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Who benefits most from therapist-assisted internet-delivered cognitive behaviour therapy in clinical practice? Predictors of symptom change and dropout

M. Edmonds[a], H.D. Hadjistavropoulos[a,*], L.H. Schneider[a], B.F. Dear[b], N. Titov[c]

[a] 3737 Wascana Parkway, Department of Psychology, University of Regina, Regina, SK, S4S 0A2, Canada
[b] eCentreClinic, Department of Psychology, Macquarie University, Sydney, NSW 2109, Australia
[c] MindSpot Clinic, Australian Hearing Hub Building, eCentreClinic, Department of Psychology, Macquarie University, Sydney, NSW 2109, Australia

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ABSTRACT

Internet-delivered cognitive behavioral therapy (ICBT) is effective for treating anxiety and depression, but not for all patients. Predictors of dropout and outcomes from ICBT remain unclear and the literature could benefit from study of response to ICBT among larger community samples using advanced statistical techniques. In this study, we sought to identify predictors of dropout and symptom change in a large community sample (n = 1201) who received therapist-assisted transdiagnostic ICBT targeting anxiety and/or depression. Logistic regression was used to assess dropout, and showed that those who fully completed ICBT lessons (n = 880) were older and endorsed lower psychological distress at intake than those who only partially completed ICBT lessons (n = 321). During the course of therapy, patients responded to the Patient Health Questionnaire-9 and Generalized Anxiety Disorder-7 at six time points. Autoregressive latent trajectory models were fitted to this data to assess the ability of demographic variables, program engagement, psychological and medical service usage, and psychological distress to explain individual variance in initial symptom levels and symptom change over time. Higher symptom scores at pre-treatment were predictive of greater symptom improvement. Symptom improvement was greater in those who were off work on disability and those without higher post-secondary education. Clinical implications are discussed.

1. Introduction

Cognitive behavior therapy (CBT) is an effective treatment for anxiety and depression (Butler, Chapman, Forman, & Beck, 2006), but obtaining access to this treatment is difficult for many people (Wang et al., 2007). Researchers have responded to this unmet need by developing alternative, cost-effective methods of delivering CBT, such as internet-delivered CBT (ICBT). Research shows that ICBT is effective at reducing symptoms of anxiety and depression, especially when offered with therapist assistance (Andersson, Cuijpers, Carlbring, Riper, & Hedman, 2014; Olthuis, Watt, Bailey, Hayden, & Stewart, 2016), and there is also evidence that the findings of research trials translate into routine clinic settings (e.g., Hadjistavropoulos, Nugent et al., 2016).

Unfortunately, not every ICBT patient experiences a positive outcome. Some patients leave therapy before completing treatment and others do not experience meaningful reductions in their symptoms. A recent review of data collected from nine studies (N = 1282) found a median completion rate of 69% for ICBT programs targeting depression (Andrews, Hobbs, & Newby, 2016). Although effect sizes are large in clinical trials (Cuijpers et al., 2013), examination of reliable recovery rates show a significant proportion of patients with clinically elevated pre-treatment symptom scores do not show large symptom improvement and remain in the clinical range post-treatment – 53% reliable recovery for depression and 64% reliable recovery for generalized anxiety (Hadjistavropoulos, Nugent et al., 2016). Some studies have investigated the relationship between patient characteristics and response to ICBT interventions, but findings are not consistent and what factors determine whether someone will respond well to ICBT remain undetermined (Andersson, 2016). Interpreting findings is complex; the programs being studied vary in length, content, the disorder being treated, and study findings can be affected by the sample size measured, the statistical approach used, and the context in which the study was conducted (e.g., research vs practice settings) (Beatty & Binnion, 2016).

The present study investigates predictors of patient outcomes when

* Corresponding author.
E-mail addresses: Michael.Edmonds@uregina.ca (M. Edmonds), Heather.Hadjistavropoulos@uregina.ca (H.D. Hadjistavropoulos), Luke.Schneider@uregina.ca (L.H. Schneider), blake.dear@mq.edu.au (B.F. Dear), nick.titov@mq.edu.au (N. Titov).

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delivering therapist-assisted ICBT to patients with depression and/or anxiety in clinical practice. Specific research on predictors of ICBT outcome in clinical practice settings is important because patients in these settings generally show greater severity and complexity, and compliance with treatment can be lower (Kazdin, 2015). Outcomes can be investigated both in terms of the changes in symptoms a patient experiences over the course of treatment and in terms of dropout from treatment. In the present study, we define dropout as withdrawing from therapy before completing all lessons of the treatment program and investigate what patient characteristics are associated with increased risk of dropout. Treatment adherence differs from dropout in that adherence includes not only staying in the treatment program but also actually following the treatment protocol (e.g., doing homework). The present study measures engagement with the ICBT program (e.g., the number of times a patient logs in) as a proxy for treatment adherence, and evaluates the utility of program engagement variables as predictors of symptom change. The relationship between symptom change and patient characteristics at intake (e.g., demographics) is also investigated.

