CIVITAS, 2022, 12(1), 136-151
www.civitas.rs

Nikolija Rakočević[1]
Dragan Žuljević[2]
Vesna Gavrilov-Jerković[3]

UDC 159.9.072.4
Original research
Received: 04/04/2022
Accepted: 07/05/2022

CLIENT'S CHARACTERISTICS AS PREDICTORS OF EARLY PSYCHOLOGICAL CHANGE DURING TREATMENT

Abstract: The phenomenon of client's early psychological change during psychological treatment has generated growing interest among researchers. The aim of this study is to identify and examine different early change trajectories of distress and to examine the possibility of predicting how the clients would change depending on their initial characteristics. The sample of 161 participants filled out a distress assessment instrument on three occasions – prior to treatment and after sessions 3 and 6. The latent class analysis and multinomial logistic regression yielded the results indicating three latent classes – the *no change* trajectory, the *early change* trajectory and the *gradual change* trajectory. Additionally, the latent class membership could be predicted by participants' initial distress and educational status.

Key words: Trajectories of early psychological change, distress, psychological treatment, client's initial characteristics, latent class analysis

[1] Graduate student, M.Sc.; Psychology Department, Faculty of Philosophy, University of Novi Sad; nikarakocevic@live.com

[2] Assistant Professor, Business Psychology Department, Faculty of Law and Business Studies dr Lazar Vrkatić; dragan.zuljevic@flv.edu.rs

[3] Professor; Psychology Department, Faculty of Philosophy, University of Novi Sad;; vesnagavrilov@ff.uns.ac.rs

1. Introduction

Early change refers to the phenomenon which was detected while researching different trajectories of psychological change. Some patients receiving psychological treatment may experience a significant psychological improvement at the very beginning of treatment (Lambert, 2005). Researchers have increasingly focused their attention on the changes that occur in the initial stage of psychological treatment, since the early response to treatment has been recognized as an indicator of a positive outcome and the long-term effects of the treatment (e.g. Aderka, Nickerson, Bøe & Hofmann, 2012; Flückiger, Del Re, Wampold, Symonds & Horvath, 2012; Lutz, Stulz & Köck, 2009; Van et al., 2008). The early change trajectory has been consistently identified in various studies investigating different trajectories of psychological change, both in homogeneous (e.g., Lutz et al., 2014) or heterogeneous samples (e.g., Stulz, Lutz, Leach, Lucock & Barkham, 2007). However, almost all previous studies were conducted on clinical population samples, so early change was equated with a change in psychological symptoms (e.g., Melchior et al., 2016; Smits, Stinckens, Luyckx, & Claes, 2015). Therefore, these studies cannot offer accurate expectations of early psychological change in clients from a non-clinical population. In order to monitor changes in clients undergoing treatment, it is necessary to use indicators of their condition that will help researchers detect potential psychological changes. It is essential, therefore, to carefully select indicators of the client's condition when conducting psychological treatment research. Researchers in the field agree that one such indicator is the degree of client distress, and that it should be measured in studies involving both clinical and non-clinical samples (Horowitz, Strupp, Lambert, & Elkin, 1997).

Some psychological theories and models explain why a reduction of distress is to be expected at the very beginning of treatment. The Common Factors Model (Frank, 1961) proposes that the key mechanism of the client's psychological change is activated at the initial phase of treatment – the client's hopes for their improvement grow simply because they have begun psychological treatment. Before treatment, the client is demoralized and highly disturbed by the realization that they may

have a psychological problem. After the treatment has started, however, the client's expectations of solving their problem in cooperation with the professional begin to grow. As a result, the client's emotional distress is reduced (Frank, 1973). A similar assumption can be found in the Transtheoretical Model of Change (Prochaska & DiClemente, 1982). According to this model, the first phase of treatment is devoted to experiential processes that lead to a reduction of initial distress values. Some examples of experiential processes are dramatic relief, social release, increased awareness, change in self-evaluation and evaluation of the environment. The Phase Model of psychotherapy (Howard, Lueger, Maling & Martinovich, 1993) is another model which proposes that the level of acute distress is the first to change upon starting treatment. This model proposes that prior to starting treatment most clients feel helpless and hopeless, which causes a high degree of distress. The start of treatment stimulates remoralization, i.e., the mobilization of forces that will be used further during the treatment to solve problems and/or get rid of psychological ailments. Instead of remoralization, the authors of this model use the term "increase in subjective well-being ", which is operationalized as a reduction in the client's acute distress (Howard et al., 1993).

