Incremental Validity of the Dutch Anxiety Change Expectancy Scale and Treatment Utility of Expectancy Instruments

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Abstract

Meta-analytically, clients' expectations about psychological treatment influence therapy outcomes. However, psychometric properties of expectancy measures are often insufficient and the expectancy concept is used inconsistently. This study investigated the predictive and incremental validity of the Dutch Anxiety Change Expectancy Scale (ACES-NL), which measures these expectations. To enable the important step from research to clinical practice, the treatment utility of expectancy instruments was also examined. Thirteen participants and their therapists completed questionnaires concerning expectancy and related concepts before and after treatment, and after each session. The results indicated that the ACES-NL could not predict post-treatment symptoms over pre-treatment symptoms, hope, and credibility. Expectancy did not predict therapy outcome at any point in treatment. In addition, clients' expectations seemed stable during treatment, related mostly to satisfaction with therapy sessions, and became more concordant with therapists' expectations over time. Although more research is needed, based on these results, the predictive and incremental validity of the ACES-NL and the treatment utility of expectancy instruments seemed insufficient.

Common or nonspecific factors are present in every kind of psychotherapy and form a theory about change mechanisms in psychological treatment (Mulder, Murray, & Rucklidge, 2017). Expectancy, a common factor, concerns the expectations clients have regarding psychological treatment and its outcome. It seems an important factor to assess for a combination of reasons. To start with, expectancy is known to predict therapy outcomes. In recent studies, positive expectations were related to symptom change (e.g., Kim, Roth, & Wollburg, 2015). In addition, expectancy is described as a state measure that is subject to change (Dozois & Westra, 2005). It varies, for example, depending on the provided treatment rationale (Kazdin & Krouse, 1983). Furthermore, Constantino, Arnkoff, Glass, Ametrano, and Smith (2011) identified techniques therapists could use to improve expectancy, for example, making personalized comments that reinforce expectations or revealing positive research results. In conclusion, clients' expectations regarding psychological treatment are important to assess because they might be changed with certain interventions to improve treatment outcome.

Historically, several common factor models featuring expectancy have been described. One of them is Bandura's (1982) self-efficacy model, which posits that optimistic treatment expectations could enhance perceived self-efficacy, which helps clients to undertake positive actions. In addition, Frank's remoralization theory states that clients come to therapy demoralized, without spirit or courage, because they have frequently attempted to overcome

their psychological problems without success. It is stated that demoralized clients "cannot experience anticipatory pleasure" (De Figueiredo, 2007, p. 130). Thus, demoralized clients do not expect to benefit from positive events in the future. Psychological treatment is a process in which clients become remoralized. In conclusion, the concept of expectancy is visible in several common factor theories.

More recently, Wampold (2015) developed another common factor theory that updated the importance of common factors. According to his contextual model, psychological treatment operates along three pathways – the real (therapeutic) relationship, expectations, and specific ingredients – that all help establish positive outcomes. Expectancy specifically might impact treatment outcome because psychological treatment provides clients with an effective explanation for their problems. Crucial to this theory is that through this explanation, clients begin to believe that they will learn to cope with their problems during therapy. This, in turn, fosters the expectancy of being able to do this. In summary, the expectancy of being able to change might bring about part of the real change (Stewart-Williams & Podd, 2004).

Although meta-analytically, expectancy seems to exert a significant influence on therapy outcome (Constantino et al., 2011), many studies have not found support for this effect. For instance, Glass, Arnkoff, and Shapiro (2001) concluded that 12 out of 24 reviewed studies reported mixed or null-findings regarding the relationship between expectancy and treatment outcome. These differences in study results might have arisen because expectancy measures often show insufficient psychometric properties (Delsignore & Schnyder, 2007; Van der Sterren-Kusters, Smit, Van der Heijden, & Egger, 2017). The initial well-known expectancy questionnaire, the Treatment Expectancy Scale (TES; Borkovec & Nau, 1972), and questionnaires based on the TES, are still the most used ones. This could be problematic because researchers frequently do not differentiate between the credibility (which is the believability of treatment) and expectancy scale. Furthermore, a number of studies report self-created, and/or one-item measures that are not validated (Van der Sterren-Kusters, Smit et al., 2017). In conclusion, inconsistencies in the expectancy literature might be partly due to the low psychometric qualities of questionnaires.

A relatively newer expectancy questionnaire is the Anxiety Change Expectancy Scale (ACES; Dozois & Westra, 2005). This 20-item questionnaire was translated into Dutch (ACES-NL) by Van der Sterren-Kusters, Van der Heijden, and Egger (2017). Both the English and the Dutch versions have favorable psychometric properties. The one-factor structure is supported for both versions, and internal consistency varies from .89 to .92. In addition, the ACES-NL correlates with related questionnaires and does not correlate with

unrelated questionnaires. However, whereas the predictive validity was found to be adequate for the English version, it has not yet been systematically researched for the Dutch version. Therefore, the first goal of this study is to obtain additional insight on the psychometric properties of the ACES-NL by examining its predictive validity. Specifically, this study examines to what extent the ACES-NL predicts symptom reduction. This is important because measuring expectancy in a psychometrically sound way could make the development and implementation of an expectancy intervention, that might improve symptoms, easier.

The null-findings in the expectancy literature could also have arisen because the expectancy concept is often used inconsistently (Van der Sterren-Kusters, Smit et al., 2017). The ACES primarily focuses on efficacy expectancy (EE), which is defined as "a belief about one's ability to successfully perform a behavior" (Maddux, Sherer, & Rogers, 1982, p. 207) and is based on Bandura's self-efficacy theory. This is distinguished from outcome expectancy (OE; Dozois & Westra, 2005), which is defined as "patients' prognostic beliefs about the consequences of engaging in treatment" (Constantino et al., 2011, p. 184). The relation between OE and EE is not fully understood; however, they seem intertwined because both refer to the consequences of engaging in certain behavior. Efficacy expectancy should also be distinguished from hope and treatment credibility, which are seemingly overlapping but not equivalent concepts (Van der Sterren-Kusters, Smit et al., 2017). Hope is a desire, and although a client may hope for a good treatment outcome, he or she may expect that nothing good will result from it (Montgomery, David, DiLorenzo, & Erblich, 2003). Treatment credibility concerns the convincibility and believability of psychological treatment (Devilly & Borkovec, 2000). To investigate whether the ACES-NL also predicts treatment outcome when controlling for these related variables, the second goal of the current study is to investigate the incremental validity of the ACES-NL (EE), which is the predictive validity over and above the predictive values of OE, hope, and credibility.

