Psychotherapy Research

ISSN: 1050-3307 (Print) 1468-4381 (Online) Journal homepage: www.tandfonline.com/journals/tpsr20

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To cite this article: Niv Gross, Eran Bar-Kalifa & Ben Shahar (28 Jul 2025): The role of positive emotions in accelerated experiential dynamic psychotherapy, Psychotherapy Research, DOI: 10.1080/10503307.2025.2534972

To link to this article: https://doi.org/10.1080/10503307.2025.2534972

Published online: 28 Jul 2025.

Psychotherapy Research, 2025
https://doi.org/10.1080/10503307.2025.2534972

Research Article

The role of positive emotions in accelerated experiential dynamic psychotherapy

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(Received 23 January 2025; revised 25 May 2025; accepted 8 July 2025)

Abstract
Objective: Contemporary theories suggest that positive emotions play an important role in psychotherapy. The present study examined the role of positive emotions in Accelerated Experiential Dynamic Psychotherapy (AEDP), a psychotherapy approach designed to process positive emotions. **Method:** Forty-six patients, with a wide variety of psychological difficulties, participated in a 16-session course of AEDP in a naturalistic study. Following each session, participants reported the extent to which they experienced positive and negative emotions during the session, their perceived quality of the session, and their levels of functioning during the previous week. They also completed outcome measures before, at the end, and at 6-month follow-up. **Results:** Using multi-level and cross-lagged panel models, the results showed that positive emotions were associated with better session outcomes and better functioning during the following week, independent of negative emotions. Positive emotions during the entire treatment predicted improvements in depressive symptoms and interpersonal functioning but not general distress as measured directly post-treatment. However, these latter associations were nonsignificant at the 6-month follow-up. **Conclusion:** These findings provide initial evidence supporting the notion that positive emotions may be an important ingredient in psychotherapy and highlight the importance of developing interventions designed to facilitate the processing of positive emotions.

Keywords: positive emotions; positive affect; psychotherapy change mechanism

Clinical or methodological significance of this article: Positive emotions in a given session of AEDP are associated with better session outcomes, better functioning in the following week, and better overall treatment outcomes. These findings contribute to the growing evidence supporting positive emotions as an independent change mechanism in psychotherapy.

Until recently, research on emotions in psychotherapy has focused almost exclusively on processing negative emotions and has neglected the role of positive emotions as a mechanism of change. However, positive emotions have gained increasing attention due to research on development (e.g., Fonagy & Target, 1997; Stern, 1985), mother-infant interaction (e.g., Beebe & Lachmann, 1994; Trevarthen, 1984), therapeutic alliance (e.g., Ackerman & Hilsenroth, 2003; Safran & Muran, 2000), affect regulation (e.g., Gross, 1998; Schore, 1994), and positive psychology (e.g., Seligman & Csikszentmihalyi, 2000). This earlier research suggested that positive emotions play an important role in development and interpersonal relationships. Nevertheless, it was only in the early 2000s that certain psychotherapy approaches, such as accelerated experiential dynamic psychotherapy (AEDP; Fosha, 2000b) and positive psychotherapy (PPT; Seligman & Csikszentmihalyi, 2000), started to emphasize the role of positive emotions in therapeutic change. The development of such therapeutic approaches stimulated research examining the role of positive emotions as a potential change mechanism. These therapeutic approaches emphasize that positive emotions are more than merely a result of favorable

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outcomes, and that psychotherapy researchers should pay more attention to how positive emotions can be specifically utilized in therapy to improve treatment efficacy (Bar-Kalifa et al., 2024).

The role of positive emotions in general functioning and as a psychotherapy change process can be understood using the broaden-and-build theory (Fredrickson, 2001), which is supported by a large body of research (Fredrickson, 2013; Stalikas et al., 2015). According to this theory, positive emotions are valuable for adaptive functioning (Lyubomirsky et al., 2005), and they differ from negative emotions in the adaptive value they provide. Positive emotions lack the element of urgency, they do not narrow our attention toward a threatening stimulus, and their merit is not in the initiation of an adaptive, quick, defensive response (Mortillaro & Dukes, 2018). Instead, positive emotions momentarily broaden attention and awareness, bringing about a wider array of thoughts, actions, and percepts than might typically occur. With broadening attention, positive emotions promote exploration and discovery of new knowledge, alliances, skills, and ways to solve problems and overcome obstacles. These are resources that have evolutionary benefits (Fredrickson, 2001; 2013). Therefore, from a broaden-and-build perspective, it is not sufficient to help patients regulate and overcome negative emotions; it is also important to help them gain access to and process positive emotions for their adaptive value.