These theories were also empirically reinforced. Many studies have shown that the negative indicators of the client's state underwent the greatest changes in the initial stages of treatment, following a negative acceleration trajectory (e.g., Baldwin, Berkeljon, Atkins, Olsen & Nielsen, 2009; Barkham, Rees, Stiles, Hardy & Shapiro, 2002; Sembill, Vocks, Kosfelder & Schöttke, 2017). Barkham et al. (2002) found that a significant reduction of distress occured after the second treatment session, and then continued to decrease on a non-linear slope as the treatment progressed. Most empirical studies of this topic have been concerned with verifying the accuracy of the Phase Model of Psychotherapy (Howard et al., 1993). The results of these studies lead to the conclusion that the notion of universal trajectories of change common to all clients should be abandoned. Instead, research should seek to identify specific trajectories of change for each indicator of the client's condition. Most empirical studies did bear out the initial hypotheses of the Phase Model, but also showed that they are not universally applicable. To be precise,

an early change in the negative indicators of the condition is detected in the initial phase of the treatment in most clients who start treatment with low to moderate symptomatic distress. However, early change is not observable in clients who begin treatment with more severe symptoms (e.g., Joyce, Ogrodniczuk, Piper & McCallum, 2002; Stulz & Lutz, 2007).

Looking at how the client's mental state changes during treatment, the findings so far suggest individual differences play a significant role. A marked improvement in mental state in the early phase of treatment is not detected in clients who start treatment with a high degree of symptomatic distress (e.g., Melchior et al., 2016). Additionally, the initial phase of treatment for clients with increased symptoms is characterized by stagnation or even significant deterioration (e.g., Swift, Callahan, Heath, Herbert & Levine, 2010). On the other hand, a marked improvement occurs in clients who, prior to starting treatment, have moderate symptoms. Clients who start treatment in a good mental state show very slight early change or no change at all; these findings can be explained by the "floor effect" (e.g., Finch, Lambert, & Schaalje, 2001; Smits et al., 2015).

Trying to predict the trajectories of change has become more complicated after studies were published which showed that clients with the same initial intensity of symptoms can undergo changes that follow markedly different trajectories (e.g., Owen et al., 2015; Stulz, Gallop, Lutz, Wrenn, & Crits-Christoph, 2010). Due to these studies and the theories that stress the importance of clients' traits for the process and outcome of psychological treatment (Orlinsky, Rønnestad, & Willutzki, 2004; Swift & Greenberg, 2012), research has begun to focus on client variables as predictors of specific trajectories of change. Few studies have been conducted on this topic, and on the trajectories of early psychological change in particular. The findings so far suggest that certain client variables are significant for predicting whether the client will experience change in the early stages of treatment. According to the results of the study conducted by Sembill et al. (2017), female respondents are more likely to experience a psychological change in the initial phase of treatment than male respondents. Clients who have higher education and are employed show a significantly higher probability of experienc-

ing early psychological changes compared to clients who have lower education and/or are unemployed (Melchior at al., 2016). It should be noted that these conclusions are derived from a modest corpus of previous studies. It is to be hoped that further research will shed more light on the phenomenon of early change and how to predict it, which is the general aim of this study.

This aim involves two specific research aims: the first one is to verify the assumption that the early change in distress in clients undergoing treatment can occur on markedly different trajectories. The second one is to verify the assumption that the client's initial characteristics can be used to predict the trajectories of the client's distress in the early phase of psychological treatment.