As mentioned, expectancy interventions could be used to augment expectancy and improve treatment outcome (Constantino et al., 2011). Although research has focused on theoretical aspects of expectancy, not much is known about how therapists in clinical practice could intervene for expectancy scores below or above average, as detected by questionnaires. This relates to the treatment utility of expectancy instruments. Hayes, Nelson, and Jarrett (1987) referred to treatment utility as "the degree to which assessment is shown to contribute to beneficial treatment outcome" (p. 963). This will be partly examined in this study by researching the predictive and incremental validity of the ACES-NL, but research should now take this one step further and start to focus on how to use expectancy measures in order to

actively improve treatment outcome. This study will take a first step in this process by examining how clients' expectations develop over treatment and if they are related to clients' satisfaction concerning therapy sessions, clients' general functioning in the past week, and therapists' expectations. Research has shown that input from clients concerning satisfaction and functioning can improve treatment results (Janse, Boezen-Hilberdink, Van Dijk, Verbraak, & Hutschemaekers, 2014). Therapists' expectations are also linked to better treatment results (Martin, Hunter, Guhr, & Acree, 1977). By examining the course of expectancy over treatment, it might be possible to determine when an expectancy intervention would be most helpful. By examining what factors are related to expectancy, the content of such an intervention could be determined.

In conclusion, the first question of the current study concerns the predictive validity of the ACES-NL. Because clients' expectations have been found to predict treatment outcome (Constantino et al., 2011), higher pre-treatment ACES-NL (EE) scores are hypothesized to predict lower post-treatment symptoms. The second question of this study concerns the incremental validity of the ACES-NL. Because only medium negative correlations between the ACES-NL and hopelessness (Van der Sterren-Kusters, Van der Heijden, & Egger, 2017), and medium positive correlations between OE and credibility (Devilly & Borkovec, 2000) have been found, it is expected that while EE is moderately related to these factors, it is a unique concept and does have a unique predictive value on treatment outcome. Specifically, it is expected that higher pre-treatment ACES-NL scores modestly predict lower post-treatment symptoms above the predictive value of these three related concepts. In order to begin to translate theoretical research results to clinical practice, the third question of this study concerns the treatment utility of expectancy measures: the course of expectancy over treatment and the factors related to expectancy. As expectancy is characterized as a state measure dependent on various factors (Dozois & Westra, 2005), it is hypothesized that expectancy scores fluctuate over the course of treatment and moderately cohere with measures for satisfaction, general functioning, and therapists' expectations.

Method

Participants

Each client who was included in standardized group treatment at Centiv, an outpatient mental healthcare facility working with standardized procedures, was asked to participate in this study. Every participant received treatment for panic disorder or social anxiety disorder.

These were also the primary diagnoses in addition to avoidant personality disorder and other specified anxiety disorder, based on the DSM-5. Common comorbid disorders were agoraphobia, depressive disorders, and personality disorders. Clients in six treatment groups with approximately seven participants each were included, and 45% of them agreed to participate. In sum, 19 clients agreed to participate. Five of them dropped out of treatment. The most common reason was a high burden of symptoms, which meant participants could not endure the group therapy. Some of them had to be consigned to a more specialized mental healthcare facility. Other reasons for dropout were aggression and pregnancy. One additional participant was excluded from the data analysis because of too much missing data. Thirteen participants were ultimately included in the analyses. Baseline demographic characteristics are shown in Table 1. Clients participated voluntarily in this study, received no payment for their participation, and completed an informed consent. Furthermore, this study was in full compliance with the Declaration of Helsinki and was approved by the Vincent van Gogh Institutional Review Board (protocol number EM/hl/2018.00.03).

Table 1

Demographic Variables

Demographics	Participants (N = 13)	Percentage	Mean (SD)
Gender			
Male	6	50.0	
Female	6	50.0	
No answer	1		
Age			35.25 (13.47)
Treatment group			
Panic disorder	7	53.8	
Social anxiety disorder	6	46.2	
Primary diagnosis			
Panic disorder	7	53.8	
Social anxiety disorder	4	30.8	
Avoidant personality disorder	1	7.7	
Other specified anxiety disorder	1	7.7	
Years of anxiety complaints			10.50 (7.99)
Number of previous treatments			2.30 (3.06)
Level of education			
University education	0	0	
Higher vocational education	2	16.7	
Intermediate vocational education	5	41.7	

Pre-university education	2	16.7
Higher general secondary education	1	8.3
Lower general secondary education	0	0
Special education	0	0
Primary school	2	16.7
No answer	1	
Marital status		
Single	5	41.7
In a relationship, not living together	1	8.3
Married or living together	6	50.0
Divorced	0	0
Widowed	0	0
No answer	1	
Employment		
Student	3	27.3
Unemployed	1	9.1
Fulltime working	4	36.4
Part-time working	0	0
Part-time working / on sick leave	2	18.2
Fulltime on sick leave	1	9.1
Retired	0	0
No answer	2	

Materials

Demographics. In a self-compiled questionnaire, participants stated their gender, age, mean years of anxiety complaints, number of initiated treatments for anxiety complaints, highest level of education, and marital, cohabitation, and employment statuses.