The Role of Positive Emotions in Psychotherapy

With an increasing understanding of the significance of positive emotions in human experience and mental health, some experts have advocated for a closer look at the role of positive emotions in the therapeutic process (Carl et al., 2013; Fitzpatrick & Stalikas, 2008a; Fosha, 2004; Stalikas et al., 2015). However, only a few studies have examined the role of positive emotions empirically. For example, Kring et al. (2007) showed that in cognitive behavior therapy, positive emotions increased during treatment only for patients who showed a significant decline in depressive symptoms. Piper et al. (2002) showed that in group therapy for complicated grief, experiencing and expressing positive emotions during the treatment was positively associated with improvements in anxiety and depressive symptoms, symptoms of grief (intrusion or avoidance), and life satisfaction. In a study tracking negative and positive emotions over five time points during therapy in a psychology training clinic offering therapy in a range of therapeutic orientations, it was shown that an increase in positive emotions was associated with improvements in general distress and relationship functioning (McNeil & Repetti, 2022).

An additional line of treatment research focusing on positive emotions involves the development of a specific treatment protocol, called positive activity intervention (PAI; Taylor et al., 2014). This treatment was specifically designed to evoke and work with the positive affect system, which has been shown to be impaired in people who experience depressive, anxiety-related, and other disorders (Taylor et al., 2017). Based on previous research regarding the function of positive emotions (Fredrickson et al., 2003), PAI utilizes interventions that were previously found to improve positive thinking, emotions, and behaviors in nonclinical samples. Clinical studies examining this protocol largely show that PAI is associated with increases in positive affect during treatment, as well as a host of additional outcomes, such as fewer symptoms of anxiety and depression, increases in social connectedness, and positive well-being (Taylor et al., 2017, 2020; 2024).

Overall, the reviewed studies are primarily correlational, which means they cannot conclusively determine the direction of the association between positive emotions and therapeutic outcomes and cannot rule out the possibility that this association is explained by other processes. In contrast, Taylor et al. (2020) met some of Kazdin's (2007) criteria for demonstrating mechanisms of change by establishing that positive emotions temporally preceded treatment outcomes through session-by-session assessments. Thus, it seems that more evidence is needed to show that experiencing positive emotions during treatment contributes to treatment outcomes (Stalikas et al., 2015). However, thus far, only one study (Taylor et al., 2020) has examined the session-by-session associations between positive emotions and both immediate and distal outcomes, and none have focused on the role of positive emotions in psychodynamic therapy—specifically in Accelerated Experiential Dynamic Psychotherapy (AEDP; Fosha, 2000b; 2021).

The Role of Positive Emotions in Accelerated Experiential Dynamic Psychotherapy

It seems important to examine the role of positive emotions in the context of a treatment approach that specifically focuses on processing positive emotions (Stalikas et al., 2015). AEDP (Fosha, 2000b; 2021) is an integrative treatment approach that focuses on processing positive emotions in order to utilize their adaptive functions as they naturally arise. According to AEDP theory, these

emotions emerge either because patients feel safe and seen, or because therapists specifically focus on processing them after the productive processing of trauma-related emotions. AEDP integrates experiential and relational interventions within a psychodynamic framework. The AEDP theory of dysfunction assumes that difficulties arise when patients avoid painful and vulnerable emotions that can be too overwhelming. However, avoiding such emotions prevents experiencing and benefiting from their adaptive action tendencies and meaning. Therefore, helping patients access, evoke, and process these emotions is a primary therapeutic goal in AEDP (Fosha, 2000b).

In AEDP, processing avoided painful emotions often leads to experiencing positive emotions (Fosha et al., 2019). For example, when patients experience grief, they may reach a state of acceptance towards the source of their grief. This acceptance can be a transformative experience that leads to several other positive emotions, such as relief, a sense of calm from coming to terms with the situation, satisfaction from achieving reconciliation and acceptance, pride in overcoming their initial fear of the pain that blocked the grieving process, and gratitude towards the therapist's emotional support. According to AEDP theory, attending to and processing these positive emotions that naturally arise as the result of "good therapeutic work" enhances the therapeutic gains and leads to consolidation and a broadening of change (Iwakabe & Conceicao, 2016). Therefore, AEDP therapists use specific interventions, called meta-therapeutic processing, designed to promote reflection on the experience of the therapeutic change and to facilitate the activation of positive emotions related to the achieved change (Fosha, 2000a; Fosha & Thoma, 2020).

The Current Study

The primary assumption guiding the current study is that focusing on positive emotions is a crucial element in AEDP that extends the work on painful emotions. Therefore, exploring the role of positive emotions in the context of AEDP provides a uniquely useful context for understanding their potential role in psychotherapy change. This study is the first to examine the role of positive emotions in psychotherapy on a session-by-session basis. It is also the first study to explore the association between positive emotions and treatment outcomes in AEDP. Thus, we predicted that (1) the extent to which patients report experiencing positive emotions in a given session would predict their perceived quality of the session, over and above negative emotions; (2) the extent to which patients report experiencing positive emotions in a given session would predict their functioning during the following week, and improved functioning during the week, in turn, would predict an increase in the experience of positive emotions; and (3) positive emotions during the entire course of treatment (averaged across sessions) would predict overall treatment outcomes (reduction in general distress) at the end of the treatment and at a 6-month follow-up, independent of negative emotions.