2. Method

2.1. Sample

The sample consists of 161 respondents, clients of the Psychological Counseling Unit of the War Trauma Center and the Youth Counseling Unit of the Novi Sad Humanitarian Center. The sample is made up of adults from the non-clinical population, 49 male and 112 female. The average age of the respondents is 30.71 (SD = 10.07; Mode = 22), ranging from 18 to 63 years. Out of the total sample, 1.2% respondents have elementary education, 52.2% of respondents have secondary education, 19.9% are undergraduate students, while 26.7% have university education. Also, there are 38.7% employed and 61.3% unemployed respondents in the sample.

2.2. Procedure

The research was conducted as part of a wider research project, with mandatory informed consent of the respondents obtained. Potential respondents could apply to participate in free psychological treatment. Upon consulting the exclusion criteria, the research sample was selected. All respondents received free individual treatment consisting of ten one-hour sessions, one session per week. At the same time, the re-

spondents were repeatedly tested with a battery of instruments in order to monitor changes in their mental state. The first three measurements are especially important for this research: the first was done before the beginning of the first session, the second after the end of the third session, and the third after the end of the sixth session.

2.3. Instruments

The list of basic data was used to collect information about the respondents. The list consists of questions related to the demographic characteristics of the respondents (gender, age, education, employment status), and was administered at the start of the first session.

The Depression, Anxiety and Stress Scale - 21 (DASS-21; Lovibond & Lovibond, 1995) was used to assess the degree of distress, i.e., general anxiety of the respondents. It consists of three subscales – depression, anxiety and stress. The scale forms a total summative score with a theoretical range from 0 to 63, whereby higher scores indicate a higher degree of distress. The respondents used a four-point Likert scale ranging from 0 (not at all) to 3 (mostly or almost always) to evaluate the degree to which items reflect their feelings during the previous week. This scale has excellent psychometric properties, as well as its high applicability in the context of psychological treatment evaluation (e.g., Ronk, Korman, Hooke & Page, 2013). The instrument also showed excellent psychometric characteristics in this research, since high internal consistency coefficients were obtained on the first ($\alpha = .93$), second ($\alpha = .93$) and third measurements ($\alpha = .92$). In this research, only the total score of the instrument was used as a measure of the respondent's distress, and the instrument was applied before the beginning of the first, and after the end of the third and sixth sessions.

2.4. Data Processing

To verify the assumption that the early distress change in clients undergoing treatment can occur on markedly different trajectories, latent class analysis was applied using the Mplus 7.32 statistical package. The assumption that the client's initial characteristics can be used to

predict the trajectories of distress in the early phase of psychological treatment was verified using the IBM SPSS 24 multinominal logistic regression package.

3. Results

3.1 Specific trajectories of early distress change

The goal of latent class analysis was to identify subsamples of respondents—latent classes—based on similar distributions of distress change scores, with different score distributions characteristic of different subsamples (Muthén & Muthén, 1998–2012). To estimate the optimal number of latent classes of respondents, fit indicators based on maximum credibility values were used: Akaike information criterion (AIC; Akaike, 1987), Bayesian information criterion (BIC; Schwarz, 1978), as well as sample size adjusted Bayesian information criterion (saBIC; Sclove, 1987), with lower values of these indicators suggesting that a more suitable model should be selected (Morin, Morizot, Boudrias, & Madore, 2011). The adjusted Lo-Mendell-Rubin test (aLMR; Lo, Mendell, & Rubin, 2001) and the bootstrap likelihood ratio test (BLRT; McLachlan & Peel, 2000), were also used as indicators of the significance of the change, which indicate whether the model with one more latent class provides a statistically significantly better explanation of the data than a model with one less latent class. The higher values of entropy suggest that a better fit than these models exists (Ramaswamy, DeSarbo, Reibstein & Robinson, 1993). With three measurements, the possibility of non-linear changes remains, so the tested models included an assessment of the non-linear effects of the change according to the quadratic function. In total, five potential solutions were tested, starting with one and ending with the five latent classes. Table 1 presents the fit indicators for each of the tested models: it is evident, when comparing the indicators, that the solution with three latent classes stands out as the most suitable.