Anxiety Change Expectancy Scale. (ACES-NL; Dozois & Westra, 2005; Van der Sterren-Kusters, Van der Heijden, & Egger, 2017). The ACES-NL contains 20 multiple-choice items concerning expectations people have about overcoming anxiety symptoms. Answers are registered on a five-point Likert scale from strongly disagree (1) to strongly agree (5). Eleven items are reverse scored. Total scores may vary between 20 and 100, and scores approaching 100 point to higher expectations about anxiety. Test-retest reliability is .89, internal consistency is .91, and convergent and discriminant validity are sufficient (Van der Sterren-Kusters, Van der Heijden, & Egger, 2017).

Symptom Checklist-90. (SCL-90; Arrindell & Ettema, 1986; Derogatis, 1977). The SCL-90 consists of 90 closed-ended questions about various psychological and physical

complaints. Questions are registered on a five-point Likert scale from not at all (1) to very severe (5). Total scores can range from 90 to 450, and elevated scores point to severe psychopathology. The test-retest reliability ranges from .68 to .85, internal consistency ranges from .82 to .97, and convergent and discriminant validity are sufficient (Arrindell & Ettema, 1986).

Beck Hopelessness Scale. (BHS; Beck & Steer, 1988; Beck, Weissman, Lester, & Trexler, 1974; Dutch translation by Pearson Assessment and Information B.V.). The BHS measures hopelessness: pessimism and unfavorable perspectives regarding the future. The scale consists of 20 true-or-false items. Ten items are reverse scored. Total scores can range from 0 to 20, and higher scores indicate more hopelessness. Cronbach's alpha is .93, the concurrent validity with hopelessness ratings in a clinical setting is .74, and hypotheses about construct validity are confirmed (Beck et al., 1974).

Credibility/Expectancy Questionnaire. (CEQ; Devilly & Borkovec, 2000; Smeets et al., 2008). The CEQ measures the believability, convincibility, and expected improvements following treatment. The questionnaire consists of two factors: expectancy (CEQ-EXP) and credibility (CEQ-CRED). The original scale comprises six items, however, in order to additionally measure EE an item was added for this study. Items are closed-ended. Scores on five items range from not at all (1) to very much (9), and the other two items are scored on a 0 to 100 percentile scale with 10% intervals. Higher scores indicate higher credibility or expectancy. Cronbach's alpha ranges from .79 to .90 for expectancy, from .81 to .86 for credibility, and from .84 to .85 for the whole scale. Test-retest reliability was found to be .82 for the expectancy and .75 for the credibility scale (Devilly & Borkovec, 2000).

Expectancy of the therapist. (ET). Two items based on questions two and four of the CEQ were rewritten to the therapist perspective and used to measure their expectations about clients.

Session Rating Scale. (SRS; Asmus, Crouzen, & Van Oenen, n.d.; Duncan et al., 2003; Miller & Duncan, 2004). The SRS includes four questions concerning satisfaction with therapy sessions. These items are scored on visual analogue scales ranging from a low score on the left to a high score on the right side of the scale. By measuring the location of the cross participants drew on the line, scores per item could range from 0 to 10 with 0.1 millimetre intervals. Total scores could thus range from 0 to 40. The internal consistency ranges from .85 to .95, and test-retest reliability ranges from .48 to .72 over treatment. Correlations with another alliance questionnaire were found to be significant, and the SRS significantly predicted treatment outcome in sessions two and three (Janse et al., 2014).

Outcome Rating Scale. (ORS; Asmus, Crouzen, & Van Oenen, n.d.; Miller & Duncan, 2004; Miller, Duncan, Brown, Sparks, & Claud, 2003). The ORS contains four questions related to clients' general functioning in the past week. The scoring procedure for the ORS is the same as for SRS, which is mentioned above. Cronbach's alpha for the ORS ranges from .82 to .96, and test-retest reliability ranges from .57 to .69 over treatment. The ORS was found to correlate negatively with symptoms and was sensitive to change over treatment (Janse et al., 2014).

Procedure

Clients included in standardized group treatment at Centiv were contacted by a researcher via e-mail and/or telephone and asked to participate in this study. If they agreed, clients received the pre-treatment measurement at their postal address and/or were given the opportunity to complete this at the treatment location. The measurement included an information letter, informed consent, a demographics questionnaire, and the ACES-NL, SCL-90, BHS, and CEQ. Completing these questionnaires took on average 20 minutes. The information letter described the content of the study, and explicitly stated that participants were allowed to quit the study at any moment without providing a reason. It also included contact information of researchers to whom participants could reach out in case of questions. All questionnaires were saved at the treatment location in closed envelopes.

After each treatment session, participants completed the SRS, ORS, and CEQ. These were handed out by their therapist and thus completed in the presence of the therapist and fellow participants. Answering these questionnaires took on average two minutes per treatment session.

After treatment, participants received the post-treatment measurement with the ACES-NL, SCL-90, BHS, SRS, ORS, and CEQ. This measurement was handed out by a therapist at the end of the last session. Participants were given time to complete these measures at their treatment location in the presence of the therapist and fellow participants and/or were allowed to take the questionnaires home and mail them to the researchers. It took approximately 20 minutes to complete the post-treatment measurement.

Therapists provided the primary DSM-5 diagnosis and additional diagnoses at pre-treatment. In addition, they completed two questions about their expectancy concerning each participant after each session. Although dependent on the number of participants, answering these questions took on average two minutes per session.

Data analysis

It should firstly be noted that the very low sample size in combination with the number of predictors in this study is below all statistical rules. Power analysis with G*Power 3.1.9.2 indicated that 92 participants are pursued for a regression analysis with five predictors (effect size = .15, significance level = .05, power = .80). Statistical advisors were consulted for this issue, and it was decided to analyze this dataset for educational purposes while trying to solve the main statistical problems in the best way possible. Additionally, the data was visually inspected via graphs, and the low power was taken into account in the conclusions.

