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Jonas Almlöv^a; Per Carlbring^a; Thomas Berger^{ab}; Pim Cuijpers^c; Gerhard Andersson^{ade}

^a Department of Behavioural Sciences and Learning, Linköping University, Linköping, Sweden ^b

Abteilung Klinische Psychologie und Psychotherapie, Universität Bern, Berne, Switzerland ^c

Department of Clinical Psychology and EMGO Institute, Vrije Universiteit, Amsterdam, The

Netherlands ^d Department of Clinical Neuroscience, Psychiatry Section, Karolinska Institutet,

Stockholm, Sweden ^e Swedish Institute for Disability Research, Linköping University, Linköping, Sweden

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Therapist Factors in Internet-Delivered Cognitive Behavioural Therapy for Major Depressive Disorder

Jonas Almlöv¹, Per Carlbring¹, Thomas Berger^{1,2}, Pim Cuijpers³ and Gerhard Andersson^{1,4,5}

¹Department of Behavioural Sciences and Learning, Linköping University, Linköping, Sweden; ²Abteilung Klinische Psychologie und Psychotherapie, Universität Bern, Berne, Switzerland; ³Department of Clinical Psychology and EMGO Institute, Vrije Universiteit, Amsterdam, The Netherlands; ⁴Department of Clinical Neuroscience, Psychiatry Section, Karolinska Institutet, Stockholm, Sweden; ⁵Swedish Institute for Disability Research, Linköping University, Linköping, Sweden

Abstract. Internet-delivered cognitive behavioural therapy (CBT) can be an effective method for treating major depression, but it often works best when therapist support is provided in the form of e-mail support or telephone calls. The authors investigated whether there were any intraclass correlations within therapists when delivering CBT for major depression via the Internet. They included data from two trials involving 10 therapists treating a total of 103 patients. The results of a nested one-way model in which participants were treated as raters for different therapists indicated that measures pertaining to symptom reductions (Beck Depression Inventory, Montgomery-Åsberg Depression Rating Scale–Self Report, and Beck Anxiety Inventory) did not support a clustering of data within therapists. However, the outcome on a secondary measure of life satisfaction (Quality of Life Inventory) yielded a significant intraclass correlation coefficient for therapists ($r = .24, p = .001$). The authors propose that text-based treatments are less sensitive to therapist effects when it comes to the primary symptom measures, but that treatment effects not directly targeted by the specific treatment program may be more dependent on the way the support is given and by whom (therapist effect). Limitations of the study are discussed. *Key words:* Internet; major depression; therapist factors; nested models.

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Correspondence address: Jonas Almlöv, Department of Behavioral Sciences and Learning, Linköping University, SE-581 83 Linköping, Sweden. Tel +46 13 28 20 86. Fax: +46 13 28 21 45. E-mail: jonas.almlov@liu.se

Many researchers and clinicians consider therapist factors to be at least as important as therapeutic techniques when explaining what makes therapy work (Lambert & Barley, 2002; Wampold, 2001). However, the therapist variable is still often neglected and poorly understood (Beutler et al., 2004). Although some therapists consistently achieve better outcomes than others (e.g. Lambert, 1989; Luborsky et al., 1986), few characteristics and qualities of more effective therapists have been identified. Factors such as therapist sex and ethnic matching with patients seem to have

little impact, whereas directiveness, friendliness, and ability to interact with patients reciprocally appear to influence outcome more directly (Beutler et al., 2004). In research on face-to-face therapy, the therapist factor has been estimated to explain about 5% of variance in outcome (Wampold & Brown, 2005). Many possible underlying factors may drive the differences seen between therapists, and this study does not investigate these factors as such. Instead, these differences between therapists are treated as random factors that may increase variance in a study.

As such, they may confound fixed effects and reduce the possibilities to see effects of any given treatment protocol.