Method

Participants and Procedure

Forty-six patients (32 women and 14 men) participated in this study. The data for this study came from the second phase of an AEDP practice research network study (PRN; Castonguay et al., 2013) that aims to assess the effectiveness of AEDP in a transdiagnostic, naturalistic, private-practice context. The study recruited patients with a variety of psychological difficulties, such as depression, anxiety, and interpersonal difficulties. The findings of the first phase, reported by Iwakabe et al. (2020, 2022), showed significant treatment effects that were maintained at 12-month follow-up. Phase II of the project was designed to delve deeper into the change process of AEDP, using additional questionnaires that were not used in phase I. The data collection in phase II took place between 2019 and 2023 in the United States, Canada, and Israel.

Due to the naturalistic, private-practice setting of this study, patients were recruited as they contacted their therapists. Therapists provided detailed information about all aspects of the study, and once it was confirmed that prospective patients understood their role in the study, they were presented with a written consent form to review and sign. Next, patients completed several questionnaires to evaluate baseline levels of symptoms and assess eligibility for participation. Participants were not eligible if they were: Currently involved in another treatment; starting, discontinuing, or making a change in psychiatric medication within the previous three months; actively suicidal; previously diagnosed with dissociative identity disorder (DID), bipolar disorder, autism spectrum disorder; actively struggling with addiction or substance abuse; experiencing psychosis or severe impulse disorders; or in a significant crisis requiring immediate intervention.

To be included in the study, participants had to score at least one *SD* above the normal population mean on at least 3 out of 16 of the following assessment tools: Nine scales were from the Symptom

Assessment – 45 (SA-45; Davison et al., 1997, Anxiety, Depression, Hostility, Interpersonal Sensitivity, Obsessive-Compulsive, Paranoid Ideation, Phobic Anxiety, Psychoticism, and Somatization). The other seven measures were the Beck Depression Inventory (BDI; Beck et al., 1996); Automatic Thoughts Questionnaire (ATQ; Hollon & Kendall, 1980); Inventory of Interpersonal Problems (IIP-32; Barkham et al., 1996); Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965); Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004); Acceptance & Action Questionnaire (AAQ-II; Hayes et al., 2004); and the Mental Health Continuum (MHC-SF; Keyes, 2002). In addition, participants had to achieve a score of 7 or above on the 12-point scale for their main presenting complaint in the Target Complaint Scale (TC; Battle et al., 1966). Eligible candidates who agreed to participate received a total of 16 sessions of AEDP, all conducted in English. Patients were given a significant reduction in fees in exchange for their participation and willingness to complete various self-report questionnaires throughout the study. Patients completed an expanded set of questionnaires at baseline, at post-treatment, and at 6-month and 12-month follow-ups. In addition, they completed various process and outcome measures before and after each session. Before conducting the study, approval from the Institutional Review Board at Ochanomizu University in Japan was obtained.

The mean age of the participants was 38.9 (SD = 11.1), ranging from 21 to 69 years old. Education levels were diverse, with 11 (24%) having completed secondary/high school, 23 (50%) having completed college/university and 12 (26%) having completed postgraduate degrees. Primary work status was diverse as well, with 23 (50%) employed, 16 (35%) self-employed, 3 (6%) students, 2 (4%) homemakers, 1 (2%) unemployed, and 1 (2%) did not respond to this item. In terms of marital status, 16 (35%) were single, 22 (48%) were married/common law, 7 (15%) were divorced or separated and 1 (2%) had another marital status. The sample was diverse in ethnic or cultural background, with 30 (65%) identifying as white participants and 14 (30%) as BIPOC participants. Two (4%) participants did not respond to this item.

Therapists

Twenty-two therapists took part in this study (17 women and 5 men, 18 of them white). Six therapists held a PhD or PsyD degree, one held an MD degree, eight held an MSW or LCSW degree, and seven held an MSc, M. Ed. or MFT degree. Their mean age was 58.2 (SD = 11.3) and all therapists had extensive prior training in AEDP (range: 4–22 years, average: 10.02 years) along with five to 41 years of clinical experience. The number of patients treated by each therapist varied, with nine having one patient, six having two patients, four having three patients, two having four patients, and one having five patients. Each therapist received at least two hours of individual supervision from a certified AEDP supervisor for each patient. although all therapists were experienced in providing AEDP, and received weekly supervision, adherence was not systematically measured.

Treatment

Patients received 16 sessions of AEDP (Fosha, 2021). Therapists used various AEDP interventions to help patients access and process previously avoided painful emotions. Therapists helped patients to focus on somatic sensations, to symbolize them in words, and to label their emotions. Additionally, therapists utilized self-disclosure to convey their emotional responses to the patient's experiences, with the goal of both supporting the patient's emotional experience and enhancing it. Different forms of portrayals, a central intervention in AEDP, were employed to facilitate the exploration and processing of emotions. This technique involves imaginal scenarios, such as dialogues with various individuals or conversations with the patient's younger self. It might also entail imagining traumatic memories, or desired outcomes that never materialized in reality. Portrayals enable patients to externalize their internal experiences and engage in meaningful dialogues, leading to enhanced insight, exploration of novel perspectives, expression of painful emotions, and resolution of relational issues. Finally, meta-processing interventions were used to facilitate reflecting on productive experiences during the therapy sessions themselves, especially novel emotional experiences. These interventions aim to expand the exploration of positive emotions that arise after productive emotional processing, and to solidify, deepen, and broaden therapeutic progress while integrating new meanings.