All raw data scores were entered into IBM SPSS Statistics 23. Firstly, reverse scored items were reversed. Subsequently, participants who missed the pre-treatment or post-treatment measurements, or three or more consecutive measuring moments were deleted from the data file. For the remaining 13 participants, the scores from the CEQ were transformed into z-scores because items are scored on different scales (Devilly & Borkovec, 2000). Next, mean imputation was used to replace single missing values on questionnaires, and total scores were calculated. To account for intermittent missing data (from participants who missed a few sessions), composite scores for the CEQ-EXP, ET, SRS, and ORS were calculated for sessions one to three (block 1), four to six (block 2), and seven to nine (block 3).

Next, assumptions were analyzed (StatisticsSolutions, n.d.). Based on the interquartile range rule of three, no outliers were detected. Scatterplots of the post-treatment SCL-90 scores on all independent variables showed the assumption of linearity was met. However, variance inflation factors (VIF) exceeded 10 for the pre-treatment (VIF = 13.931), block 2 (VIF = 29.369), and block 3 (VIF = 28.524) CEQ-EXP scores, which implies the assumption of no multicollinearity was violated. The paragraphs below detail how this was addressed. Furthermore, normal P-P plots of regression standardized residual and scatterplots of regression standardized residual on the regression standardized predicted value of the dependent variable showed the assumptions of normality and homoscedasticity were seemingly heading in the right direction. However, assessing assumptions for analyses with small sample sizes is problematic. Therefore, conclusions should be considered with caution.

To test the predictive validity of the ACES-NL, a hierarchical regression analysis was conducted with the pre-treatment SCL-90 scores as a predictor in the first model. The pre-treatment ACES-NL scores were added as a predictor in the next model. The dependent variable was the post-treatment SCL-90 scores. To test the incremental validity of the ACES-NL, the first analysis was repeated with an extra model between the two original ones. In this model the pre-treatment CEQ-CRED and BHS scores were added as predictors. It was

intended to also include the pre-treatment CEQ-EXP scores however, due to multicollinearity, this variable had to be removed. In addition, means, standard deviations, and Spearman's correlations with bootstrapping for these variables are reported in Appendix 1, Tables 2 and 3. Spearman's correlations are nonparametric, thus independent of assumptions, and bootstrapping is often used for analyses with small sample sizes (Adèr & Mellenbergh, 2008).

To investigate the course of expectancy over treatment, performance of a multiple linear regression analysis with the three CEQ-EXP blocks on the post-treatment SCL-90 scores was intended. For the strongest predictor, a second regression analysis would have been performed with that CEQ-EXP, ET, SRS, and ORS block to determine what factors are related to expectancy. However, due to multicollinearity, the results of these analyses would not have been reliable. Therefore, the best option seemed to perform four regression analyses. Firstly, post-treatment SCL-90 scores were predicted from pre-treatment SCL-90 scores, and the unstandardized residuals of the dependent variable were saved. Next, a second regression analysis was performed with the first CEQ-EXP block as a predictor and the residuals of the post-treatment SCL-90 scores as a dependent variable. The residuals were again saved. The procedure was repeated for the second and third CEQ-EXP blocks. By using residuals, the overlapping explained variance of the independent variables was removed. Additionally, means, standard deviations, and Spearman's correlations with bootstrapping were reported for the CEQ-EXP, ET, SRS, and ORS blocks (Appendix 1, Tables 4 and 5), and lines were plotted for these variables over time for each participant (Appendix 2). All analyses were non-experimental and all variables were quantitative.

Results

As noted, the researchers were aware that the small sample size was below statistical rules, and the results are displayed for educational purposes. Results and conclusions should be interpreted with great caution.

A hierarchical regression analysis was conducted in which post-treatment SCL-90 scores were predicted out of pre-treatment SCL-90 and ACES-NL scores. The first model, including the pre-treatment SCL-90 scores, was significant ($F(1,10) = 18.367$, $p = .002$, adjusted $R^2 = .612$). Elevated pre-treatment SCL-90 scores cohered with elevated post-treatment SCL-90 scores ($t(10) = 4.286$, $p = .002$, b = 0.801). The second model, including the pre-treatment SCL-90 and ACES-NL scores, was also significant ($F(2, 9) = 8.379$, $p = .009$, adjusted $R^2 = .573$). Elevated pre-treatment SCL-90 scores cohered with elevated post-treatment SCL-90 scores ($t(9) = 3.527$, $p = .006$, b = 0.773). The regression coefficient of the

ACES-NL scores was nonsignificant. The increase in proportion explained variance from the first to the second model was nonsignificant (F change (1, 9) = 0.080, p = .784, R^2 change = .003).

A second hierarchical regression analysis was conducted in which post-treatment SCL-90 scores were predicted out of pre-treatment SCL-90, BHS, CEQ-CRED, and ACES-NL scores. The first model was identical to the first model in the first analysis. The second model, including the pre-treatment SCL-90, BHS, and CEQ-CRED scores, was significant (F(3, 8) = 5.686, p = .022, adjusted R^2 = .561). All regression coefficients were nonsignificant. The increase in proportion explained variance from the first to the second model was nonsignificant (F change (2, 8) = 0.417, p = .673, R^2 change = .033). The third model, including the pre-treatment SCL-90, BHS, CEQ-CRED, and ACES-NL scores, was not significant (F(4, 7) = 4.065, p = .052, adjusted R^2 = .527). The increase in proportion explained variance from the second to the third model was also nonsignificant (F change (1, 7) = 0.426, p = .535, R^2 change = .018).

The linear regression analysis including the pre-treatment SCL-90 scores as a predictor and the post-treatment SCL-90 scores as a dependent variable was significant (F(1, 11) = 20.487, p = .001, R^2 = .651). Increased pre-treatment SCL-90 scores cohered with increased post-treatment SCL-90 scores (t(11) = 4.526, p = .001, b = 0.812). The proportion explained variance of the second regression analysis, including the first CEQ-EXP block as a predictor and the residuals of the post-treatment SCL-90 scores as a dependent variable (R^2 = .229), was not significantly greater than zero (F(1,11) = 3.271, p = .098). However, this is regarded a strong coherence, which might suggest that the nonsignificant result is a consequence of the small sample size (Ellis, 2016). The third and fourth regression analyses in which the second and third SCL-90 residuals were predicted from the second and third CEQ-EXP blocks were nonsignificant (F(1,11) = 0.020, p = .889, R^2 = .002 and F(1,11) = 0.072, p = .793, R^2 = .007).