A growing number of studies from different research groups have found that online self-help manuals can be used for people seeking help for depressive symptoms (e.g. Christensen, Griffiths, & Jorm, 2004; Mackinnon, Griffiths, & Christensen, 2008; Spek, Nyklíček, et al., 2007; Warmerdam, van Straten, Twisk, Riper, & Cuijpers, 2008), although some show modest outcomes (Clarke et al., 2002, 2005; O'Kearney, Gibson, Christensen, & Griffiths, 2006; Patten, 2003) and substantial attrition rates (Christensen, Griffiths, Groves, & Korten, 2006; Christensen, Griffiths, Mackinnon, & Brittliffe, 2006). However, guided Internet-delivered cognitive behaviour therapy (CBT) has been recognized as a potentially effective method for treating major depressive disorder (Andersson, 2006; Andersson et al., 2005; Ruwaard et al., in press). Overall, the studies on Internet-delivered CBT for depression to date suggest that some form of minimal human guidance is needed (Spek, Cuijpers, et al., 2007), both for reducing the drop-out rate and increasing the effects. Recently, research has been conducted in the search for active components of Internet-delivered CBT and for whom the treatment is effective (Andersson, Bergström, Holländare, Ekselius, & Carlbring, 2004; Spek, Nyklíček, Cuijpers, & Pop, 2008). In the search for active components in these treatments, factors associated with the therapist and the relationship with the client have now been given attention, for example by studying the role of therapeutic alliance in online treatments (e.g. D'Arcy, Reynolds, Stiles, & Grohol, 2006). Knaevelsrud and Maercker (2007), in their study of therapeutic alliance formed online, reported that these relationships improved as the treatment progressed. In their meta-analysis, Spek, Cuijpers, et al. (2007) found that Internet-delivered CBT was four times as effective when delivered with a supportive online therapist contact. Researchers have further investigated whether the amount of therapist contact with participants in Internet-delivered treatments influences treatment outcome. Palmqvist, Carlbring, and Andersson (2007) found a Spearman's ρ correlation of .75 ($p = .005$) between therapist time spent per

participant and the between-group effect sizes for Internet-delivered treatments, lending further support to the notion that therapist input is an important factor in Internet-delivered treatments. In a recent study, we investigated the therapist factor in Internet-delivered CBT for anxiety disorders (Almlöv et al., 2009). We did not find that the therapist effect explained a significant amount of outcome variance, but this could be partly due to low statistical power and heterogeneous groups as three diagnostic categories were included. Because our previous study might have been insufficiently powered to establish the existence of significant therapist effects, we decided to return to the question with a homogenous data set consisting of persons with major depressive disorder only. The aim of this study was to investigate whether therapist effects are present in guided Internet-delivered CBT for major depressive disorder.

Method

We included data from two independent studies on major depression conducted by our research group. Both studies investigated the effects of Internet-delivered CBT for depression, and in this report we analyzed differences in outcome variance resulting from the different therapists conducting the treatments. This was done to determine whether any amount of variance was associated with therapists. The first study was a randomized controlled trial comparing two active treatments with a wait-list control (Vernmark et al., 2008). The study included two treatment arms. The first delivered nonmanualized e-mail therapy that used CBT strategies in weekly dialogue with the participants. Each therapist performed their own behavior analysis of the patients' problematic behaviors and used whatever CBT strategies they found relevant to the participants' situation. The second intervention package of the trial entailed a five-module Internet-delivered treatment accompanied by therapist support, which was basically similar to the treatment tested in a previous trial (Andersson et al., 2005). This program followed a step-by-step approach and presented both cognitive and behavioral strategies, and the participants

were encouraged to learn about and try a new strategy each week.

The second study (Almlöv et al., 2009) compared live versus guided Internet-delivered treatment. This study contained three arms: one delivering live CBT group treatment, a second delivering a guided self-help treatment (as described in the second arm of the first study just discussed), and a third preference arm for participants who declined live group treatment but then received the guided Internet treatment. In the analysis of the data collected from this study, all Internet-treated patients were included and all participants were randomly assigned to different therapists.

