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A Feasibility Open Trial of a Brief Internet-Delivered Written Exposure Therapy for Worry

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Background: Cognitive exposure, a treatment of choice for hypothetical fears, involves listening repeatedly to a recorded scenario of one's worst hypothetical fear. A major limitation, however, is that the script cannot be easily modified. **Aims:** The current study assessed the feasibility of a brief guided internet-based written exposure therapy (iWET) for hypothetical fears, *Mind at Peace*. **Method:** Fifty-three adults presenting clinical levels of anxiety (GAD-7 $\geq$ 8) and worry (PSWQ $\geq$ 45) were recruited. A single group pre-test/post-test design including a 3-month follow-up was used. *Mind at Peace* is a 6-week iWET consisting of psychoeducation and five 30-minute weekly writing exposure sessions. Feasibility outcome measures included treatment adherence, attrition, treatment acceptability and preliminary efficacy. Primary outcome measures were the Generalized Anxiety Disorder-7 (GAD-7) and the Penn State Worry Questionnaire (PSWQ). **Results:** Attrition was higher (57%) and adherence lower (28%) than expected. Intent-to-treat repeated measures ANOVAs revealed significant and large improvements on the GAD-7 ($\eta_p^2 = 0.36$) and the PSWQ ($\eta_p^2 = 0.23$) with similar findings among study completers. Remission rates were higher on the GAD-7 than on the PSWQ, suggesting that *Mind at Peace* may primarily target general symptoms of generalized anxiety. Rates of acceptability varied, but nearly all study completers reported that they would recommend this treatment to a friend. C**onclusions:** This study provided valuable information on *Mind at Peace*. Methodological changes are proposed to improve its feasibility. A more definitive trial incorporating suggested methodological improvements is recommended.

Keywords: anxiety, cognitive behaviour therapy, computer-aided psychotherapy, GAD, narrative, worry

Introduction

Worry is a core feature of generalized anxiety disorder (GAD; American Psychiatric Association, 2013). Two types of worries have been distinguished: worries about current situations and worries about hypothetical situations, which are future oriented and may not happen (Dugas and Ladouceur, 2000). An effective cognitive and behaviour therapy has been developed for the treatment of both types of worries using problem solving for worries about current problems, and cognitive exposure for hypothetical fears (Dugas and Ladouceur, 2000). The latter consists of listening repeatedly to a detailed scenario of one's worst hypothetical fear coming true recorded on a looped tape or CD. Its efficacy has been supported as part of

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a treatment package in randomized controlled trials (RCT) with remission rates varying from 76 to 84% at 6- and 12-month follow-ups (Dugas et al., 2003; Ladouceur et al., 2000; Dugas et al., 2010). The unique efficacy of problem solving for worries about current problems and cognitive exposure for worries about hypothetical situations using a looped tape was assessed in a case replication series conducted among 18 participants diagnosed with GAD. Each treatment produced significant improvements in anxiety and worry. Post-treatment, 66.7% of the treatment completers no longer met GAD diagnostic criteria and gains were maintained at a 6-month follow-up (Provencher et al., 2004). Support for the use of cognitive exposure to worry as a stand-alone treatment using imagery was also found in an RCT conducted among 73 outpatients diagnosed with GAD who were allocated either to worry exposure using imaginal exposure, applied relaxation or a waiting list control group (Hoyer et al., 2009). Both active treatment groups produced comparable and significantly larger decreases in anxiety and worry than the waitlist group with improvements maintained for up to a year.

While imaginal exposure can be efficient (Hoyer et al., 2009), the use of a looped tape to perform cognitive or imaginal exposure presents several advantages, such as the minimization of neutralization (Goldman et al., 2007). However, a major limitation is that the scenario cannot be easily modified during treatment, which can interfere with fear extinction (Goldman et al., 2007). In an attempt to further increase efficacy by allowing changes in the scenarios, a written exposure technique was developed by Goldman and collaborators (Goldman et al., 2007) based on Pennebaker's expressive writing paradigm (Pennebaker and Beall, 1986). The written exposure technique consisted of three to five 20- to 30-minute writing sessions held on consecutive days and focusing on one's worst hypothetical fear coming true. Its efficacy was tested in two RCTs (Fracalanza et al., 2014; Goldman et al., 2007). A first RCT was conducted among 30 non-clinical worriers allocated to either a written exposure group, focusing on one's worst hypothetical fear, or a neutral writing group (Goldman et al., 2007). Large within-group improvements in worry were found in the written exposure condition, but no significant between-group differences were observed. Using a similar methodology, Fracalanza and colleagues (2014) hypothesized that varying the imagined threatening scenario across exposure sessions would produce better outcomes. Forty-eight participants diagnosed with GAD were randomly assigned to either a consistent, varied or neutral exposure condition. Consistent exposure produced significant within-group improvements in worry and other GAD symptoms, but again, no significant between-group differences were found.