Discussion

The current study examined the predictive and incremental validity of the ACES-NL. By taking this an important step further and combining it with a focus on the treatment utility of expectancy instruments, this study intended to begin to translate research on these measures to clinical practice. It is important to note that the results of this study and any inconsistencies with previous literature could be due to the very small sample size. With regard to predictive validity, pre-treatment ACES-NL scores were hypothesized to predict post-treatment symptoms. While pre-treatment symptoms cohered with post-treatment symptoms, the ACES-

NL did not significantly improve the prediction. With regard to incremental validity, pre-treatment ACES-NL scores were also hypothesized to predict post-treatment symptoms above the predictive value of OE (outcome expectancy), hope, and credibility. The results showed that hope and credibility did not significantly influence post-treatment symptoms above the predictive value of pre-treatment symptoms. The ACES-NL again did not significantly improve the prediction. If these results are replicable, it might be concluded that the predictive and incremental validity of the ACES-NL are insufficient, at least for treatments regarding panic disorder and social anxiety disorder.

Due to a very high positive correlation between the ACES-NL (EE) and the CEQ (OE), the CEQ could not be included in the analyses. As mentioned in the introduction, the expectancy concept is often used inconsistently (Van der Sterren-Kusters, Smit et al., 2017). The results of this study could imply that OE and EE (efficacy expectancy) are not very different from each other and might even measure the same underlying construct. This is in line with Greenberg, Constantino, and Bruce (2006), who listed EE as a specific form of OE. Furthermore, the ACES-NL displayed a high negative correlation with hopelessness and a high positive correlation with credibility, although not as high as with OE. All variables were, however, not predictive of treatment outcome.

The results from the first two analyses are inconsistent with previous literature. Dozois and Westra (2005) concluded that the English version of the ACES showed good predictive and incremental validity. This discrepancy in results might be due to the different outcome measures used. Whereas Dozois and Westra (2005) used outcome measures related to anxiety symptoms, the current study used the broad SCL-90. Although the SCL-90 might better capture comorbidity, it might not represent (anxiety) symptoms as accurately as a symptom-specific measure. Therefore, the prediction of the ACES-NL, an expectancy measure regarding anxiety symptoms, on SCL-90 scores might not be optimal. Another explanation for the discrepancy in results might be different participant characteristics. Whereas the study of Dozois and Westra (2005) only included clients with generalized anxiety disorder, the current study mainly included clients with panic disorder and social anxiety disorder. Furthermore, in the study of Dozois and Westra (2005), 21% of the participants were male, whereas in the current study, 50% of the participants were male. In some areas of research, men have been found to be more unrealistically optimistic than women, for example regarding marriage and divorce (Lin & Raghubir, 2005). If men are also unrealistically optimistic regarding EE, their expectancy might not accurately predict symptom reduction.

Next, it was intended to begin to focus on the treatment utility of expectancy instruments by investigating the best moment to implement (course of expectancy over treatment) and the content (factors related to expectancy) of an expectancy intervention. It was hypothesized that expectancy would fluctuate over treatment and would moderately cohere with satisfaction, general functioning, and therapist expectancy. The results indicated that expectancy did not predict symptom reduction at any point in treatment. It is therefore impossible to determine a time point at which expectancy could be most effectively influenced. However, expectancy scores were highly positively correlated during treatment, and graphs showed expectancy to be stable. Therefore, it can be cautiously concluded that expectancy does not change much over treatment. This is not in line with the fact that expectancy is considered a state measure, that is, variable over time (Dozois & Westra, 2005). However, expectancy correlated strongly and positively with satisfaction with therapy sessions at every time point. In addition, graphs and means showed that satisfaction was also relatively stable. If expectancy is, as hypothesized, dependent on satisfaction, the stability of satisfaction might have accounted for the stability of expectancy. This could, however, not be analyzed due to multicollinearity. Further research is thus needed.

Next to a high correlation with satisfaction, expectancy highly positively correlated with general functioning early in treatment. Client expectancy also highly positively correlated with therapist expectancy late in treatment, whereas earlier in treatment this correlation was medium or low. Graphs also seemed to indicate that client and therapist expectancy became more concordant later in treatment. The low correlation between client and therapist expectancy early in treatment is in line with previous research of Bronner and Everett (1982). They concluded that pre-treatment audiotapes including high, low, or no therapist expectancy did not influence pre-treatment client expectancy. In addition, in the current study, therapist and client expectancy became more concordant as treatment progressed. This could be due to an effect like the Pygmalion effect in education. This effect implies that a teacher's expectancy leads to subtle changes in behavior toward students, which in turn influences these students' expectations about themselves. Over time, this leads to students performing in accordance with their teacher's expectations (Rosenthal & Jacobson, 1968). Thus, in the beginning of treatment, client expectancy could be mostly linked to satisfaction and general functioning. Later, it might become concordant with therapist expectancy because therapists act on their expectations through subtle changes in behavior. This might lead to clients altering expectations about themselves accordingly. Over time, this might even influence their performance.

This study has several limitations, the most important one being the small sample size. This is mostly due to time constraints and the inherent constraints of clinical research. One factor that depends on sample size is statistical power, which means rejecting a false null hypothesis (Cohen, 1992). A very small sample size leads to a lower power and thus a lower chance of finding a true significant effect. Because the predictive value of the ACES-NL in this study was nonsignificant, the low power could mean that a significant effect exists but the statistical test failed to detect this. This is conceivable because of the strong coherence between expectancy in the beginning of treatment and symptoms, and because meta-analytic research has found a small significant effect of expectancy on treatment outcomes (Constantino et al., 2011). Therefore, it is important that further research replicates this study with additional participants.