Participants and therapists

Data from these two previously conducted treatment trials yielded a total of 103 participants. Demographic data on gender, age, and marital status are presented in Table 1. Participants were included only if posttreatment measures had been obtained in the original studies, because the therapist factor in the outcome would not be attainable from an intent-to-treat analysis. For this reason, five participants (4.6%) in these treatments who did not complete posttreatment measurement were not included in this analysis. Mean age for the therapists giving treatment was 30.2 years (*SD* = 4.6). Two of 10 therapists were women. All therapists but one were psychology students in supervised clinical training. One female therapist was a clinical psychologist experienced in both live and Internet-delivered CBT. This sample of therapists reflects a large proportion of the population of Internet therapists available,

because many Internet trials use junior therapists.

Outcome measures

Four outcome measures were analyzed in the study. The first was the Beck Depression Inventory (BDI-II; Beck, Steer, & Brown, 1996), which is a standard measure of depressive symptoms. It contains 21 items rated on a scale ranging from 0 to 3, yielding a total score between 0 and 63. The second depression measure was the Montgomery Åsberg Depression Rating Scale–Self Rated (MADRS-S; Svanborg & Åsberg, 2001), which also measures depressive symptoms. The MADRS-S has nine items, each rated on a scale ranging from 0 to 6. As with the BDI, higher scores indicate more distress. Third, the Beck Anxiety Inventory (BAI; Beck, Epstein, Brown, & Steer, 1988) was used to collect a measure of anxious symptoms. The BAI also contains 21 items and yields a score range similar to the BDI. Finally, we included the Quality of Life Inventory (QOLI; Frisch, Cornell, Villanueva, & Retzlaff, 1992), which yields an estimate of a person’s quality of life. The QOLI consists of 16 areas rated by the participants concerning importance (0–2) and satisfaction (–3 to +3). These two ratings are then multiplied, yielding a score ranging from –6 and +6 for each area. To obtain the total QOLI score, the average scores across the areas that the participant has judged as important or very important for life satisfaction are calculated. All the outcome measures have good psychometric properties also when administered via the Internet (Carlbring et al., 2007; Thorndike et al., 2009).

Table 1. Demographic data for participants (subsets of data presented separately)

Variable	Study 1 (<i>N</i> = 56)	Study 2 (<i>N</i> = 47)
Gender (<i>n</i>)		
Female	42 (75%)	38 (81%)
Male	14 (25%)	9 (19%)
Age (years; <i>M</i> ± <i>SD</i>)	39.4 ± 13.6	42.4 ± 13.5
Marital status (<i>n</i>)		
Married/living together	33 (59%)	33 (70%)
In a committed relationship	0 (0%)	3 (6%)
Single	18 (32%)	10 (22%)
Other	5 (9%)	1 (2%)

Statistical analyses

The initial design of this study made use of multilevel analysis using a mixed-model design that required level-by-level variance structures to be taken into consideration. This was due to participants being nested in their respective therapists (first level), which, in turn, were nested in different treatment conditions (second level) and in different original studies (third level). However, these procedures resulted in insufficient power to confidently defend the mean differences found between therapists. With these considerations in mind, we do not comment on the analysis of mean differences between therapists. Instead, we conducted statistical analyses using intraclass correlation coefficients (ICCs). These analyses were made using the reliability command in *PASW Statistics 17.0.2* in a one-way nested model in which participants were treated as randomly selected nested raters of the therapists. All therapists were evaluated by nine raters, who were randomly selected from the participants within each therapist. All participants were selected as raters if therapists had treated nine participants. Positive ICCs suggest that outcome data from a group of participants are clustered around their respective therapists and, therefore, behave more in correlation to each other than to the entire sample of raters.

Results

Treatment outcomes

For descriptive purposes, we present pooled outcome data from the two datasets, including within-group effect sizes, because the outcome measures of interest for this study were identical between the two original studies. Table 2 shows the pre–post changes on the four outcome measures.