A review of the literature revealed no studies that specifically examined predictors of outcome in transdiagnostic ICBT programs for anxiety and depression in clinical practice. In contrast to disorder-specific programs, transdiagnostic programs use materials that are applicable to both anxiety and depression generally. These programs have been shown to be as efficacious as disorder-specific programs (Dear et al., 2015; Newby, McKinnon, Kuyken, Gilbody, & Dalgleish, 2015; Newby, Twomey, Li, & Andrews, 2016; Titov et al., 2014; Titov et al., 2015) and have the added advantage of addressing the high comorbidity between depression and anxiety (Kessler et al., 2005). When used in routine clinical practice, transdiagnostic programs also take therapists less time to learn and deliver than when they have to learn multiple disorder-specific ICBT programs (Hadjistavropoulos, Nugent et al., 2016). Given the present lack of research on predictors of outcome for transdiagnostic programs, we turn to results from research on similar disorder-specific programs to guide the construction of our hypotheses.

Using data collected from a large community sample of patients (N = 297) who participated in a therapist-assisted ICBT program for depression, Button, Wiles, Lewis, Peters, and Kessler (2012) examined if patient characteristics collected at screening could be useful in predicting post-treatment symptom scores. Greater pretreatment symptom severity and being separated/divorced/widowed predicted greater reductions in symptom scores. Age, education and history of depression were not related to post-treatment scores. These findings are limited by the fact that only symptom data gathered at post-treatment was analyzed using a simple multiple regression model. This study also did not examine predictors of treatment dropout.

In contrast to the approach used by Button et al. (2012), Hadjistavropoulos, Pugh, Hesser, and Andersson (2016) used latent growth curve analysis to predict treatment completion and outcomes in a community sample of patients who received a 12 week therapist-assisted ICBT program for depression (n = 83) or anxiety (n = 112). The researchers found that greater symptom severity pre-treatment and completion of more lessons predicted greater symptom improvement over time for both treatment programs. Among those with depression, more phone calls to patients predicted poorer outcomes. Among those with anxiety, psychiatric care was associated with poorer outcomes. Some demographic variables predicted dropout, but only for those with anxiety. Specifically, higher age and higher education were positively related to higher completion of lessons (Hadjistavropoulos, Pugh et al., 2016). These findings were limited by a relatively small sample size, the fact that symptom data was gathered at only three time points (at screening, at mid-treatment, and at post-treatment), and missing data.

El Alaoui et al. (2016) built longitudinal multilevel models to explore predictors of treatment outcome in symptom data collected from a much larger community sample (N = 1738) of outpatients who received a 10 week ICBT program for depression. By first dividing possible predictor variables into separate groups (socio-demographic characteristics, clinical characteristics, the patient's family history of mental illness, and treatment-related factors), El Alaoui et al. (2016) identified which individual predictors to include in one overall model. According to the final model, full-time employment, high ratings of treatment credibility and higher lesson completion predicted both faster improvement in symptoms and lower post-treatment symptoms. Higher pre-treatment ratings of depression symptoms and sleep problems were associated with faster rates of improvement in symptoms over treatment, but predicted higher post-treatment depression. Being single was related to higher post-treatment depression levels, but did not influence rates of change. History of psychotropic medication was associated with a slower rate of symptom improvement and higher post-treatment scores.

In a similarly designed study of a program for social anxiety disorder, El Alaoui et al. (2015) again used longitudinal multilevel modeling to analyze symptom data measured at twelve time points over the course of ICBT. In this relatively large community sample (N = 764), being male, family history of minor depression and holding a low opinion of the credibility of treatment predicted lower lesson completion. Higher lesson completion and high ratings of treatment credibility at screening predicted greater rates of symptom improvement over time. The finding that gender predicted outcome in this social anxiety program but not in the study of ICBT for depression described above suggests that predictors of ICBT response likely differ depending on the disorder being treated.

Research into outcome prediction within disorder specific programs for anxiety and depression suggests that which patient characteristics are important prognostic factors depends on the program type. That predictors of outcome appear to differ according to the disorder being treated makes it hard to hypothesize what factors may predict outcomes in transdiagnostic ICBT programs. Predictors of outcome for transdiagnostic programs may look more like results from depression programs, more like anxiety programs, or different entirely. The present study offers an analysis of predictors of treatment outcome in a large sample of patients who received therapist-assisted, transdiagnostic ICBT for anxiety and depression in a routine practice setting. Using the autoregressive latent trajectory (ALT) modeling technique described by Bollen and Curran (2004), symptom data gathered from participants who received transdiagnostic ICBT was analyzed with the goal of detecting any relationships between patient characteristics and symptom trajectory over time. Patient case records were randomly split into two sub-samples, allowing models to be built on data from the first sub-sample and findings to be replicated in the second sub-sample. Given the limited research on this topic, this study was largely exploratory in nature, however, some preliminary hypotheses were formulated based on the above research. We hypothesized that: 1) high initial symptom scores would predict a greater reduction in symptoms over the course of treatment; 2) engagement with treatment would predict greater change over time; and 3) demographic factors, in particular employment, gender, and marital status would predict dropout and symptom change.

The sum of this research serves to better inform clinical practitioners about who benefits most from transdiagnostic ICBT, as well as who is most likely to dropout. Prognostic factors (i.e., characteristics we can measure in patients at screening) that are identified as significantly related to dropout or symptom change could help practitioners make better referral decisions. Furthermore, after treatment has started, therapists could be particularly mindful of patients who are identified as be at particular risk of dropout or poor outcomes. Treatment engagement factors, such as the number of messages received from a client or the number of times a client has logged in to the ICBT website, differ from prognostic factors in that they are not known until a patient starts therapy, but they may also be related to ICBT outcomes. If any treatment engagement factors are identified as being significantly related to outcome, clinicians could then monitor these engagement as