Table 1. *Fit indicators for models with different numbers of early distress change latent classes*

	AIC	*BIC*	*saBIC*	*aLMR*	*BLRT*	*Entropy*
1-class	3866,42	3884,91	3856,92	–	–	–
2-class	3701,47	3732,38	3700,63	164,85**	172,95**	.82
3-class	3583,89	3627,03	3582,71	119,68**	125,58**	.86
4-class	3564,69	3620,16	3563,16	25,92	27,20*	.87
5-class	3545,70	3613,49	3543,85	25,73	26,99*	.87

Note: *AIC* = Akaike information criterion; *BIC* = Bayesian information criterion; *saBIC* = sample adjusted *BIC*; *aLMR* = adjusted Lo-Mendel-Rubin test; *BLRT* = bootstrap likelihood ratio test; p < .05*; p < .01**.

The model with three latent classes shows the lowest values of AIC, BIC and saBIC indicators, the last statistically significant improvement in model explicability (aLMR and BLRT indicators), and a significant increase in entropy compared to the previous models, which do not exibit a significant increase in entropy. Consequently, we can identify three latent classes of respondents with qualitatively different trajectories of early change in distress, presented in Chart 1.

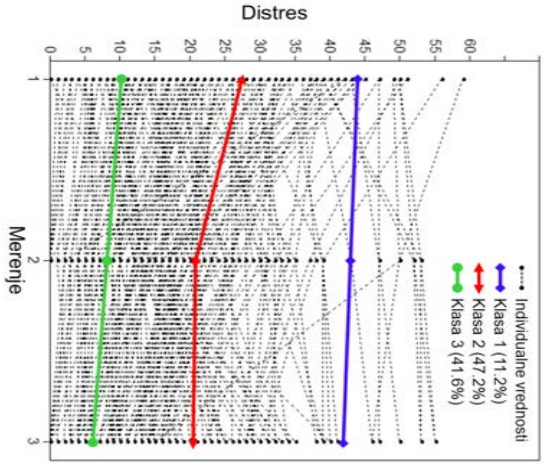

Chart 1. *Three-class model of early distress change*

Table 2 shows that Class 1 respondents do not experience a significant change in distress, considering the insignificant slopes of the curve. Class 2 respondents achieve a non-linear reduction in distress, with a negative acceleration trend. Class 3 respondents's distress level decreases linearly by the third measurement. Variance analysis for repeated measures with class as a grouping variable indicates that, apart from the main effect of measurement ($F (2; 157) = 10.22$; $p < .01$), there is also an interaction effect of measurement and belonging to a cluster ($F (2; 157) = 3.91$; $p < .05$). This means that distress changes via statistically significantly different trajectories between the identified latent classes.

Table 2. *Parameters of observed latent classes of early distress change*

	N	*%*	*I*	*SE (I)*	*S*	*SE (S)*	*Q*	*SE (Q)*
Class 1	18	11,2	43,74**	2.,22	-.70	3,68	-.24	1,59
Class 2	76	47,2	27,19**	1,96	-9,26**	2,92	2,86**	1,33
Class 3	67	41,6	10,35**	1,34	-1,96*	1,49	-.03	.66

Note: *N* = number of respondents per class; *%* = percentage of respondents in the total sample; *I* = average class curve segment; *SE (I)* = standard intercept error; *S* = average class curve slope; *SE (S)* = standard slope error; *Q* = quadratic nonlinear effect; SE (Q) = squared effect standard error of the squared effect; $p < .05$*; $p < .01$**.