Therapist effects

Table 3 presents the effect sizes for each included therapist and associated ICCs for the therapist factor. In the analysis of outcome nested within therapists, no statistically significant clustering was evident within the therapists on the BDI, $F(9, 80) = 1.88$, $p = .07$, $r = .09$, the MADRS-S, $F(9, 80) = 1.69$, $p = .11$, $r = .07$, or the BAI, $F(9, 80) = 0.70$, $p = .70$, $r = .00$. There was, however, significant clustering of participants outcome over therapists on the QOLI, $F(9, 80) = 3.79$, $p = .001$, $r = .24$.

Discussion

The aim of the study was to investigate whether it makes a difference who provides the online support in guided Internet-delivered CBT for major depression. Overall, we failed to confirm a therapist effect on the measures of depressive symptoms and on the anxiety measure. However, a therapist effect was evident on the QOLI. This was not expected, because a previous examination of data collected by our research group revealed no significant therapist effects on data combined from three treatment studies on anxiety disorders (Almlöv et al., 2009). However, in that study, data for the QOLI revealed the strongest tendency toward a clustering of data within therapists and was nearly statistically significant in one of the included studies.

Wampold and Serlin (2000) found that therapist effects can strongly influence treatment outcome effects even when these effects do not reach statistical significance. In our study, in which minimal therapist input was provided (typically no more than 100 minutes per client), we only found a discernable therapist effect on a secondary outcome

Table 2. Outcome measure scores before and after active treatment, with associated within-group effect sizes

Measure	Pretreatment	Posttreatment	Effect size ^a
BDI	23.0 (6.4)	12.9 (8.2)*	1.38
MADRS-S	22.4 (4.3)	13.9 (7.9)*	1.39
BAI	15.3 (7.3)	8.8 (7.2)*	0.90
QOLI	−0.15 (1.59)	0.87 (1.87)*	0.59

Note. BDI = Beck Depression Inventory; MADRS-S = Montgomery-Åsberg Depression Rating Scale–Self Report; BAI = Beck Anxiety Inventory; QOLI = Quality of Life Inventory.

^aCohen's d, within group.

* $p < .001$.

Table 3. *Bias-corrected effect sizes (Cohen's d) for individual therapists and for all therapists combined*

Therapist	N/T	BDI ICC(r) = .11	MADRS-S ICC(r) = .07	BAI ICC(r) = .00	QOLI ICC(r) = .11
1	9	2.1	1.9	2.1	1.0
2	10	1.7	1.6	0.7	0.7
3	10	0.9	0.5	0.8	0.0
4	9	1.7	1.6	0.6	0.4
5	9	2.0	1.8	0.5	0.7
6	9	2.4	2.0	1.6	0.8
7	11	0.6	0.8	0.8	0.3
8	10	1.2	0.8	1.4	1.0
9	11	1.0	1.5	0.6	0.2
10	15	1.2	1.4	0.8	0.8
Total	103	1.4	1.3	0.9	0.6

Note. *The proportion of variance explained by differences between therapists is presented at the top of the column for each measure. BDI = Beck Depression Inventory; MADRS-S = Montgomery-Asberg Depression Rating Scale–Self Report; BAI = Beck Anxiety Inventory; QOLI = Quality of Life Inventory; N/T = number of patients per therapist; ICC = intraclass correlation coefficient.*