Sloan and collaborators used a similar protocol for the treatment of post-traumatic stress disorder (PTSD) and also reached inconclusive findings (Sloan et al., 2011). They hypothesized that the therapeutic dose of exposure in expressive writing (three 20-minute writing sessions) may not have been sufficient and developed *Written Exposure Therapy* (WET). WET is a 5-week programme including psychoeducation and five 30-minute weekly writing sessions (Sloan et al., 2012). An RCT conducted among 46 motor vehicle accident survivors diagnosed with PTSD revealed significant and large improvements in PTSD post-treatment over a wait-list condition (Sloan et al., 2012). At an 18-week follow-up, none of the participants in the WET group met PTSD diagnostic criteria compared with two-thirds in the wait list. A pilot study conducted among seven veterans diagnosed with PTSD also produced clinically significant results, adding further support to this treatment approach (Sloan et al., 2013).

WET could easily lend itself to an internet-based intervention given the nature of the task involving brief writing sessions and its limited duration and amount of clinical guidance. Meta-analyses and a systematic review support guided internet-based cognitive behavioural

therapy (iCBT) for the treatment of anxiety disorders with large between- and within-group improvements (e.g. Andrews et al., 2010; Olthuis et al., 2016; Spek et al., 2007; Titov et al., 2016). An internet-delivered therapy using writing exposure, guided online Structured Writing Therapy, has also received empirical support for the treatment of PTSD and complicated grief (oSWT; for a review, see Ruwaard and Lange, 2016). oSWT is a 5-week treatment package including four 45-minute written exposure sessions over 2 weeks during which detailed narratives of the traumatic event are produced. So far, its efficacy has been assessed in 10 studies including six RCTs with results suggesting that oSWT can be a feasible and acceptable treatment alternative for the treatment of PTSD and complicated grief. Its effectiveness in a routine clinical setting was also supported among 478 patients of an online mental health clinic suffering from post-traumatic stress. Large short-term reductions up to 6 weeks post-treatment were found in PTSD symptomatology (Ruwaard et al., 2012).

This study aims to assess the feasibility of a guided internet-based adaptation of WET, *Mind at Peace*, for the treatment of hypothetical worries related to GAD [iWET; see Sloan et al. (2012) for a description of the original WET protocol].[1] Feasibility outcomes were attrition, treatment adherence, acceptability and a preliminary assessment of intervention efficacy on anxiety, worry, depression and life satisfaction. We expected attrition to be low and treatment adherence and satisfaction to be high. In addition, it was hypothesized that *Mind at Peace* would produce significant improvements in anxiety and worry and that gains would be maintained at a 3-month follow-up. The assessment of *Mind at Peace*'s preliminary efficacy on depression and life satisfaction was exploratory, so no hypotheses were formulated. Effective engagement, defined as engagement with the intervention that is sufficient to achieve intended outcomes, was also explored. It was used to determine if participants who did not complete the intervention stopped as a result of having sufficiently engaged with the intervention to get the intended benefits or gave up before reaching a minimum therapeutic dosage for the intervention to work (Yardley et al., 2016). The selection and reporting of feasibility objectives was made in accordance with recommended guidelines (Eldridge et al., 2016).

Method

Participants

Participants were recruited from the general population in New Brunswick, Canada, using advertisements in different media. Recruitment took place between July and September 2015. In total, 186 individuals applied and 54 met the following inclusion criteria: resident of New Brunswick of at least 18 years of age, reliable internet access and clinical levels of anxiety based on two established measures of anxiety. An initial inclusion criterion was for applicants to show clinical levels of anxiety and worry as indicated by a total score $\geq$10 on the Generalized Anxiety Disorder-7 (GAD-7) and $\geq$55 on the Penn State Worry Questionnaire (PSWQ). Considering the number of applicants who did not meet this criterion, the cut-off scores were reduced to 8 and 45, respectively, which are acceptable (Behar et al., 2003; Kroenke et al., 2007). The exclusion criteria were: currently experiencing significant levels of depression or suicidal

[1] From 'Written exposure as an intervention for PTSD: A randomized clinical trial with motor vehicle accident survivors' by D.M. Sloan et al. (2012), *Behaviour Research and Therapy*, *50*, 627–635. Adapted and translated with permission of D.M. Sloan.