Other limitations of this study might be self-selection bias, response biases, and different circumstances when answering questionnaires. With regard to self-selection bias (Bethlehem, 2010), a number of clients that were selected for the study did not want to participate. The most common reason for this was a high burden of symptoms. It is therefore conceivable that clients that did not participate were different from those who did with regard to symptom severity. Furthermore, the use of self-report measures could lead to response biases, which means answering questions independent of the content of the items (McDonald, 2008). Socially desirable responding might have occurred in the current study especially for the SRS, which measured clients' satisfaction with treatment sessions. Means for the SRS were on the high end of the spectrum, and the graphs were relatively stable. Because therapists were present when clients completed this questionnaire, they might have felt obliged to respond positively. Lastly, the pre-treatment and post-treatment measurements were sometimes completed at home due to a lack of time at the treatment location. Therefore, circumstances for answering the measurements differed for the participants, which might have impacted data quality (Bowling, 2005). Because of these limitations, conclusions of the current study should be interpreted with caution.

Keeping in mind the limitations, this study has several theoretical implications. Firstly, it adds to the literature about the validation of the ACES-NL. As noted in the introduction, the English version of the ACES displays good psychometric properties (Dozois & Westra, 2005). The ACES-NL also displays good reliability and convergent and discriminant validity. Although further research is needed, it might be concluded from this study that the ACES-NL does not display adequate predictive and incremental validity. In addition, if the results of this study are replicable, expectancy seems relatively stable over time. Although this could be due

to the stability of related factors, it might also imply that expectancy is not a variable state measure, but rather a stable trait measure or a combination of both. For anxiety, both trait anxiety and state anxiety are important in determining a person's current anxiety (Endler & Kocovski, 2001). It is possible that the participants were predisposed to have a certain expectancy level, which was measured in this study. Lastly, with regard to conceptualization, the distinction between OE and EE might be more theoretical rather than practical. The differentiation from hope and treatment credibility seems necessary.

In addition to these theoretical implications, this study also has practical implications. Especially by investigating the treatment utility of expectancy instruments, it was intended to take some first steps in translating these measures from theoretical research to clinical practice. It seemed, however, that expectancy did not influence symptoms at any point in treatment. Intervening on clients' efficacy and outcome expectations, as measured with questionnaires, might not be very useful. Nonetheless, if expectancy depends on other factors such as satisfaction and the therapist's expectancy late in therapy, it might be more helpful to influence these factors. Therapists could try to improve clients' satisfaction with therapy sessions or could try to bolster their own expectations. On the contrary, the most important predictor of post-treatment symptoms in this research seemed to be pre-treatment symptoms. Therefore, one could argue that it might be more helpful to use treatment-specific factors that specifically target these symptoms rather than the common factor of expectancy. However, due to limitations of this study, these practical implications should be investigated in further research.

First and foremost, further research should try to replicate this study with more participants. This could be achieved by including more outpatient mental healthcare facilities working with standardized procedures. Because the power was low in this study, including more participants might reveal hidden significant effects (Cohen, 1992). This would, of course, change the theoretical and practical implications. If this were the case, follow-up research could further focus on the treatment utility of expectancy instruments by investigating how therapists could actively improve expectancy based on questionnaire results. However, based on the current results, further research could investigate how factors strongly related to expectancy, such as satisfaction with treatment sessions and therapist expectancy, influence treatment outcome. For example, the experiment of Rosenthal and Jacobson (1968) could be recreated in psychological treatment in order to find out if the Pygmalion effect also exists in psychology. Specifically, it could be investigated whether randomly creating positive expectations for therapists concerning some clients would change

these clients' expectations in the same direction. Furthermore, it might be investigated whether this leads to symptom reduction over a more extensive period of time. Moreover, further research could investigate whether other forms of expectancy could better predict treatment outcome than OE or EE, and whether the ACES-NL could predict other variables such as dropout from treatment.

In summary, this study showed that the predictive and incremental validity of the ACES-NL might be insufficient. Furthermore, expectancy seems fairly stable over time and correlates mostly with satisfaction concerning therapy sessions and therapist expectancy late in treatment. However, expectancy did not predict symptoms at any time point. Although replicating these results with a larger sample size is necessary, if the same results follow from this replication, the most important conclusion seems to be that the clinical utility of expectancy instruments could be insufficient. Thus, intervening on clients' expectations as detected with questionnaires in clinical practice might not be helpful and further research should focus on other factors influencing treatment outcome.

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Appendix 1

Table 2

Means and Standard Deviations for the Hierarchical Regression Analyses

Variable	Mean	SD
preSCL90	208.205	71.203
preCEQ-CRED	0.000	0.809
preCEQ-EXP	-0.094	0.952
preBHS	9.325	4.779
preACES	64.417	14.164
postSCL90	186.119	71.705

Note. SD = standard deviation, preSCL90 = pre-treatment SCL-90 scores, preCEQ-CRED = pre-treatment credibility scores of the CEQ, preCEQ-EXP = pre-treatment expectancy scores of the CEQ, preBHS = pre-treatment BHS scores, preACES = pre-treatment ACES scores, postSCL-90 = post-treatment SCL-90 scores

Table 3

Spearman's Correlations with Bootstrap for the Hierarchical Regression Analyses

Variable	preSCL90	preCEQ-CRED	preCEQ-EXP	preBHS	preACES	postSCL-90
preSCL-90	1	-.158	-.510	.703*	-.379	.524
preCEQ-CRED	-.158	1	.813*	-.378	.742*	-.158
preCEQ-EXP	-.510	.813*	1	-.510	.810*	-.562
preBHS	.703*	-.378	-.510	1	-.509	.428
preACES	-.379	.742*	.810*	-.509	1	-.288
postSCL-90	.524	-.158	-.562	.428	-.288	1

Note. preSCL90 = pre-treatment SCL-90 scores, preCEQ-CRED = pre-treatment credibility scores of the CEQ, preCEQ-EXP = pre-treatment expectancy scores of the CEQ, preBHS = pre-treatment BHS scores, preACES = pre-treatment ACES scores, postSCL-90 = post-treatment SCL-90 scores, * = significance based on the confidence interval, a value was considered significant when both scores of the confidence interval where either negative or positive