Measures

Session-by-session questionnaires. In-session positive and negative emotions. The extent to which patients experienced different positive and negative emotions during each session was measured with the Modified Differential Emotions Scale (mDES; Fredrickson et al., 2003). The

mDES is a self-report measure, which was modified to assess the extent to which patients experienced a range of discrete emotions during the session. Patients rated each emotion item on a five-point Likert scale (0 = never, 4 = most of the time). Each emotion is presented as a triplet with three synonyms for each emotion (e.g., glad/happy/joyful). The positive emotions subscale covers the following emotions: amusement, awe, contentment, desire, pride, happiness, hope, interest, love, and gratitude. The negative emotions subscale assesses the following emotions: anger, contempt, disgust, embarrassment, fear, guilt, sadness, stress, hate, and shame. The reliability was computed using the procedure outlined by Cranford et al. (2006) for estimating reliabilities for repeated measurement data. The two mDES subscales have strong internal reliabilities, ranging from 0.82 to 0.94 (Cohn et al., 2009). In the current sample, within-patient reliability for both the positive and negative subscales was good (0.88 and 0.8 respectively) and the between-patient reliability was excellent (0.95 and 0.91 respectively).

Immediate Session Outcome. Immediate session outcomes were assessed using two measures. The extent to which patients evaluated the usefulness or effectiveness of each session was assessed with the Session Evaluation Questionnaire (SEQ; Stiles, 1980). The SEQ is a self-report scale consisting of 21 pairs of bipolar adjectives rated on a seven-point Likert scale. The SEQ evaluates four aspects related to the therapy session; two evaluate how the patient perceived the session (depth and smoothness) and two evaluate the patient's mood after the session (positivity and arousal). In the current study, we used only the Depth scale because it is most relevant to assessing patients' perceived quality of the session, and because previous studies have shown that it is associated with overall treatment outcomes (e.g., Mallinckrodt, 1993; Tryon, 1990). The Depth scale contains five bipolar adjectives that describe different aspects of the session, such as shallow-deep or valuable-worthless (reversed). All five items on the Depth scale were summed, such that overall scores could range between 1 and 35. In the current sample, within-patient reliability was good (0.84), and between-patient reliability was excellent (0.93).

The second measure used to assess session outcome was the Session Rating Scale (SRS; Duncan et al., 2003) which focuses on the relationship with the therapist. The SRS is a widely used scale designed to assess four key domains of the working alliance. Respondents complete the SRS by marking agreement with four statements on a visual analog scale anchored at each end by statements about how they relate to the therapist. The respondent is asked to rate the relationship, goals/method, approach/method, and overall experience of the therapy session. This rating yields four separate scores between 0 and 10 using a centimeter for the scale measurement; these scores sum to one score ranging from 0 to 40. In the current sample, within-patient reliability was moderate (0.74) and between-patient reliability was excellent (0.91).

Between-session functioning. To evaluate patients' functioning during the week following the session we used the Outcome Rating Scale (ORS; Miller et al., 2003). Respondents were asked to indicate how well they functioned individually, interpersonally, socially, and overall, during the previous week. To complete the ORS, participants rate four statements using a visual analog scale, with one end labeled "Low" and the other labeled "High." This scale generates four individual scores ranging from 0 to 10, which are then summed to create an overall score ranging from 0 to 40. Higher scores on the ORS indicate better functioning. It has strong reliability estimates ($\alpha = 0.87–0.96$), and in the current sample, both within-patient reliability (0.91) and between-patient reliability (0.90) were excellent.

Treatment outcome questionnaires. General symptoms. The overall change in psychological symptoms was assessed using the Symptom Assessment-45 (SA-45; Davison et al., 1997), which is a shorter version of the Symptom Checklist-90 (SCL-90; Derogatis et al., 1976), a widely used measure of different symptomatic presentations. The SA-45 consists of 10 symptom indexes: nine five-item scales assessing each of the same symptom domains as the SCL-90 and a global severity index (GSI), calculated by summing the scores of the nine subscales. Scores can range from 0 to 180. In this study, we used the GSI as an indicator of overall change in psychological symptoms. In the current study, Cronbach's alpha for the pre-treatment and post-treatment samples was 0.93 and 0.90 respectively.