3.2 Client's initial characteristics as predictors of latent classes membership

Examining the client's initial characteristics as a predictor of latent classes membership was carried out using the multinominal logistic regression method, and the obtained results indicate the statistical significance of the tested model ($c^2(10) = 172.92$; $p < .05$). The results in Table 3 indicate that initial distress is a significant predictor in both comparisons, suggesting that as initial distress increases, so does the probability that respondents will be classified in the first latent class (Class 1). With an increase in the initial distress value by one unit, the probability of Class 1 membership is 1.23 times higher than Class 2 membership, and

1.69 times higher than Class 3 membership. Additionally, educational status stands out as borderline statistically significant, whereby more educated respondents are more likely to belong to Class 2 or 3 than to Class 1. With an increase in the value of educational status for one unit, the probability of Class 3 membership is 3.17 times higher than Class 1, and with the same increase, the probability of Class 2 membership is 2.84 times higher than Class 1.

Table 3. *Multinominal logistic regression results*

Latent class[a]		*B*	*se*	*Wald*	*df*	*p*	*Exp(B)*	*95% CI*
2	*Intercept*	9,84	3,14	9,81	1	.00	–	–
	Initial distress	-.22	.05	15,98	1	.00	.81	.72 – .89
	Gender	-1,03	.95	1,18	1	.28	.36	.06 – 2,29
	Age	-. 01	.04	.01	1	.94	.99	.93 – 1,08
	Education	1,23	.48	3,17	1	.05	2,84	.95 – 8,76
	Employment	-.26	.77	.12	1	.73	.77	.17 – 3,49
3	*Intercept*	13,55	3,59	14,41	1	.00	–	–
	Initial distress	-.53	.08	46,52	1	.00	.59	.51 – .69
	Gender	-1,24	1,11	1,26	1	.26	.29	.03 – 2,52
	Age	.02	.05	.18	1	.67	1,02	.93 – 1.12
	Education	1,53	.60	3,73	1	.04	3,17	.98 – 10,21
	Employment	-.87	.99	.77	1	.37	.42	.06 – .29

Note: a = reference group: Latent class 1; *B* = multinominal logistic regression coefficient; *se* = standard error; *Wald* = test statistic; df = degrees of freedom; p = statistical significance parameter; Exp(B) = exponential logistic coefficient; 95% CI = 95% confidence interval for Exp(B).

Table 4. *Additional multinominal logistic regression, a portion of results*

Latent class[a]		*B*	*se*	*Wald*	*df*	*p*	*Exp(B)*	*95% CI*
3	*Intercept*	-3,71	1,69	4,80	1	.03	–	–
	Initial distress	-.31	.05	33,06	1	.00	.74	.66 – .81
	Gender	-.22	.58	.14	1	.71	.81	.26 – 2,49
	Age	.02	.03	.61	1	.43	1,02	.97 – 1,08
	Education	.54	.35	2,41	1	.12	1,72	.87 – 3,42
	Employment	-.60	.62	.95	1	.33	.55	.16 – 1,83

Note: a = reference group: Latent class 1; *B* = multinominal logistic regression coefficient; *se* = standard error; *Wald* = test statistic; df = degrees of freedom; p = statistical significance parameter; Exp(B) = exponential logistic coefficient; 95% CI = 95% confidence interval for Exp(B).

Table 4 presents the results of an additional analysis, conducted in order to compare the second and third latent classes. The obtained results suggest a significant predictive potential of distress: as the value of initial distress increases, so does the probability that respondents will be classified in Class 2 than in Class 3. To be precise, with an increase in the value of the initial distress by one unit, the probability of Class 2 membership is 1.35 times higher than Class 3 membership.

4. Discussion

This research identified a number of early change trajectories which were named the trajectory of *no change*, the trajectory of *early change* and the trajectory of *gradual change*. The respondents from the first and smallest latent class (11.20% of the sample) were the most disturbed immediately prior to treatment, i.e., their mental state was the most deteriorated. The stagnation of the mental state was recorded after the sixth treatment session. This is consistent with previous studies which found that in initially highly disturbed clients, improvement is expected only in the later stages of treatment (e.g., Melchior et al., 2016). In the