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Table 1. Participant sociodemographic and mental health characteristics (n = 53)

Characteristics	*n*	%
Gender		
Female	46	86.8
Male	6	11.3
Education		
High school	3	5.7
Trade school	3	5.7
College	17	32.1
University	29	54.8
Employment		
Full-time work	35	66.0
Part-time work	2	3.8
Full-time student	6	11.3
Leave of absence	2	3.8
At home	2	3.8
Retired	5	9.4
Unemployed	1	1.9
Income		
Less than $25,000	8	15.1
$25,000 to $49,999	13	24.5
$50,000 to $74,999	13	24.5
$75,000 to $99,999	9	17.0
$100,000 to $124,999	3	5.7
$125,000 to $149,999	2	3.8
$150,000 or more	5	9.4
Marital status		
Married	21	39.6
Civil union	12	22.6
Single	14	26.4
Separated	2	3.8
Divorced	2	3.8
Widow(er)	2	3.8
First language		
French	35	66.0
English	18	34.0
Previously diagnosed with a mental health disorder	20	37.7
Previously received mental health services	38	71.7
Taking medication for anxiety or depression	14	26.6

Percentages may not add up to 100% due to missing data.

ideation (defined as a total score >17 or responding > 2 to Question 9 [suicidal ideation] on the Patient Health Questionnaire-9); currently participating in cognitive behaviour therapy (CBT); a change of psychotropic medication intake 1 month prior to the study or anticipated changes in the following month. Participant flow, including treatment attrition and adherence, is illustrated in Fig. 1. A total of 53 participants were included in intent-to-treat analyses. The sociodemographic and mental health characteristics of the sample are presented in Table 1.

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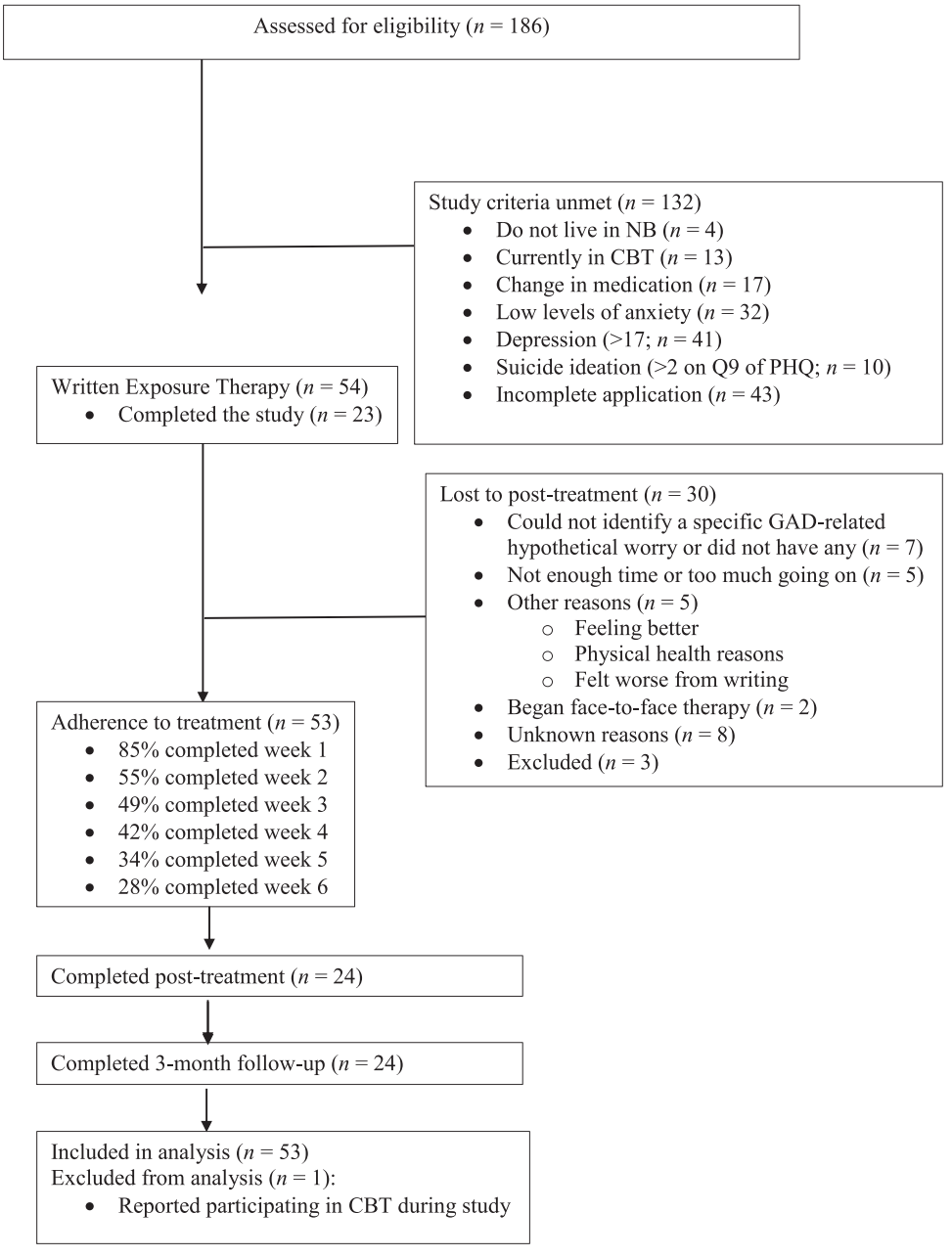

Figure 1. *Mind at Peace* study flow chart

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Feasibility outcome measures

Treatment adherence. Treatment adherence was measured using the percentage of participants who completed the 6-week intervention, i.e. who sent to the primary investigator their hypothetical worry and scenarios.