Depressive symptoms. The severity of depressive symptoms was assessed using the Beck Depression Inventory-II (BDI-II; Beck et al., 1996). The BDI-II is a widely used and well-validated instrument, consisting of 21 items representing various symptoms of depression, such as sadness, anhedonia, guilt, loss of interest, etc. Participants were instructed to rate each item on a four-point scale ranging from 0 to 3, indicating the intensity of their experienced symptoms over the past two weeks. The total score on the BDI can range from 0 to 63, with higher scores indicating higher levels of depressive symptomatology. In the current study,

Cronbach's alpha for the pre-treatment and post-treatment samples was 0.85 and 0.89 respectively.

Interpersonal functioning. The Inventory of Interpersonal Problems-32 (IIP-32; Barkham et al., 1996) was utilized to assess interpersonal difficulties. The IIP-32 contains 32 items, where respondents are asked to rate the extent to which items described their behavior and interactions on a five-point Likert scale, ranging from 0 (not at all) to 4 (extremely). The IIP-32 assesses eight dimensions of interpersonal problems, including domineering, vindictive, cold, socially inhibited, nonassertive, overly accommodating, self-sacrificing, and intrusive. Total scores can range from 0 to 128, with higher scores indicating more severe interpersonal difficulties. In the current study, Cronbach's alpha for the pre-treatment and post-treatment samples was 0.90 and 0.92 respectively.

Data Analysis Strategy

Hypothesis 1 – association between positive emotions, negative emotions, and immediate session outcome. We used a multi-level model approach to examine this hypothesis, accounting for the hierarchical structure of our data. Sessions were nested within patients, who were nested within therapists. SRS and SEQ-depth in each session were predicted by positive and negative emotions. We constructed a series of multi-level models, starting with fixed parameters and gradually incorporating random intercepts and coefficients to account for idiosyncratic factors and dependence within patients and therapists. We assessed model fit using likelihood ratio tests, following Raudenbush and Bryk (2002) and Twisk (2006). For SEQ-D, the optimal model was a two-level model (sessions within patients) with both fixed and random parameters for the intercept, negative emotions, and positive emotions. For SRS, the optimal model was a three-level model (sessions, patients, therapists) with fixed and random parameters at the patient level and a random intercept at the therapist level. To address multicollinearity, and remove between-subject differences, we centered the predictors on each patient's mean (Enders & Tofighi, 2007).

Hypothesis 2 – effect of positive emotions on functioning between sessions. We used a Cross-Lagged Panel Model (CLPM) to examine the link between positive emotions and functioning during the following week. CLPM includes autoregressive effects (e.g., positive emotions predicting future positive emotions) and cross-lagged effects (e.g., positive emotions predicting ORS scores during the following week, controlling for prior ORS scores). This approach allows causal inference without a priori assumptions about the direction of causality (Falkenström et al., 2020). The advantage is the reduced likelihood of confounding between positive emotions and ORS assessed at different time points.

Hypothesis 3 – association between positive emotions and negative emotions with overall treatment outcome. To examine the association between positive and negative emotions during the entire treatment, and changes in overall treatment outcomes (GSI, BDI-II, and IIP-32) at post-treatment and at 6-month follow-up, we conducted six linear regression models. Each model focused on a specific symptom variable at each assessment point (immediately after treatment and six months later). Each model included three predictors: mean levels of positive emotions, mean levels of negative emotions, and the baseline level of the outcome variable.

Results

Hypothesis 1 – Effect of Positive Emotions and Negative Emotions on Session Outcome

Descriptive statistics for the variables used in the multi-level modeling are presented in Table I, and the results of the models for predicting the SEQ-D and SRS scores are presented in Table II. Positive emotions experienced during the session were significantly associated with higher SEQ-D and SRS scores, even when negative emotions were included in the model. Negative emotions had a nonsignificant effect on both SEQ-D and SRS scores. These findings suggest that positive emotions play an important role in predicting the extent to which patients perceive the quality of the session and the strength of the therapeutic relationship, independent of negative emotions.

Hypothesis 2 – Lagged Effect of Positive Emotions on Functioning in the Following Week

The results of the Cross-Lagged Panel Model (CLPM) analysis are presented in Table III. More positive emotions experienced during a given session predicted better functioning during the following week. Additionally, there was a significant autoregressive effect for both ORS and positive emotions, showing that each variable predicted itself at the next time point. Repeating the CLPM analysis for negative emotions, we found no cross-effects between negative emotions and functioning during the following week.

Table I. Means, standard deviations, intercorrelations and range of session-by-session variables.

Variable	*M*	*SD*	Range	1	2	3	4
1. SRS	37.1	4.7	15–40	—			
2. SEQ-D	5.9	0.9	2.4-7	.63***	—		
3. ORS	24.2	9.5	0–40	.20***	.29***	—	
4. mDES-*P*	2.1	1.0	0–4	.40***	.57***	.59***	—
5. mDES-N	0.8	0.7	0–4	−.25***	−.26**	−.33***	−.50***

Note. SRS, Session Rating Scale; SEQ-depth, Session Evaluation Questionnaire; ORS, Outcome Rating Scale; mDES-*P*, Modified Differential Emotions Positive SubScale; mDES-N, Modified Differential Emotions Negative SubScale.
*$p < .05$.
**$p < .01$.
***$p < .001$.