respondents from the second latent class (47.20% of the sample), the mean degree of distress was measured immediately prior to treatment. These respondents exibited the preferred trajectory of early change. A significant distress reduction occurred in the period between Session 1 and 3. After Session 3, the distress continued to decrease more slowly. This is also fully consistent with previous studies which found that early psychological change is detected in those clients who, immediately prior to treatment, experience moderate disturbance and/or symptoms (e.g., Owen et al., 2015). The respondents from the third latent class (41.60% of the sample) started the treatment in the best mental state, i.e., exhibited the least anxiety prior to treatment. With this class, distress decreased along the trajectory of gradual change, declining statistically significantly all the time between sessions 1 and 6. Previous studies (e.g., Smits et al., 2015) showed that clients who start treatment in a good mental state experience either a mild early psychological change or a complete absence of early psychological change. This result is, therefore, also consistent with previous findings.

Examining the prediction of latent classes membership according to clients' initial characteristics, the results obtained confirmed that the initial degree of distress and the educational status of the respondent are relevant for this issue. Depending on the degree of distress prior to treatment, it was possible to predict the trajectory of distress change in respondents. A preferred trajectory of early change was observed in respondents who were moderately distressed prior to treatment. Deviation from the optimal initial distress level increased the likelihood that early distress change would take one of the remaining two trajectories. In other words, high initial distress values increase the likelihood that clients in treatment will be exhibit a no-change trajectory, while low initial distress values increase the likelihood that clients will exhibit a gradual change trajectory. The results suggest that respondents with a higher education level exhibit the preferred trajectories of distress change–early change or gradual change. However, based on the initial level of education, it was not possible to predict statistically significantly which of these two trajectories is more likely to occur. We can conclude that the respondents' education is more relevant when predicting whether the change in the initial phase of treatment will occur or not.

However, it should be noted that the statistical insignificance of certain results may be a consequence of the limitations of this research, and not the actual absence of differences. The main limitation of this research is the sample size. Recruiting a sample of a sufficient size for this research proved to be a challenge. The fact that some results lack statistical significance can be ascribed to this circumstance. Another limitation is that, apart from demographic variables, a large number of client-related variables are not included. However, both limitations are also practical implications for future research into the phenomenon of early psychological change. In addition to increasing the corpus of previous knowledge about the phenomenon of early change and the possibilities of its prediction, this research also has practical implications, mostly concerned with improving the quality of psychological practice. Based on the assessment of the client's early response to treatment, practitioners can adapt their future interventions to those clients who are expected to have an unfavorable treatment outcome. Confirming the predictive potential of client variables in predicting undesirable early change trajectories also has practical implications. An insight into the client's initial characteristics can help practitioners recognize clients in need of a special treatment plan in order to prevent unfavorable treatment outcomes.

5. References

Aderka, I. M., Nickerson, A., Bøe, H. J., & Hofmann, S. G. (2012). Sudden gains during psychological treatments of anxiety and depression: A meta-analysis. *Journal of Consulting and Clinical Psychology, 80*(1), 93–101. doi: 10.1037/a0026455

Akaike, H. (1987). Factor analysis and AIC. *Psychometrika, 52*(3), 317–332.

Baldwin, S. A., Berkeljon, A., Atkins, D. C., Olsen, J. A., & Nielsen, S. L. (2009). Rates of change in naturalistic psychotherapy: Contrasting dose-effect and good-enough level models of change. *Journal of Consulting and Clinical Psychology, 77*(2), 203–211. doi: 10.1037/a0015235

Barkham, M., Rees, A., Stiles, W. B., Hardy, G. E., & Shapiro, D. A. (2002). Dose-effect relations for psychotherapy of mild depression: A quasi-experimental comparison of effects of 2, 8, and 16 sessions. *Psychotherapy Research, 12*(4), 463–474. doi: 10.1093/ptr/12.4.463

Finch, A. E., Lambert, M. J., & Schaalje, B. G. (2001). Psychotherapy quality control: The statistical generation of expected recovery curves for integration into an early warning system. *Clinical Psychology & Psychotherapy, 8*(4), 231–242. doi: 10.1002/cpp.286

Flückiger, C., Del Re, A. C., Wampold, B. E., Symonds, D., & Horvath, A. O. (2012). How central is the alliance in psychotherapy? A multilevel longitudinal meta-analysis. *Journal of Counseling Psychology, 59*(1), 10–17. doi: 10.1037/a0025749

Frank, J. D. (1961). *Persuasion and healing: A comparative study of psychotherapy*. Baltimore: Johns Hopkins University Press.