Attrition. The percentage of participants who did not complete the post-test or follow-up was used as a measure of attrition.

Treatment acceptability. Acceptability was assessed post-treatment using four multiple choice or yes/no questions (adapted from Titov et al., 2013): (1) 'Overall, how satisfied are you with the intervention?' (unsatisfied/somewhat satisfied/mostly satisfied/satisfied), (2) 'How would you evaluate the quality of the material?'(unsatisfactory/neutral/good/excellent), (3) 'Would you recommend this intervention to a friend with anxiety?' (yes/no), and (4) 'Was the intervention worth your time?' (yes/no). Four open-ended questions were also included to inquire about what was the most and least helpful and suggestions for improvements. A telephone interview was also conducted to review participants' answers on the satisfaction questionnaire, the perceived level of difficulty of the writing sessions and the adequacy of their duration.

Screening and treatment efficacy

Brief self-report measures were administered online in English or French. Pre-treatment Cronbach's alpha values are reported, and were all adequate.

Screening and primary outcome measures

Generalized Anxiety Disorder 7-item scale (GAD-7; Spitzer et al., 2006; French translation by MAPI Research Institute, 2016): the GAD-7 includes seven items assessing GAD symptoms and severity based on DSM-IV criteria. A threshold score of 8, with a sensitivity of 0.92 and a specificity of 0.76, was identified as an adequate cut-off score for identifying possible cases of anxiety disorders (Kroenke et al., 2007). Items are rated on a 4-point scale with higher scores reflecting greater symptom severity (Spitzer et al., 2006; $\alpha = .80$).

Penn State Worry Questionnaire (PSWQ; Meyer et al., 1990; French translation by Gosselin et al., 2001): the PSWQ consists of 16 items measuring the worry component of GAD using a 5-point rating scale. Its discriminant validity to distinguish GAD from other anxiety disorders has been supported. A cut-off score of 45, with a sensitivity of 0.99 and a specificity of 0.98, has been used to identify probable cases of GAD (Behar et al., 2003). Higher scores represent higher levels of worry ($\alpha = .83$).

Patient Health Questionnaire 9-item scale (PHQ-9; Kroenke et al., 2001; French translation by MAPI Research Institute): the PHQ-9 includes nine items assessing the symptoms and severity of major depression based on DSM-IV criteria. Answers are rated on a 4-point scale with higher scores representing higher levels of depression ($\alpha = .72$).

Satisfaction with Life Scale (SWLS; Diener et al., 1985; French translation by Blais et al., 1989): the SWLS consists of five items assessing perceived global life satisfaction. Items are rated on a 7-point scale with higher scores representing greater life satisfaction ($\alpha = .84$).

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Intervention

The intervention *Mind at Peace* is a 6-week internet-delivered WET for hypothetical fears consisting of a psychoeducation session followed by five weekly 30-minute writing sessions on one's worst fear coming true. Presented like an online course, *Mind at Peace* is delivered using a secure and encrypted website that is hosted on the WordPress platform by Accra Solutions Inc. Access to the website is username and password protected and the intervention is available in either English or French. Session 1 includes printable psychoeducation material from a public website on anxiety and its treatment[2] and a list of worry domains similar to the one used by Fracalanza et al. (2014). The treatment rationale is provided with a reminder that the writing task is about a hypothetical fear, not a real one, and that writing about such a fear would not make it happen. During that session, one's worst hypothetical fear is also identified. Participants emailed their chosen fear to the research coordinator, a clinical doctorate psychology student, to check for appropriateness. In doubt, additional information was requested. When the chosen fear was about a current problem, participants received an email reminding them of the distinction between fears about current problems and hypothetical situations and asking them to change their fear and email it to us. General instructions about the writing tasks (e.g. to write in a quiet area, to not be concerned about spelling, grammar, etc.) were provided in Session 2 along with a reminder to write, as part of exposure, about the same worst hypothetical fear during each writing session. After each session, encouragement was given to allow oneself to experience any feelings, images or thoughts that may come up during the week in relation to one's hypothetical fear rather than pushing them away. Sessions 2 to 6 included specific instructions pertaining to the writing task for each session (see Table 2 for a description of all sessions).