Hypothesis 3 – Association Between Positive Emotions and Negative Emotions and Treatment Outcome

The descriptive statistics for the variables used in the regression models are presented in Table IV, and the results of all regression models are presented in Table V. These results show that more positive emotions during the entire course of treatment (mean of all sessions) predicted improvements in BDI and IIP-32 scores, but not GSI scores, at post-treatment. More negative emotions during the entire course of treatment predicted worsening GSI and BDI, but not on the IIP-32. Concerning the outcome measures at 6-month follow-up, neither positive emotions nor negative emotions had a significant effect on any of the outcome measures.

Discussion

The objective of this study was to investigate the relationship between positive emotions experienced during AEDP and immediate session outcomes, functioning during the following week, and overall treatment outcomes. To the best of our knowledge, this study is the first to examine these associations on a session-by-session basis and in the context of a dynamically informed emotion-focused approach. The findings showed that when patients reported experiencing more positive emotions in a given session, they also perceived the session to be deeper and more valuable, and their relationship with the therapist to be better, even after controlling for negative emotions. More positive emotions in a given session also predicted better functioning during the subsequent week (this was not the case for negative emotions), and better functioning predicted more positive emotions in the following session. Finally, positive emotions during the entire treatment predicted improvements in depressive symptoms and interpersonal functioning (not GSI). Negative emotions predicted worsening in GSI and BDI-II scores. Neither positive nor negative emotions were associated with any of the outcome variables at the 6-month follow-up assessment point.

Table II. Parameter estimates for negative emotions and positive emotions predicting session outcome measured with the Session Rating Scale and Session Evaluation Questionnaire-Depth Scale.

Fixed effect	Estimate	SE	df	*t* value	*p*
SRS					
Intercept	10.27	0.11	42.40	91.05	<.0001
Positive emotions	0.54	0.08	29.16	6.2	<.0001
Negative emotions	−0.21	0.12	30.79	−1.78	0.09
SEQ- D					
Intercept	5.93	0.09	43.93	63.23	<.0001
Positive emotions	.50	0.05	74.9	10.73	<.0001
Negative emotions	−0.04	0.07	25.17	0.5	0.62

Note. SRS, Session Rating Scale; SEQ-D, Session Evaluation Questionnaire-Depth.
All predicting variables are mean-centered.

Table III. Autoregressive and lagged effects between positive emotions and functioning and autoregressive and lagged effects between negative emotions and functioning.

	Effect	*SE*	*z*-value	*P*
Autoregressive and lagged effects between positive emotions and functioning				
$ORS_{i-1} \rightarrow ORS_i$	0.46	0.04	11.72	0.000
mDES-$P_{i-1} \rightarrow ORS_i$	2.23	0.38	5.93	0.000
$ORS_{i-1} \rightarrow$ mDES-P_i	0.007	0.004	1.87	0.061
mDES-$P_{i-1} \rightarrow$ mDES-P_i	0.62	0.04	16.2	0.000
Autoregressive and lagged effects between negative emotions and functioning				
$ORS_{i-1} \rightarrow ORS_i$	0.573	0.035	16.3	0.000
mDES-$N_{i-1} \rightarrow ORS_i$	−0.488	0.475	−1.03	0.305
$ORS_{i-1} \rightarrow$ mDES-N_i	−0.003	0.003	−1.14	0.253
mDES-$N_{i-1} \rightarrow$ mDES-N_i	0.517	0.037	13.81	0.000

Note. ORS, Outcome Rating Scale; mDES-*P*, Modified Differential Emotions Scale, positive emotions subscale; mDES-N, Modified Differential Emotions Scale, negative emotions subscale; i denotes the week the measure was completed by the patient.

Table IV. Means, standard deviations, intercorrelations, and distribution of outcome variables.

Variable	*M*	*SD*	Range	1	2	3	4
1. GSI	20.3	14.6	3–60	—			
2. BDIba	7.7	6.9	0–26	0.74***	—		
3. IIP-32	28.0	16.9	1–71	0.71***	0.57***	—	
4. mDES-*P*	2.1	0.7	0.8-3.6	−.43***	−0.55***	−0.49***	—
5. mDES-N negativeMNE	0.8	0.4	0.1-2.1	0.52***	0.51***	0.28	−0.47**

Note. SRS, Session Rating Scale; SEQ-depth, Session Evaluation Questionnaire; ORS, Outcome Rating Scale; mDES-*P*, Modified Differential Emotions Positive emotions subscale; mDES-N, Modified Differential Emotions Negative Emotions SubScale.

When patients reported more positive emotions in a given session, they also perceived the session to be more productive. This finding can be explained in several ways. The first explanation, consistent with the broaden-and-build theory and AEDP assumptions, emphasizes that processing positive emotions makes thought patterns more flexible, creative, integrative, and efficient (Fredrickson, 2013). According to AEDP, processing positive emotions, particularly those that arise after processing emotional pain, helps patients to experience and deepen a novel, more adaptive perception of themselves as capable, with more effective coping, and the therapeutic process is viewed as helpful. For instance, focusing on the felt relief after processing grief can help patients recognize the emotional burden that has been lifted, affirming that accessing pain was beneficial. Processing pride can help patients view themselves as brave and capable. These experiences, in turn, might lead the patient to perceive the session as meaningful and aligned with their therapeutic goals.

