affect typically use the same self-rating questionnaires, however participants are asked to consider a shorter time frame (Pressman & Cohen, 2005). Studies investigating the relationship between current positive affective reactivity and trait positive affect are surprisingly rare. They show that positive affective reactivity may rather be influenced by process-related emotional variables, such as emotion perception and emotional contagion (Papousek, Freudenthaler, & Schulter, 2008, 2011). In line with this assumption, and in contrast to findings showing diminished positive affect in BPD, Jacob et al. (2009) did not find differences in positive emotional reactivity in BPD patients as compared to healthy and depressive control groups in an experimental setting. In sum, positive emotional reactivity may not be strongly related to positive trait affect in people with BPD features. However, on a methodological level, the association between EA and the measures of induced emotional change may also have been underestimated due to the lower reliability of these single-item measures.

These findings are in line with other studies suggesting a central role of EA in maintaining psychological problems. Kingston, Clarke, and Remington (2010) found EA to be a key process in psychopathology, mediating the relationship between negative affect and different facets of problem behavior such as substance abuse or self-harm in a mixed clinical group. Chapman, Specht, and Cellucci (2005) similarly propose that EA is the link between negative emotions and self-harming behaviors. Picket and Kurby (2010) found in an emotion induction paradigm that individuals reporting higher EA scores exhibited a bias toward activating negative emotion inferences, whereas individuals reporting lower EA scores exhibited a bias toward activating positive emotion inferences.

Note that, except for Picket and Kurby (2010), these studies referred only to negative, but not positive emotions. However Fledderus et al. (2010) assessed a variety of variables including well-being and found that EA mediated the effect of passive coping on both increased anxiety and depression and decreased emotional and psychological well-being. In this study, BPD features had not been

assessed. Our results show that BPD features strongly influence EA independent of general psychopathology, although individuals with BPD usually show a broad range of psychiatric comorbidity (Zanarini et al., 1998a, 1998b). Since BPD features and general psychopathology independently contribute to EA, our considerations may not be specific for BPD, but valid both for individuals with BPD features and with other symptoms of psychopathology. However, as BPD patients typically show high general psychopathology and negative affect as well, they may be particularly prone to high EA, and lack of positive emotions due to EA.

The main clinical implication of our findings is that both EA and BPD features have to be considered in therapy. Reducing EA is a central idea of Acceptance and Commitment Therapy (Hayes & Wilson, 1994); Gratz and Gunderson (2006) found in a study investigating the effect of an acceptance-based group intervention in BPD patients positive effects on self-harm, emotion dysregulation, experiential avoidance, and BPD-specific symptoms. However, since model 1 was superior to model 2 in our study, it would not be sufficient to focus mainly on EA. Instead, the relevance both of BPD features and EA should be pointed out and both concepts should be addressed in treatment.

Only as a second step, individuals with high EA might benefit from being explicitly encouraged to build up positive experiences. Positive emotions are important for psychological health and well-being (Tugade et al., 2004), and the Broaden-and-Build theory of positive emotions (Fredrickson, 2001) is a possible framework for understanding and conceptualizing therapeutic processes to strengthen positive emotions (Fitzpatrick & Stalikas, 2008). Therapeutic strategies targeting positive emotions use different strategies to build up personal ressources and positive emotions, including meditation techniques (Fredrickson, Cohn, Coffrey, Pek, & Finkel, 2008), or positive imagery techniques (Tarrier, 2010). Experimental studies also show the capacity of positive imagery techniques for increasing positive emotions (Holmes, Lang, & Shah, 2009) even in BPD (Jacob et al., 2011). In a recent study, Arntz, Hawke, Bamelis, Spinhoven, and Molendijk (2012) showed that reduction in the spontaneous use of negative emotion words and negations were strong predictors of psychotherapy outcome in patients with personality disorders. The role of negations seemed to reflect that patients with personality disorders miss a lot in their lives and reduction of what they miss seems central to recovery. This is well in accordance with the idea of strengthening positive experiences. However, the term "positive emotions" is rather broad, and different forms of positive affect should be differentiated (Sauter, 2010). Furthermore, trait positive emotions and positive emotional reactivity did not highly correlate in our study. Therapists should be aware that a BPD patient may suffer from lack of positive emotions even if he/she is emotionally responsive in the therapy situation. Finally, even though this study stresses the value of positive emotions, one should not consider high positive emotions as only recipe for well-being. BPD patients tend to show strong black-and-white cognitive and emotional patterns and often have difficulties to deal with conflicting perspectives or feelings (Bender & Skodol, 2007). Coifman, Berenson, Rafaeli, and Downey (2012) found that high polarity (i.e., a tendency to see things all good or all bad) was in BPD associated with high interpersonal stress and predicted impulsive behaviors. Thus, not only enhancement of positive affect, but also integration of both negative and positive affect is a central goal of different psychotherapy approaches for BPD (for example transference-focused therapy, see Levy et al., 2006).