Standardized weekly emails were provided by the research coordinator using Titov and collaborators' email protocol.[3] Emails were delivered using an encrypted email account by the research coordinator and were personalized using participants' first name. They aimed to (1) provide downloadable instructions on the writing task; (2) send reminders; (3) reinforce progress; (4) normalize the challenges of exposure; and (5) reinforce the importance of repeated exposure. All scenarios were reviewed by the research coordinator to monitor adherence to the treatment protocol. In the presence of deviations, minimal clinical guidance was provided by the research coordinator on an as-needed basis under the supervision of the second author, a clinical psychologist. A telephone contact pre- and post-treatment was also included to review study procedures, to encourage motivation and adherence (Carlbring et al., 2006; Nordin et al., 2010), to answer any questions and to get feedback on the intervention.

Safety protocol

Participants' state was monitored on a weekly basis. Those whose PHQ-9 and GAD-7 total scores increased from pre-treatment by more than 5 points and had a total score of 15 and above on the PHQ-9 or the GAD-7 were contacted by email to provide instructions about how to

[2] Information on GAD, worrying, positive beliefs about worrying, and exposure from: 'What is Generalized Anxiety Disorder?' by AnxietyBC: www.anxietybc.com. Copyright (2007–2014) by AnxietyBC. Reproduced and translated with permission.

[3] Reproduced and translated with the permission of N. Titov.

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Table 2. Content of weekly sessions

Session	Content
1	Education on GAD: how to recognize GAD, what is excessive and uncontrollable worry, what people worry about, the distinction between actual fears and hypothetical fears, positive beliefs associated with worrying and ways to change them, the role of fear avoidance in maintaining GAD symptoms and how to face worries using exposure. Two case stories, a list of worry domains (relationships, finances, etc.) and examples of hypothetical fears are also included. The WET treatment rationale is provided with an emphasis on the importance of confronting hypothetical fears through writing
2	Writing of a detailed scenario of one's worst hypothetical fear coming true as if it were actually happening. Instructions to provide as many details as possible, such as what is seen, heard, etc., to write about feelings and thoughts experienced in the scenario and to explore one's deepest feelings and thoughts related to one's worst fear coming true
3	Option to continue to write one's scenario of one's worst hypothetical fear coming true, or if completed during the previous session, to rewrite the scenario from the beginning. The same writing instructions as in the previous session are given
4	Instructions to continue to write on one's worst hypothetical fear coming true with the option to focus on the most upsetting part. Additional instructions include to write about how it would affect one's life (e.g. one's view of life, the meaning of life, how one relates with others)
5	Same instructions as Session 4
6	Instructions to continue to write about one's feelings and thoughts related to one's worst fear coming true, and since it is the last writing session, to wrap up one's scenario, how one's worst fear coming true would impact one's current life and future

contact crisis services if needed. Those whose PHQ-9 total score was above 20 or who scored '3' to Question 9 were telephoned by the second author to assess the situation and to provide a management plan.

Statistical analyses

One-way repeated measures analyses of variance (ANOVAs) were performed to assess differences between T1 (pre-treatment), T2 (post-treatment) and T3 (3-month follow-up) followed by *post hoc* comparisons with Bonferroni correction. Intention-to-treat and study completer analyses were conducted. The former were performed using the baseline observation carried forward (BOCF). Study completers were defined as participants who provided both pre-treatment and post-treatment data. *t*-tests and chi-squared tests were conducted to compare study completers with study non-completers based on sociodemographic characteristics and pre-treatment outcome measures. To assess effective engagement, GAD-7 scores of participants who completed the post-test were compared across adherence levels using a repeated measures ANOVA with group [completion of Week 1 only (Group 1), completion of Week 2 only (Group 2), etc.] by time (pre-test/post-test). Remission rates were calculated for study completers using the GAD-7, PSWQ and PHQ-9 to assess the clinical significance of the findings. Remission rates were defined as the proportion of participants who scored above the clinical cut-off score at T1 and below the clinical cut-off at T2 or T3 on the GAD-7 (score $\geq$ 8), the PSWQ (score $\geq$ 45) or the PHQ-9 (score $\geq$ 10).

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Results

Attrition

As shown in Fig. 1, the attrition rate was 56.6% ($n = 30/53$). Most of participants who withdrew from the study did not take part in exposure ($n = 24$; 80%) while the others dropped out after one or two writing sessions. Chi-squared tests revealed no significant differences between the study completers ($n = 23$) and non-completers ($n = 30$) on sociodemographic characteristics, grouped in larger categories to allow a sufficient number of participants in each cell, previous use of mental health services and mental health diagnoses (all p-values $> .05$). t-tests revealed no significant differences on all pre-treatment outcome measures (all p-values $> .05$).

