A Randomized Controlled Trial of an Internet-Delivered Treatment: Its Potential as a Low-Intensity Community Intervention for Adults With Symptoms of Depression

Derek Richards, Ladislav Timulak, Emma O'Brien, Claire Hayes, Noemi Vigano, John Sharry, Doherty Gavin

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Abstract

Background: Online delivered treatments for depression have proved successful, with supported programs offering the potential for improved adherence and outcomes. Online support is particularly interesting in the context of increasing access to interventions, and delivering interventions population-wide.

Objective: The research investigated if a supported online treatment is effective as a low-intensity community-based intervention for adults with depression. Based on previous successes with supported online treatments for, and the specific Space from Depression program, it was hypothesized that participants in the trial would demonstrate significant decreases in depressive symptoms post-intervention, with corresponding improvements in comorbid anxiety and quality of life indicators.

Methods: The study was a randomized controlled trial of a supported 8 module online cognitive behavioral therapy (iCBT) program for adults with depressive symptoms (n =
96) compared to a waiting-list control group ($n = 92$). The primary outcome was depressive symptoms. The program was made available nationwide using trained supporters from an established depression charity.

**Results:** For the treatment group, post-treatment effect sizes reported were large for the primary outcome measure on depression ($d = 1.19$). The between-group effects were moderate for the primary outcomes ($d = 0.40$) favoring the treatment group. Gains were maintained at 6-month follow-up.

**Conclusion:** The results from the present study show that the SilverCloud internet-delivered cognitive-behavior therapy (iCBT) program, *Space from Depression*, is effective in reducing depressive symptoms in comparison to a waiting list control group. The study demonstrated the potential of an online delivered treatment with online support in a community sample of Irish adults `with symptoms of depression. It gives support to a model for delivering online depression interventions population-wide using trained supporters. In locations where behavioral and mental health services are underdeveloped, or where structures simply do not exist, or where there is a potential to offset risk and escalation of difficulties and benefit from early intervention, such a model of service provision could be feasible.

**Introduction**
Depression has been ranked among the leading causes of disease burden throughout the world (Mathers & Loncar, 2006), with high rates of lifetime incidence, early age onset, high chronicity, and role impairment (Richards, 2011). Cognitive Behavior Therapy (CBT) established psychological intervention. Several barriers to access treatments exist such as such as waiting lists, cost and/or physical difficulties in accessing services, and personal obstacles such as stigma (Kohn, Saxena, Levav, & Saraceno, 2004; Mohr et al.,
In recent years online delivered interventions have demonstrated success (Andersson & Cuijpers, 2009; Richards & Richardson, 2012). The aim of this study was to demonstrate the effectiveness of an evidence-based internet-delivered intervention (SilverCloud) as a low-intensity community-based treatment for depression.

**Methods**

**Design**
The study was a randomized controlled trial (ISRCTN03704676) in which participants were randomized into two groups: 1) the internet-delivered intervention with support and 2) a waiting-list control group.

**Participants**
In two recruitment phases, 641 users self-referred and read the information about the study and applied to participate in the research. Figure 1 details the flow of participants through the trial.

**Procedure**
Post screening, participants were randomly assigned to the immediate treatment group or a waiting list control group.

**Measures**
At baseline, the Beck Depression Inventory-II (BDI-II), Sociodemographic & History Questionnaire, Generalized Anxiety Disorder-7 (GAD-7), and the Work and Social Adjustment Scale (WSAS), were completed for screening purposes. Thereafter the BDI-II, GAD-7, and WSAS were completed at the end of treatment, week 8, and at 3- and 6-month follow-up.
**Interventions**

*Computerized Cognitive-Behavior Therapy (iCBT) Program*

*Space from Depression (previously named Mind Balance)* is a seven-module online CBT-based intervention for depression.

**Waiting List Control group**

Participants in the waiting-list control group received no treatment for the duration of the first 8 weeks.

**Supporters**

Supporters were volunteers of the Aware charity who received further training (13 hours) in the SilverCloud platform and the delivery of feedback.

**Data Analysis**

Repeated measures ANOVAs were employed to assess for significant changes over time in the primary outcome measure for depression (BDI-II) and in secondary outcomes (GAD-7 and WSAS). Further analysis was conducted to determine the proportion of participants who make clinically meaningful change at end of treatment and at follow-up.

**Ethics**

The study protocol, information on the study, informed consent and related materials were submitted and approved by the ethics committee of the School of Psychology, Trinity College Dublin, Ireland (22/11/2013).

**Results**

**Baseline Characteristics**

Chi-square tests revealed that at post-randomization (Table 1), there were no significant differences in the sample between the treatment group (TG) and waiting list control group (WL) on any variables.
Outcomes on Primary Measures (BDI-II)
A statistically significant difference between the treatment group and waiting list control group in mean depression symptoms post-treatment $F_{1,150} = 6.62, p = 0.011, \eta_p^2 = 0.22$. Post hoc tests revealed that the significant reduction in depressive symptoms for the treatment group was maintained at 3-months ($p = .0001$) and 6-months ($p = .001$) follow-up (Figure 3). The between group effect size favored the treatment group at post-treatment, $d = -0.40$ (C.I.: -2.74, 1.65).

Outcomes on Secondary Measures (GAD-7, WASA)
A statistically significant difference between the treatment group and waiting list control group in anxiety symptoms post-intervention $F_{1,139} = 17.23, p = 0.000, \eta_p^2 = 0.11$. The results achieved at post-treatment for participants in the treatment group were maintained at 3-months ($p = .0001$) and 6-months ($p = .001$) follow-up. The between group effect size favored the treatment group at post-treatment ($d = -0.80$, C.I. –1.72, 0.15).

Reliable Change
Similarly, an index of recovery from anxiety was established. The treatment group achieved greater levels of recovery than the waiting list control group. Twenty-six of the 59 participants who provided follow-up data in the treatment group (44%) achieved a 50% reduction in GAD-7 scores following treatment, whereas only 10 of the 77 participants in the waiting list control group (13%) achieved these recovery rates.

Discussion
The results from the present study show that the SilverCloud internet-delivered cognitive-behavior therapy (iCBT) program, Space from Depression, is effective in reducing depressive symptoms in comparison to a waiting list control group. These results support preliminary research findings on Space from Depression (Sharry, Davidson, McLoughlin,
Furthermore, this study highlights the effectiveness of the online delivered treatment in reducing comorbid symptoms of anxiety in comparison to a waiting list control group.

The study alludes to the potential of an online cognitive behavior intervention, with support from trained volunteers, to accomplish significant outcomes at a population level. In locations where behavioral and mental health services are underdeveloped, or where structures simply do not exist, or where there is a potential to offset risk and escalation of difficulties and benefit from early intervention, such a model of service provision could be feasible (cf. Cuijpers & Riper, 2015).

Fifth, potentially the experiment has unfolded a model for the delivery of a population wide intervention for depressive symptoms. This type of intervention could easily be delivered through a charity network or as a primary care initiative (Andrews & Williams).

**Conclusion**

The current study showed that the online cognitive-behavior therapy program - *Space from Depression* – could be employed as a population level intervention and was effective in improving symptoms of depression and anxiety among many of its users. The study has shown the potential for online delivered interventions for population and community health and they may have a considerable influence especially in areas where services are underdeveloped and where access is limited. The study highlights the possibilities for health service innovation and to realize the benefits of early intervention.