Table 4

Means and Standard Deviations for the CEQ-EXP, ET, SRS, and ORS Blocks

Variable	Mean	SD
EC1	0.053	0.826
EC2	0.009	0.864
EC3	0.060	0.925
ET1	57.692	17.408
ET2	61.539	19.643
ET3	61.667	19.305
SRS1	31.003	8.042
SRS2	31.499	7.193
SRS3	31.290	7.897
ORS1	24.015	10.594
ORS2	26.019	9.968
ORS3	28.200	9.111

Note. SD = standard deviation, EC1 = block 1 CEQ-EXP scores, EC2 = block 2 CEQ-EXP scores, EC3 = block 3 CEQ-EXP scores, ET1 = block 1 expectancy therapist scores, ET2 = block 2 expectancy therapist scores, ET3 = block 3 expectancy therapist scores, SRS1 = block 1 SRS scores, SRS2 = block 2 SRS scores, SRS3 = block 3 SRS scores, ORS1 = block 1 ORS scores, ORS2 = block 2 ORS scores, ORS3 = block 3 ORS scores

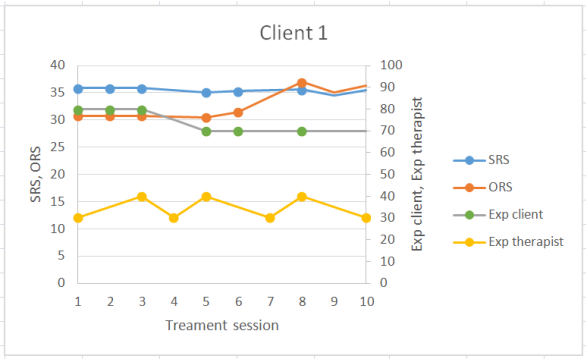
Table 5

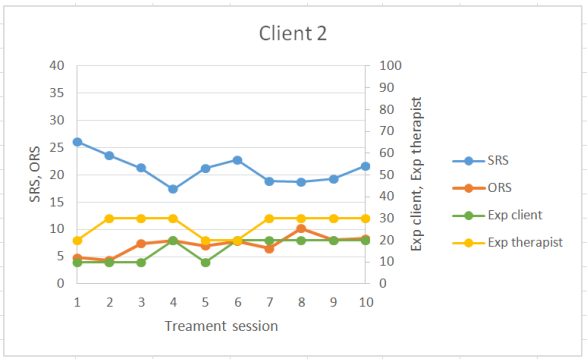
Spearman's Correlations with Bootstrap for the CEQ-EXP, ET, SRS, and ORS Blocks

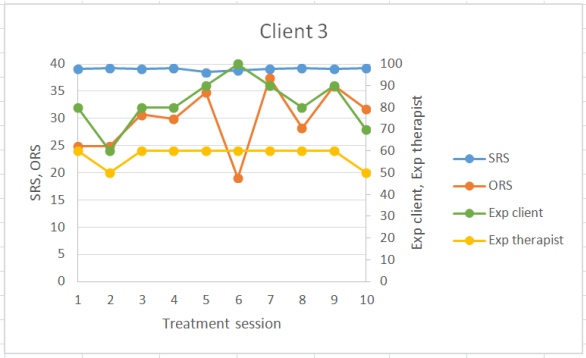
Variable	EC1	EC2	EC3	ET1	ET2	ET3	SRS1	SRS2	SRS3	ORS1	ORS2	ORS3
EC1	1	.808*	.791*	.288	.365	.570	.632	.626	.659*	.560	.676*	.599
EC2	.808*	1	.978*	.324	.331	.614*	.516	.560	.555	.390	.451	.440
EC3	.791*	.978*	1	.233	.227	.562	.549	.593	.588	.346	.495	.495
ET1	.288	.324	.233	1	.858*	.836*	-.302	-.249	-.235	.075	-.141	-.258
ET2	.365	.331	.227	.858*	1	.845*	-.116	-.083	-.072	.133	-.022	-.088
ET3	.570	.614*	.562	.836*	.845*	1	-.017	.030	.050	.201	.135	.050
SRS1	.632	.516	.549	-.302	-.116	-.017	1	.989*	.989*	.764*	.885*	.885*
SRS2	.626	.560	.593	-.249	-.083	.030	.989*	1	.989*	.780*	.901*	.912*
SRS3	.659*	.555	.588	-.235	-.072	.050	.989*	.989*	1	.791*	.912*	.885*
ORS1	.560	.390	.346	.075	.133	.201	.764*	.780*	.791*	1	.846*	.769*
ORS2	.676*	.451	.495	-.141	-.022	.135	.885*	.901*	.912*	.846*	1	.951*
ORS3	.599	.440	.495	-.258	-.088	.050	.885*	.912*	.885*	.769*	.951*	1

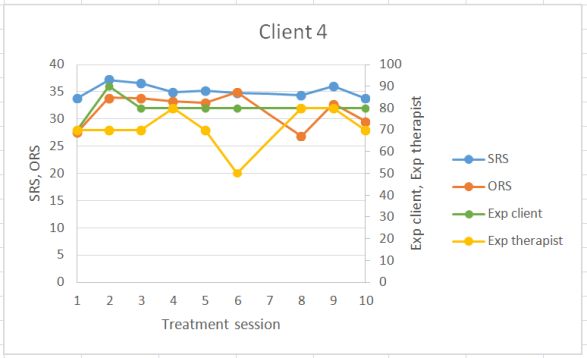
Note. EC1 = block 1 CEQ-EXP scores, EC2 = block 2 CEQ-EXP scores, EC3 = block 3 CEQ-EXP scores, ET1 = block 1 expectancy therapist scores, ET2 = block 2 expectancy therapist scores, ET3 = block 3 expectancy therapist scores, SRS1 = block 1 SRS scores, SRS2 = block 2 SRS scores, SRS3 = block 3 SRS scores, ORS1 = block 1 ORS scores, ORS2 = block 2 ORS scores, ORS3 = block 3 ORS scores, * = significance based on the confidence interval, a value was considered significant when both scores of the confidence interval where either negative or positive