Treatment adherence

Twenty-eight per cent of participants completed all sessions of the intervention *Mind at Peace*. About half of the participants received one to two emails for clinical guidance ($n = 26$; 49%), mostly to help them identify a GAD-related hypothetical fear ($n = 19/26$; 73%). Of those, nine participants (47%) received additional information on what a hypothetical fear is, 10 (53%) were asked to choose another fear as the one that they identified was not GAD-related, and eight (42%) were asked if their hypothetical fear was a current issue (e.g. fear of losing one's job). Seven out of the 26 who received guidance to identify a hypothetical fear dropped out at that time (27%). Nine participants (35%) received additional clinical guidance on exposure principles (e.g. differences with journaling). The majority of study completers finished four to six sessions ($n = 20/23$; 87%).

Acceptability

Thirty-five per cent of the study completers ($n = 8/23$) reported being satisfied with the intervention, 26% ($n = 6/23$) mostly satisfied and 35% ($n = 8/23$) somewhat satisfied. One participant reported being unsatisfied. He did not participate in the writing task, which did not appeal to him, and expressed a reluctance to send his texts. The majority of participants rated the quality of the material as good to excellent ($n = 19/23$; 83%), while 17% ($n = 4/23$) rated it as neither good nor bad. All but one participant indicated that the therapy was worth their time and that they would recommend it to a friend (96%). In the open-ended questions and over the telephone ($n = 21/23$; 91%), the majority of participants reported finding the intervention helpful, interesting, or even enjoyable ($n = 14$; 60%). Half of the study completers ($n = 12$; 52%) reported finding the writing task difficult, but half of them nevertheless reported finding the intervention helpful or interesting. When asked about potential improvements, a few participants ($n = 5$; 24%) found that there were too many writing sessions, that they had nothing else to write about or were repeating themselves. Others mentioned that they would have liked to get feedback on their texts ($n = 4$; 19%) or would have appreciated additional psychoeducation ($n = 3$; 14%).

Preliminary efficacy of 'Mind at Peace'

Means and standard deviations for all outcome measures are presented in Tables 3 and 4. All assumptions for one-way repeated measures ANOVAs were met, excluding, for most

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Table 3. Entire sample's pre-treatment, post-treatment and follow-up means and standard deviations on all outcome measures

	Time 1		Time 2		Time 3	
Variable	Mean	*SD*	Mean	*SD*	Mean	*SD*
GAD-7	13.68	3.96	10.13	4.96	10.34	5.03
PSWQ	64.45	8.43	61.64	10.15	59.98	11.58
PHQ-9	10.36	4.15	8.49	4.55	8.51	4.69
SWLS	22.17	6.28	21.89	6.62	22.42	6.48

GAD-7, Generalized Anxiety Disorder-7; PSWQ, Penn State Worry Questionnaire; PHQ-9, Patient Health Questionnaire-9; SWLS, Satisfaction with Life Scale.

Table 4. Study completers' pre-treatment, post-treatment and follow-up means and standard deviations on all outcome measures

	Time 1		Time 2		Time 3	
Variable	Mean	*SD*	Mean	*SD*	Mean	*SD*
GAD-7	14.65	4.38	6.48	4.17	7.65	5.06
PSWQ	64.43	8.09	57.96	10.76	54.61	12.78
PHQ-9	9.30	4.82	5.00	3.32	5.39	4.25
SWLS	23.91	6.82	23.26	7.69	24.61	7.01

GAD-7, Generalized Anxiety Disorder-7; PSWQ, Penn State Worry Questionnaire; PHQ-9, Patient Health Questionnaire-9; SWLS, Satisfaction with Life Scale.

of the analyses, the assumption of sphericity. As a result, multivariate test results are reported.

Primary outcome measures

Intent-to-treat. A significant and large time effect was found on the GAD-7, F (2,51) = 14.43, $p < .001$, multivariate partial eta squared = .36. *Post hoc* tests showed that GAD-7 scores decreased significantly from T1 to T2, $p < .001$, with no significant change from T2 to T3. Similar results were found for the PSWQ, with a large time effect F (2,51) = 7.72, $p = .001$, multivariate partial eta squared = .23, with a significant decrease from T1 to T2, $p = .004$, and no significant difference from T2 to T3.

Study completers. A one-way repeated measures ANOVA indicated a significant and large time effect on the GAD-7, F (2,21) = 44.76, $p < .001$, multivariate partial eta squared = .81. *Post hoc* tests revealed that GAD-7 scores decreased significantly from T1 to T2, $p < .001$, with no significant change from T2 to T3. A significant and large time effect, F (2,21) = 10.77, $p = .001$, multivariate partial eta squared = .51, was found on the PSWQ with a significant decrease from T1 to T2, $p = .002$, and no significant difference from T2 to T3.