The association between SRS scores and experiencing positive emotions can be explained by the fact that the processing of some positive emotions that arise in the context of the therapeutic relationship, like gratitude, promotes awareness of feeling heard, seen, and helped by the therapist. This, in turn, strengthens the working alliance and the therapeutic bond. This explanation is consistent with Notsu et al. (2022), who found that positive emotions in AEDP sessions predict a stronger alliance in subsequent sessions. There might be other mechanisms involved that could explain what led patients to perceive the session as more productive, the alliance as better, and to experience more positive emotions. For example, it is possible that experiencing an important insight (or any other mechanism) may have led to more positive emotions, and to viewing the session as more productive.

Unlike positive emotions, negative emotions were not associated with session outcomes. The negative items in the mDES may include a mixture of negative unproductive emotions, such as stress and frustration, that often predict poor outcomes, and "negative" adaptive or productive emotions, such as sadness and anger that might predict positive outcomes (Pascual-Leone, 2018). Therefore, assessing them together as one construct as done using the mDES might cancel these contrasting effects, leading to no association between negative emotions and session outcomes. Moreover, the meaning

Table V. Parameter estimates for negative emotions and positive emotions predicting treatment outcome.

Parameter	GSI post-treatment	GSI 6 months follow-up	BDI post-treatment	BDI 6 months follow-up	IIP-32 post-treatment	IIP-32 6 months follow-up
Pre-treatment	−0.07	0.08	0.03	0.15	0.16	0.03+
(SE)	(0.08)	(0.09)	(0.1)	(0.13)	(0.12)	(0.15)
Negative emotions	15.24** (5.07)	3.71	5.02*	1.11	0.38	3.3
(SE)	−4.82	(6.74)	(2.21)	(2.91)	(3.31)	(4.61)
Positive emotions	(2.97)	−5.57	−3.78*	−2.75	−5.93**	−1.02
(SE)	45	(3.67)	(1.46)	(1.64)	(1.99)	(2.52)
Number of		34	45	34	45	34
Observations	0.28					
R^2 adj.		0.09	0.337	0.153	0.222	0.089

Note. GSI, Global Symptom Index; BDI, Beck Depression Index; IIP-32, Inventory of Interpersonal Problems – 32.
+$p < 0.1$.
*$p < 0.05$.
**$p < 0.01$.
***$p < 0.001$.

associated with some negative emotions can vary greatly from one patient to another. For instance, a session spent largely expressing anger and frustration might feel very unproductive for some patients, who may experience these emotions as old and familiar experiences of distress. However, for other patients, who might experience anger for the first time, this might feel new and productive. These possible processes might explain why negative emotions, as assessed by the mDES did not predict session outcomes.

Using CLPM, our second analysis showed that experiencing positive emotions during a session was associated with improved functioning in the following week. A possible explanation for this result is also grounded in Fredrickson's broaden-and-build theory of positive emotions (2001), which suggests that patients who experience more positive emotions during a session benefit from expanded cognitive and behavioral repertoires, enhanced personal resources, better coping mechanisms, and increased resilience (Fredrickson & Joiner, 2018). These factors could have contributed to better functioning in the week after the session. For example, since experiencing positive emotions is linked to improved session outcomes, a patient's sense of having had a beneficial session can foster feelings of hope and optimism. These feelings arise from the belief in the effectiveness of the therapeutic process. In turn, hope and optimism are associated with a greater sense of agency and stronger coping mechanisms (Snyder, 2002), which contribute to better functioning in the week following the session.

In addition, better functioning during the week was marginally associated ($p = 0.061$) with experiencing more positive emotions in the subsequent session. Even though this association is only marginally significant, and therefore should be interpreted cautiously, it might imply that the association between positive emotions and functioning is bidirectional. Indeed, the broaden-and-build theory of positive emotions describes "upward spirals," whereby the experience of positive emotions augments a person's resources and emotional well-being, which in turn brings about more positive emotions (Fredrickson & Joiner, 2018). For example, when patients experience pride and empowerment after expressing a previously avoided painful or vulnerable emotion, they might feel increased confidence in their ability to handle future emotional challenges, heightened self-esteem, and a stronger sense of self-efficacy, thereby improving self-view and decreasing depressive symptoms. Having an elevated self-view and self-confidence may lead to going out and meeting friends, acting more assertively when needed, feeling less dependent, or speaking more openly in social events, thus, improving interpersonal-related symptoms. Furthermore, the patient might feel better prepared and more motivated to confront other psychological challenges, which could lead to experiencing more positive emotions in subsequent interactions. Future studies using ecological momentary assessment before and after treatment can shed light on how treatment brings about these changes on a daily basis.