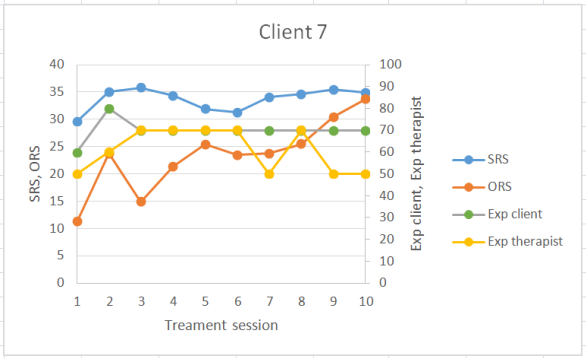
Appendix 2[1]

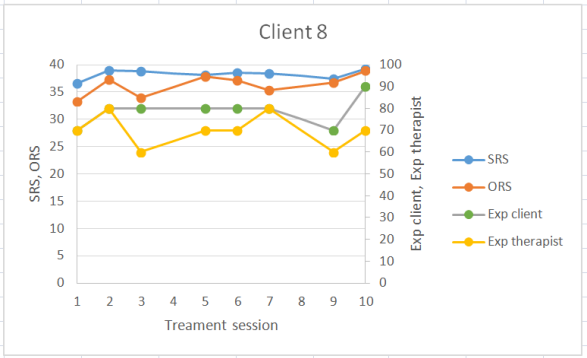




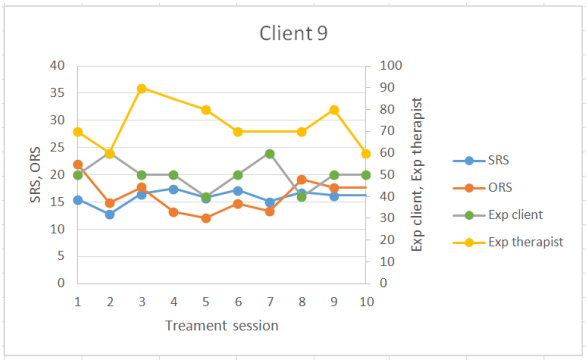








[1] SRS = Session Rating Scale, ORS = Outcome Rating Scale, Exp client = expectancy of the client, Exp therapist = expectancy of the therapist; some client numbers are not represented because these were dropouts.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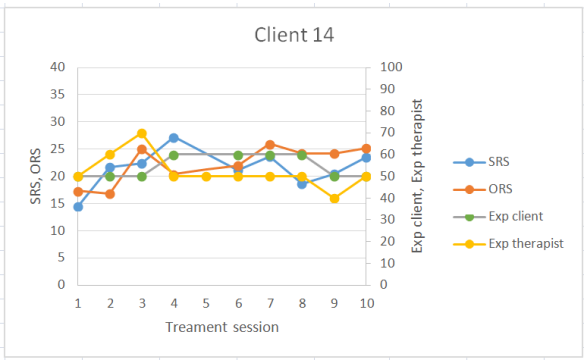
SRS, ORS
Exp client, Exp therapist
Treament session
SRS
ORS
Exp client
Exp therapist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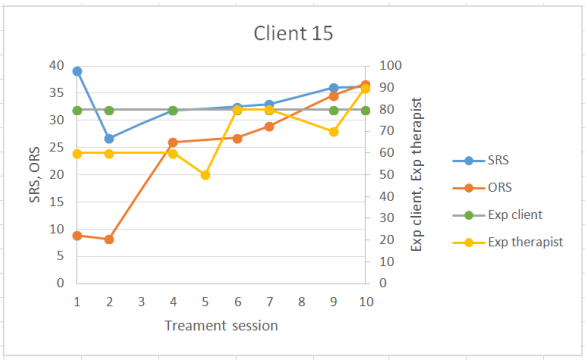
SRS, ORS
Exp client, Exp therapist
Treament session
SRS
ORS
Exp client
Exp therapist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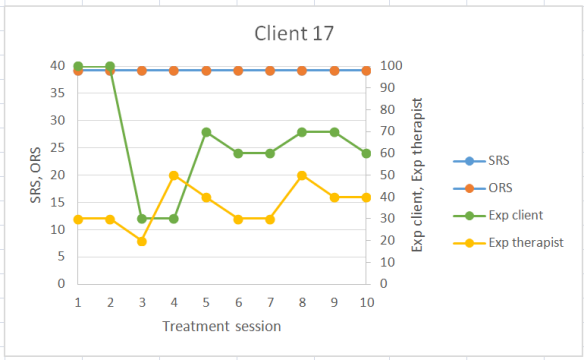
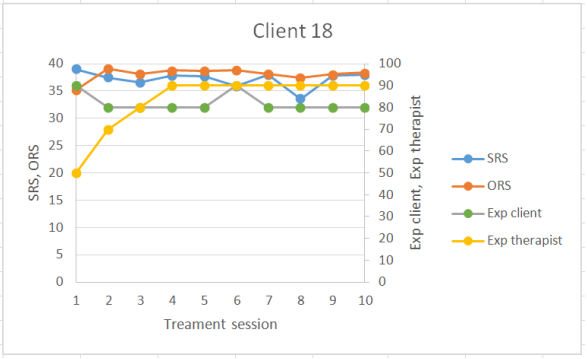
SRS, ORS
Exp client, Exp therapist
Treament session
SRS
ORS
Exp client
Exp therapist


Client 17
SRS, ORS
Exp client, Exp therapist
Treatment session
SRS
ORS
Exp client
Exp therapist


Client 18
SRS, ORS
Exp client, Exp therapist
Treament session
SRS
ORS
Exp client
Exp therapist