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Effective engagement

A repeated measures ANOVA with group (defined according to treatment adherence) by time (pre-treatment, post-treatment) was conducted on GAD-7 scores. Groups consisted of study completers who completed Week 1 only (Group1), Week 4 or Week 5 only (Group 2) or all six weeks of the intervention (Group 3) and completed the post-test. No participants completed Week 2 or Week 3 only. As two participants stopped after Week 4, and three stopped after Week 5, these two groups were combined ($n = 5$). A significant time effect was found, F (1,20) = 53.28, $p < .001$, but no significant group effect (F (2,20) = .44) or group by time interaction (F (2,20) = 1.93). Examination of participants' GAD-7 scores revealed that scores decreased from the moderate range to the mild range of anxiety for the three groups.

Secondary outcome measures

Intent-to-treat. A significant and large time effect was found on the PHQ-9, F (2,51) = 8.09, $p = .001$, multivariate partial eta squared = .24. *Post hoc* comparisons showed significant reductions in scores from T1 to T2, $p = .001$, with no significant changes from T2 to T3. No significant change was observed on the SWLS

Study completers. Analyses revealed a significant and large time effect on the PHQ-9, F (2,21) = 12.04, $p < .001$, multivariate partial eta squared = .53. *Post hoc* comparisons showed significant reductions in scores from T1 to T2, $p < .001$, with no significant changes from T2 to T3. No significant change was found on the SWLS.

Clinical significance

Remission. At T1, 21 of the study completers ($n = 23$) had anxiety at or above the cut-off score for the GAD-7.[4] Of those participants, 15 (71%) were below the cut-off score at T2, and 13 (62%) at T3. Twenty-three participants scored at or above the clinical PSWQ cut-off score. Five (22%) and seven (30%) of those participants scored below the PSWQ's cut-off score at T2 and T3. Twelve (12) participants had scores at or above the clinical cut-off score on the PHQ-9. Of those, 10 (83%) and eight (67%) scored below the cut-off score at T2 and T3.

Discussion

This study examined the feasibility of a brief guided iWET, *Mind at Peace*, for the treatment of hypothetical worries associated with generalized anxiety. Over the course of 3 months, we successfully recruited 53 eligible adults. Hypotheses regarding preliminary treatment efficacy were supported, but challenges were encountered with attrition and adherence. This study

[4] Candidates who were previously excluded, but met the revised inclusion criteria, were given the option to participate. The GAD-7 and PSWQ were administered again and these scores were used for the pre-test. Two of these candidates had scores lower than the revised cut-off score on the GAD-7, but not on the PSWQ and one participant had scores lower than the revised cut-off scores on both measures. Results on the GAD-7 were similar when these three cases were excluded and on the PSWQ when the one case was excluded; therefore, all cases were included to increase statistical power.

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provided valuable information on areas to refine or adapt in relation to these feasibility outcomes. Suggestions for improvement in future research are provided.

Despite the use of several procedures to promote study completion beside email messages, including clinical guidance on an as-needed basis and a scheduled pre-post telephone interview (Nordin et al., 2010), attrition in the current study (57%) was higher than WET for PTSD (9%; Sloan et al., 2012), iCBT for anxiety (Titov et al., 2011, 2013) and for face-to-face cognitive exposure for GAD (19%, Hoyer et al., 2009; 17%, Provencher et al., 2004). Half the study completers reported that the intervention was challenging, but it did not prevent them from making improvements and completing the study. Furthermore, other exposure-based studies involving flooding have lower attrition rates (Hoyer et al., 2009; Provencher et al., 2004), therefore suggesting that the attrition rate in this study is unlikely to be primarily related to the nature of the task. There were no pre-treatment differences between study completers and non-completers, suggesting that the drop-out rate is also unlikely to have been driven by participants with higher levels of worry or depression. Rather, it appears to have resulted primarily from the identification of hypothetical worries at Week 1. This phase required more guidance than anticipated with most participants dropping out during that phase of the intervention.

Future studies may benefit from including, as part of the screening process, a telephone interview to identify core hypothetical worries related to generalized anxiety using questions, such as the ones suggested by Meares and Freeston (2015) and techniques such as the vertical arrow (Dugas and Robichaud, 2007). The inclusion of a diagnostic interview would also reduce the likelihood of including participants who do not have worries about hypothetical situations but about current problems. The treatment of hypothetical worries using WET may also present additional challenges than the treatment of PTSD or other anxiety disorders given their future-orientated nature. The provision of scheduled weekly therapist contact, as provided in WET or oSWT for PTSD, as opposed to guidance on a needed basis may be indicated.