Finally, our third analysis showed that experiencing more positive emotions during the treatment was associated with improvements in depressive symptoms and interpersonal functioning. Continuing to rely on the broaden-and-build theory, these findings can be explained by the notion that the upward spiral between experiencing positive emotions and enhanced resources and coping abilities was repeated throughout the treatment, leading to a consolidation of the therapeutic gains, which in turn decreased depressive and interpersonal symptoms. Another explanation is based on the sequential model of emotional processing (Pascual-Leone, 2018), which suggests that the processing of adaptive emotions is followed first by a sense of relief and then by a phase of symbolization and meaning-making. According to AEDP theory, this meaning-making phase brings positive emotions, which encourage more reflection and meaning-making, creating a positive feedback loop of positive emotions, reflection, and meaning construction. This cycle of positive emotions enhances the benefits of processing the original, adaptive emotions (Fosha & Thoma, 2020).

Previous studies have shown positive emotions are negatively correlated with depression (Bean et al., 2022; Khazanov & Ruscio, 2016) and positively correlated with better interpersonal relationships (Matthews et al., 2016). Importantly, interventions that upregulate the positive emotions system reduce depression symptoms (Chen et al., 2024; Taylor et al., 2017). Thus, it is suggested that processing positive emotions during therapy activates the positive emotional system, increases positive emotionality, thereby reducing depressive symptoms and enhancing social engagement.

In contrast to our hypothesis, positive emotions did not predict the GSI scores at the end of treatment. The GSI score is the sum of nine subscales of distinct symptoms, such as obsessive-compulsive thoughts and behaviors, phobic anxiety, and paranoid ideation. It is possible that positive emotions, as a change mechanism in psychotherapy, act differently in the case of different clusters of symptoms, being more significant for some, like depression, and less for others.

Although positive emotions were associated with the BDI and IIP-32 scores at the end of treatment, these associations were not sustained at the 6-month follow-up. A possible explanation for these findings is the decrease in statistical power because the number of observations available for our regression analysis dropped from 45 at the end of treatment to 34 at the 6-month follow-up. Another explanation might be that although positive emotions throughout the treatment are associated with reduced depressive and interpersonal symptoms, the average level of positive emotions during the entire process may not be a good predictor of maintaining these outcomes. Instead, it is suggested that only the positive emotions experienced during the later stages of treatment are associated with consolidating and sustaining the benefits of the treatment.

The findings of this study should be interpreted in the context of several limitations. First, our statistical analysis is based on regression models which reveal an association between positive emotions and session outcome (hypothesis 1) and treatment outcome (hypothesis 3) but do not determine the causal relations between them, do not establish time precedence, and do not rule out a third process as the reason for this association. It is only the cross-lagged panel model analysis (hypotheses 2) that shows that positive emotions prospectively predict changes in functioning in the following week, enabling preliminary causal inference (Falkenstrom et al., 2020) as evidence for positive emotions being a change mechanism (Kazdin, 2007). Second, the moderate sample size in this study limited the statistical power, especially regarding the effects of positive and negative emotions on follow-up outcome scores. Third, this study lacks measurement of adaptive (productive) negative emotions. Existing theories distinguish maladaptive negative emotions, such as blaming anger, shame, and fear, from adaptive ones, like assertive anger or sadness of grief (Pascual-Leone, 2018). However, the mDES negative emotion subscale does not differentiate between maladaptive and adaptive expressions of negative emotions. Since AEDP emphasizes processing positive emotions after processing negative adaptive emotions (Fosha et al., 2019), it is likely that this key process was not captured by the mDES. Future studies should measure the impact of both maladaptive and adaptive negative emotions, in addition to positive emotions. Fourth, the study relied on self-report measures for emotional experiences during sessions. Self-reports can be inaccurate due to memory limitations and other cognitive biases. To improve internal validity, future research should use more objective, observer-based measures that can track emotional processes on a minute-by-minute basis. Finally, while AEDP's focus on enhancing and processing positive emotions is a strength when exploring positive emotions as a change mechanism in psychotherapy, it also limits the generalizability of our findings to other therapy models. In other words, the role of positive emotions might be different or even less significant in other approaches.

Conclusion

This study provides initial findings suggesting that positive emotions may serve as an important ingredient in AEDP and perhaps in other approaches as well. Our findings showed that when patients reported experiencing more positive emotions in the session, they perceived the session as more productive and reported functioning better during the following week. Positive emotions during the entire treatment predicted improvements in depressive symptoms and interpersonal functioning. Although alternative explanations cannot be ruled out, these findings suggest that positive emotions, independent of negative emotions, may help patients broaden their thinking, feel more empowered, and may enable resourcefulness and other positive emotional gains.

Funding

This work was supported by Azrieli Israel Center for Addictions and Mental Health; Nira Shenhar Scholarship for Outstanding Doctoral Students from the Paul Baerwald School of Social Work and Social Welfare.

Disclosure Statement

No potential conflict of interest was reported by the author(s).

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