This study has several limitations. Some problems are related with online methodology and the mixed sample. The sample is comparably young and highly educated, which is typical of online studies (Gosling, Vazire, Srivastava, & John, 2004). A majority of female participants is rather atypical and probably due to intensive sampling in psychotherapy treatment settings and BPD forums, which are usually more intensively used by women, although the prevalence of BPD is equally frequent in men and women (Sansone & Sansone, 2011). However, model 1 did fit equally well in separate analyses for both genders.

A high percentage of participants did not complete the study. Although we did not find differences in sociodemographic data between completers and drop-outs, we do not know whether these two groups differed in other measures of interest. The experimental condition cannot be fully controlled in online-studies. However, Stieger and Reips (2011) found that in most cases this limitation does not seem to be relevant. Finally, we had no possibility to validate psychopathological data by further diagnostic information, since diagnostic interviews could not be performed. To reach the desired sample, we addressed specifically BPD patients and individuals with other psychological conditions by promoting the study online and with flyers in BPD web forums and treatment institutes. Furthermore, the BSL discriminates BPD patients from subjects with other psychological disorders. However, we finally do not know how many study participants actually fulfilled criteria of BPD and whether the proposed model is actually valid in patients with a full BPD diagnosis as well. Despite some disadvantages, online studies have some advantages in return, particularly in individuals with high EA, who by definition tend to avoid challenging social situations, as the participation in a "real-world study" might be. We may therefore have a higher chance to recruit these individuals with a web-based study format; however data supporting this assumption is lacking to the best of our knowledge.

A further limitation of the study is the rather restricted number of variables under investigation and the positive affect ratings before and after positive movie clips, which may be more related to process aspects of emotions than to trait positive affect. Other variables might have been important in the context of EA as well, such as depression, emotional non-acceptance (Gratz, Bornovalova, Delany-Brumsev, Nick, & Lejuez, 2007) or mindfulness (Thompson & Waltz, 2010). Our focus was on BPD features, however depression may play a major role, since Berking et al. (2009) found that EA might be related more specifically to depressive symptoms than to BPD symptoms. Further studies should investigate the differential impact of these variables.

Furthermore, the AAQ defines EA rather broadly. It seems to be important to define EA and other avoidant patterns more specifically, and investigate the effects of different facets of avoidance separately (Tull, Gratz, Salters, & Roemer, 2004). Alternatively, other concepts such as defense or coping mechanisms, or emotion regulation styles according to Gross (2002) could be investigated and/or compared with EA. We used the residuals of joy and fun ratings after positive movie segments as a measure of positive emotions in addition to the PANAS trait scale. However, these fun and joy ratings, albeit face-valid, have not been extensively validated. Maybe using the PANAS state would have rendered more reliable results.

Finally, although we accepted model I as superior above the other two models, we do not know whether this model is the best way to depict relationships among the variables of interest. Maybe another model, or a model including other variables, would have fit the data even better. And even though linear regression modeling is more sophisticated than correlational analysis, we did not manipulate any of the variables of interest systematically. Thus causal relationships have to be interpreted with caution.

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