Despite our best efforts, treatment adherence was lower than in guided transdiagnostic iCBT for anxiety and depression using the same standardized email messages protocol as Titov and colleagues (58–81%; Titov et al., 2011, 2013). Adherence was also lower than in guided oSWT (59–84%; Knaevelsrud and Maercker, 2007; Knaevelsrud et al., 2015). A number of participants dropped out of the study after Week 1, which lowered the adherence rate. The suggestions made above to increase attrition would be likely to improve treatment adherence as well. Higher treatment adherence was obtained once exposure was initiated with half the participants completing all writing sessions. Moreover, participants who did not complete the intervention, but completed the study, showed significant improvements post-treatment, suggesting that they may have stopped the intervention after having sufficiently engaged with it to obtain the intended benefits. A few of them stopped after Week 1 which offered psychoeducation only. This is consistent with a meta-analysis showing that even passive psychoeducation in the form of pamphlets can have a significant impact on psychological distress (Donker et al., 2009). These findings highlight the relevance, in future iWET studies, to assess effective engagement with the intervention to obtain a more accurate picture of treatment adherence and treatment response.

Findings on acceptability also provided insight in ways to improve the future use of *Mind at Peace*. Varying levels of treatment satisfaction were obtained among study completers. Lower levels may have been obtained when considering participants who dropped out of the study as well, but no data were available in this regard. The possibility remains that participants who dropped out may have done so as a result of being dissatisfied. About 60% of the study

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completers were mostly satisfied to satisfied with the intervention, which is lower than in other iCBT studies (71–93% reporting being mostly satisfied to very satisfied; Titov et al., 2010, 2011). A few participants found that there were too many writing sessions, that they had nothing else to write about, or that they were repeating themselves. This may have affected their treatment satisfaction. Scheduled weekly therapist guidance would be helpful to address this issue and to ensure that fear avoidance would not be involved. Only one participant reported being unsatisfied. All but one study completer rated *Mind at Peace* as worthwhile and reported that they would recommend it to a friend. Participants' suggestions to provide additional psychoeducation and personalized feedback on their scenarios may prove to be valuable in further increasing acceptability.

Preliminary findings on treatment efficacy, including remission rates, are encouraging with similar results obtained in the intent-to-treat and study completers analyses. The results are similar to the moderate to large within-group improvements found in written exposure for GAD associated hypothetical worries using the expressive writing paradigm (Fracalanza et al., 2014; Goldman et al., 2007). The significant improvement in symptoms is also similar to oSWT for PTSD and complicated grief (Ruwaard and Lange, 2016), as well as guided iCBT for GAD (Olthuis et al., 2016; Titov et al., 2016). The large improvements found on anxiety and worry in this study also compare favourably to those reported for face-to-face therapy including WET for PTSD (Sloan et al., 2012) and traditional face-to-face cognitive exposure therapy for GAD (Hoyer et al., 2009; Provencher et al., 2004). Secondary gains on depression were also observed. No change in life satisfaction was found, but this is probably because pre-test scores were comparable to those found among healthy populations (Diener et al., 1985).

Remission rates among study completers based on the GAD-7 were elevated. Lower remission rates were found in the current study using the PSWQ than the GAD-7. The GAD-7 may measure changes in more general anxiety symptoms associated with GAD and as such be more sensitive to initial treatment change than the PSWQ (Dear et al., 2011). *Mind at Peace* may primarily target remission from more general anxiety symptoms associated with GAD than worry, which may take more time to change. This may explain increasing PSWQ-based remission rates in worry from post-treatment to follow-up observed in this study and in another iCBT study (e.g. Paxling et al., 2011).

This study has a number of limitations. Being a feasibility study, the sample was small, and no control or comparison group was included. A larger randomized controlled clinical trial is needed before any conclusions can be drawn about the efficacy of *Mind at Peace*. Most participants were women, had a post-secondary education, and worked full-time, which may affect the generalization of the findings. No diagnostic interview was used pre- and post-treatment, which can also limit the generalization of the findings. However, clinical levels of generalized anxiety were determined using clinical cut-off scores on two well-established screening measures for GAD in an attempt to simulate the use of *Mind at Peace* on an automated and publicly available website (Titov et al., 2013). This procedure also aimed to allow people who would not fully meet diagnostic criteria to access treatment.

Conclusion

This feasibility study allowed us to gain meaningful experience in how iWET for hypothetical worries could be delivered in a more feasible and acceptable way. It is believed that the intervention *Mind at Peace* is feasible with methodological modifications. As a first-line

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intervention, iWET has the potential to ease access to care while reducing costs. Exposure-based treatments for GAD may be a more parsimonious treatment option for people struggling mostly with hypothetical fears than available treatment packages. Exposure being a core treatment component for a number of anxiety disorders, and anxiety disorders being highly comorbid, transdiagnostic iWET or tailored iWET based on client preferences and symptom profile may prove to be efficient interventions (Andersson and Titov, 2014). Such treatment venues would be worth exploring as they may further facilitate access to evidence-based care.

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