Frank, J. D. (1973). *Persuasion and healing: A comparative study of psychotherapy (2nd ed.).* Baltimore: Johns Hopkins University Press.

Horowitz, L. M., Strupp, H. H., Lambert, M. J., & Elkin, I. (1997). Overview and summary of the Core Battery Conference. In H. H. Strupp, L. M. Horowitz & M. J. Lambert (Eds.), *Measuring patient changes in mood, anxiety, and personality disorders: Toward a core battery* (pp. 11-54). Washington, DC: American Psychological Association. doi: 10.1037/10232-001

Howard, K. I., Lueger, R. J., Maling, M. S., & Martinovich, Z. (1993). A phase model of psychotherapy outcome: Causal mediation of change. *Journal of Consulting and Clinical Psychology, 61*(4), 678–685. doi: 10.1037/0022-006X.61.4.678

Joyce, A. S., Ogrodniczuk, J., Piper, W. E., & McCallum, M. (2002). A test of the phase model of psychotherapy change. *The Canadian Journal of Psychiatry, 47*(8), 759–766. doi: 10.1177/070674370204700807

Kopta, S. M., Howard, K. I., Lowry, J. L., & Beutler, L. E. (1994). Patterns of symptomatic recovery in psychotherapy. *Journal of Consulting and Clinical Psychology, 62*(5), 1009–1016. doi: 10.1037/0022-006x.62.5.1009

Lambert, M. J. (2005). Early response in psychotherapy: Further evidence for the importance of common factors rather than "placebo effects". *Journal of Clinical Psychology, 61*(7), 855–869. doi: 10.1002/jclp.20130

Lo, Y., Mendell, N. R., & Rubin, D. B. (2001). Testing the number of components in a normal mixture. *Biometrika, 88*(3), 767–778. doi: 10.1093/biomet/88.3.767

Lovibond, S. H., & Lovibond, P. F. (1995). *Manual for the depression anxiety stress scales.* Sydney: Psychology Foundation.

Lutz, W., Hofmann, S. G., Rubel, J., Boswell, J. F., Shear, M. K., Gorman, J. M., Woods, S. W., & Barlow, D. H. (2014). Patterns of early change and their relationship to outcome and early treatment termination in patients with panic disorder. *Journal of Consulting and Clinical Psychology, 82*(2), 287–297. doi: 10.1037/a0035535

Lutz, W., Stulz, N., & Köck, K. (2009). Patterns of early change and their relationship to outcome and follow-up among patients with major depressive disorders. *Journal of Affective Disorders, 118*(1-3), 60–68. doi: 10.1016/j.jad.2009.01.019

McLachlan, G. J., & Peel, D. (2000). Mixtures of factor analyzers. In Langley (Ed.), *Proceedings of the Seventeenth International Conference on Machine Learning* (pp. 599–606). San Francisco: Morgan Kaufmann.

Melchior, H., Schulz, H., Kriston, L., Hergert, A., Hofreuter-Gätgens, K., Bergelt, C., Morfeld, M., Koch, U., & Watzke, B. (2016). Symptom change trajectories during inpatient psychotherapy in routine care and their associations with long-term outcomes. *Psychiatry research, 238,* 228–235. doi: 10.1016/j.psychres.2016.02.046

Morin, A. J., Morizot, J., Boudrias, J. S., & Madore, I. (2011). A multifoci person-centered perspective on workplace affective commitment: A latent profile / factor mixture analysis. *Organizational Research Methods, 14*(1), 58–90. doi: 10.1177/1094428109356476

Muthén, L. K., & Muthén, B. O. (1998–2012). *Mplus user's guide (7th ed.).* Los Angeles, CA: Muthén & Muthén.