measure. It is not easy to explain this apart from the possibility that the depression treatment program does not directly target quality of life issues, whereas it does focus on symptoms of depression. Because we could not infer that therapist effects would be equally (un)important in depression as in anxiety disorders, we decided to investigate the same study question in a more homogenous sample (major depression). Our findings suggest that the QOLI is more sensitive to therapist effects compared with more direct measures of symptom reduction. We hesitate to conclude that this is the case for face-to-face therapies as well, but it is tempting to speculate that CBT studies, which often use symptom-specific measures in research, might be less sensitive to therapist effects compared with other forms of therapy (such as psychodynamic therapy) in which more global and general outcome measures are used. Another option could be that therapist effects are more easily observed in treatments of depression (e.g. Trepka, Rees, Shapiro, Hardy, & Barkham, 2004), and indeed this is a field in which most forms of psychotherapy tend to produce equivalent outcomes (Cuijpers, van Straten, Andersson, & van Oppen, 2008). For example, depression might be a more heterogeneous problem and, therefore, different forms of therapy will be of help because they will target different subsamples within the group of patients with depression. This may be why both researchers

and clinicians working with depression recommend using case conceptualisation methods such as behaviour analysis (McKnight, Nelson, Hayes, & Jarrett, 1984; Persons, Davidson, & Tompkins, 2001). For the anxiety disorders, our impression is that both the diagnoses and the treatments are more narrowly focused, and in spite of the substantial overlap between the anxiety disorders and with the mood disorders (Kessler, Merikangas, & Wang, 2007), treatment manuals might leave less room for idiosyncratic interpretations and individual differences in therapist behaviour. Perhaps it is then the case that self-help materials also may fail to include certain aspects that are handled more or less well by the guiding therapist. What we do know from previous research is that the amount of therapist contact, in particular if the therapist is totally absent, makes a difference in Internet treatment. As mentioned, effect sizes for treatments with therapist support are significantly higher than those for treatments without such support (Spek, Cuijpers et al., 2007). However, this does not address the quality of the support. Future studies could focus more on what the therapists in online treatment actually write to their clients.

To some degree, it is surprising that we found significant between-therapist effects at all (on the QOLI). One of the characteristics of the treatments investigated in the present study is that the therapists provided their support via e-mail. In typed text such as e-mail, nonverbal

cues are missing. In addition, unlike face-to-face encounters, e-mail discussions are asynchronous and have a built-in time delay, altering the nature of the therapeutic process. Both responsive nonverbal therapeutic behavior and the critical timing of interventions based on clients' level of understanding and emotional state can be considered as important therapeutic skills. The reduced possibilities to intervene nonverbally and at a critical moment in a text-based approach could restrict the scope of therapist actions and reduce the variance between therapists. However, compared with face-to-face therapies, other specific therapeutic skills such as writing abilities may be critical in text-based interventions.

Some limitations of the study need to be mentioned. First, the included therapists were, with the exception of one, relatively inexperienced, with limited experience of both live and Internet-delivered treatment. This limited the variance of therapist variables that might be important for treatment outcome. The data might thus only be generalizable to student therapists with less clinical experience than licensed psychologists and psychotherapists. Second, the power of the study was limited, and even though we restricted the analyses to one-way ICCs, the number of observations per therapist is quite small. This is because the nested analyses require large sets of data. Therefore, the risk for Type II errors is, of course, inflated. Another way of explaining this is that the nested data analysis power is diminished because only nine to 15 patients were treated by each therapist. This relative weakness of the study is perhaps evident in Table 3 where two measures (the MADRS-S and the BDI) convey the presence of an ICC but not to the degree of statistical significance. In addition, a proportion of the clients were given more attention because the treatment was purely e-mail based. However, this would more likely increase rather than decrease the clustering of data around therapists.

In sum, this study suggests that clustering of outcome data around individual therapist means can occur in Internet-delivered treatment for depression, and such effects are more probable for indirect measures of quality of life rather than symptom measures of depression. This can possibly be due to an additive effect of the therapist, when there are

issues brought up by the client not directly targeted by the treatment text. This could be beneficial for some clients, because it would perhaps more directly target their needs and increase the ability to achieve larger therapeutic changes in Internet-delivered settings. A possible conclusion is that we have stumbled on an important area of study, but more data from additional trials are needed to better study therapist effects. Future research is thus needed if we are to more clearly understand how and if therapist effects are present in Internet-delivered treatments.

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