Orlinsky, D. E., Rønnestad, M. H., & Willutzki, U. (2004). Fifty years of psychotherapy process-outcome research: Continuity and change. In M. J. Lambert (Ed.), *Bergin and Garfield's handbook of psychotherapy and behavior change* (5th ed., pp. 307–390). New York: Wiley.

Owen, J. J., Adelson, J., Budge, S., Wampold, B., Kopta, S. M., Minami, T., & Miller, S. (2015). Trajectories of change in psychotherapy. *Journal of Clinical Psychology, 71*(9), 817–827. doi: 10.1002/jclp.22191

Prochaska, J. O, & DiClemente, C. C. (1982). Transtheoretical therapy: Toward a more integrative model of change. *Psychotherapy: Theory, Research and Practice, 19,* 276–288.

Ramaswamy, V., DeSarbo, W. S., Reibstein, D. J., & Robinson, W. T. (1993). An empirical pooling approach for estimating marketing mix elasticities with PIMS data. *Marketing Science, 12*(1), 103–124. doi: 10.1287/mksc.12.1.103

Ronk, F. R., Korman, J. R., Hooke, G. R., & Page, A. C. (2013). Assessing clinical significance of treatment outcomes using the DASS-21. *Psychological Assessment, 25*(4), 1103–1110. doi: 10.1037/a0033100

Schwarz, G. (1978). Estimating the dimension of a model. *The annals of statistics, 6*(2), 461–464.

Sclove, S. L. (1987). Application of model-selection criteria to some problems in multivariate analysis. *Psychometrika, 52*(3), 333–343. doi: 10.1007/BF02294360

Sembill, A., Vocks, S., Kosfelder, J., & Schöttke, H. (2017). The phase model of psychotherapy outcome: Domain-specific trajectories of change in outpatient treatment. *Psychotherapy Research, 29*(4), 541–552. doi: 10.1080/10503307.2017.1405170

Smits, D., Stinckens, N., Luyckx, K., & Claes, L. (2015). Early symptom change in adult outpatients: Relationship with patient characteristics and therapeutic alliance. *Psychology and Psychotherapy: Theory, Research and Practice, 89,* 402–417. doi: 10.1111/papt.12086

Stulz, N., & Lutz, W. (2007). Multidimensional patterns of change in outpatient psychotherapy: The phase model revisited. *Journal of Clinical Psychology, 63*(9), 817–833. doi: 10.1002/jclp.20397

Stulz, N., Gallop, R., Lutz, W., Wrenn, G. L., & Crits-Christoph, P. (2010). Examining differential effects of psychosocial treatments for cocaine dependence: An application of latent trajectories analyses. *Drug and Alcohol Dependence, 106*(2-3), 164–172. doi: 10.1016/j.drugalcdep.2009.08.009

Stulz, N., Lutz, W., Leach, C., Lucock, M., & Barkham, M. (2007). Shapes of early change in psychotherapy under routine outpatient conditions. *Journal of Consulting and Clinical Psychology, 75*(6), 864–874. doi: 10.1037/0022-006X.75.6.864

Swift, J. K., & Greenberg, R. P. (2012). Premature discontinuation in adult psychotherapy: A meta-analysis. *Journal of Consulting and Clinical Psychology, 80*(4), 547–559. doi: 10.1037/a0028226

Swift, J. K., Callahan, J. L., Heath, C. J., Herbert, G. L., & Levine, J. C. (2010). Applications of the psychotherapy phase model to clinically significant deterioration. *Psychotherapy Theory, Research, Practice, Training, 47*(2), 235–248. doi: 10.1037/a0019787

Van, H. L., Schoevers, R. A., Kool, S., Hendriksen, M., Peen, J., & Dekker, J. (2008). Does early response predict outcome in psychotherapy and combined therapy for major depression? *Journal of Affective Disorders, 105*(1–3), 261–265. doi: 10.1016/j.jad.2007.04.016