An Online Mental Health and Wellness Intervention Supplementing Standard Care of Depression and Anxiety

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A B S T R A C T

Online interventions offer benefits, but often have not been tested in studies. The aim was to study feasibility, acceptability, and preliminary effectiveness of an online intervention supplementing standard care of depression and anxiety. The study was conducted within a large healthcare system. Three primary care and four behavioral health providers recruited 96 participants. Overall, 91% (n = 87) agreed to participate, while 43% (n = 41) completed registration and 27% (n = 26) logged into the intervention multiple times. Participants referred by behavioral health demonstrated greater involvement. Reductions in depression and anxiety were observed. Most providers were satisfied with the intervention. This study supports future research.

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Depression and anxiety are highly prevalent conditions, and are common among patients seeking services in both primary care and behavioral health settings in the United States (US) (Herrman et al., 2002; Mathers & Loncar, 2006; Stein et al., 2004). These conditions are typically treated with a combination of either medication, psychotherapy, or watchful waiting approaches via traditional face-to-face healthcare appointments (Connolly Gibbons et al., 2011; Moore, Byng, Stuart, Harris, & Kendrick, 2013; Simon et al., 2014). Unfortunately, several barriers result in suboptimal access and utilization of evidence-based treatments. For example, many geographic regions do not have an adequate number of trained providers capable of delivering treatment, while in other areas there is often a shortage of available appointment times (Gallucci, Swartz, & Hackerman, 2005; Murray & Berwick, 2003; Weissman et al., 2006). Stigma also plays a role in limiting treatment seeking (Ahmedani, 2011). Recently, major advances in technology have provided opportunities to expand services online. Technology-based interventions have offered the opportunity to increase access, improve engagement, and expand the availability of resources for individuals with depression and anxiety (Ahmedani, Crotty, Abdulhak, & Ondersma, 2015; Clarke & Yarborough, 2013). Online versions of psychotherapy have been developed either to replace or to augment face-to-face treatment modalities, and have shown to be effective at mitigating mental health symptoms (Andrews, Cuipers, Craske, McEvoy, & Titov, 2010; Clarke et al., 2009). Evidence suggests that online CBT has high acceptability and practicality. It has also shown to be as effective as in-person treatment (Andrews et al., 2010). In addition, online CBT has shown to reduce therapist time, thus allowing clinicians to care for more patients (Carlbring et al., 2005; Kay-Lambkin, Baker, Lewin, & Carr, 2009). While CBT provided entirely online may be effective for some individuals, other studies suggest that supplementing face-to-face treatment with online intervention allows for more flexibility to tailor treatments specifically for individuals, while still maintaining in-person contact (van der Vaart et al., 2014). In addition, patients who are taking medication as part of their treatment for depression or anxiety are required to have regular face-to-face appointments for medication management. Since most patients with mild–moderate depression are treated in primary care (Hoifodt et al., 2013), augmentation of in-person visits with online intervention may provide additional benefit. Evidence suggests that blended in-person and online treatment may be effective (Hoifodt et al., 2013), however, there are few studies documenting the use and effectiveness of online CBT-based interventions adjunctive to primary care physician treatment of depression or anxiety.

The popularity of web-based interventions to supplement standard care of depression or anxiety is expanding dramatically (Marks, Cavanagh, & Gega, 2007; Schneider, Sarrami Foroushani, Grime, & Thornicroft, 2014), despite few studies actually documenting the effectiveness of many of the most commonly used products. Among the most popular products released within the last few years is the subject of the current study. Healthcare organizations across the country began using this online mental health and wellness intervention, which is based on CBT principles and draws its content from the catalog of New Harbinger workbook resources, to offer additional services to their patients as a supplement to face-to-face treatment for depression and anxiety. While there is a paucity of published studies supporting the use of this online intervention, use of the product has expanded as health system leaders believe it to be an innovative and creative solution to treatment.

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and quality improvement in modern healthcare (Bowden & Smits, 2012).

The purpose of this study was to examine the feasibility, acceptability, and preliminary effectiveness of the online intervention as a supplement to traditional face-to-face care for depression and anxiety offered by both integrated behavioral health and primary care providers. This study is of particular importance to psychiatric-trained nurses, as they are common providers of integrated behavioral health services within primary care clinics. The main objectives were to assess the use of, and engagement with, this online intervention, examine change in anxiety and depression severity from baseline to follow-up, and evaluate provider satisfaction with the tool.

METHODS

Setting and Participants

All participants were recruited from primary care and behavioral health services departments at Henry Ford Health System (HFHS) from June through October 2015. HFHS is a large healthcare system in Southeast Michigan, serving Detroit and its metropolitan area. HFHS provides care to over 1 million individuals throughout the region through its 30+ clinics, 5 hospitals, and variety of health insurance products. There are over 1,200 physicians and researchers within the Henry Ford Medical Group headquartered at the system's clinic and hospital sites.

Three primary care physicians and 4 integrated behavioral health providers (1 clinical psychologist, 3 psychiatric certified nurse practitioners) practicing within primary care agreed to participate. The 7 providers referred all participants to the study who were identified as having depression or anxiety and were beginning standard care treatment for at least one of those conditions. Standard care included medication (delivered by primary care or behavioral health), psychotherapy (delivered by behavioral health), or watchful waiting (delivered by primary care or behavioral health). The latter approach involves patients making regular visits to their provider to monitor symptoms, but with no specific standard treatment offered. A total of 96 participants were referred to the study (60 from behavioral health and 36 from primary care). This project was approved by the institutional review board at Henry Ford Hospital.

Design, Protocol, and Ethical Procedures

This study used a single group pre-/post-test research design. To all eligible patients, providers described the study and intervention as a supplement to standard care, then asked if they were interested in participation. Individuals who consented to participate provided their email address to the treating provider. During the consent process, study staff members discussed with patients that all study information would be kept confidential, but could be shared with the clinical provider to augment current treatment. For those who declined, their decision was documented in an electronic database accessible only by the study team. For those who agreed, the provider entered the email information into an external portal, which generated an email to the participant briefly describing the intervention and providing a link to the intervention website. Participants who clicked on the web-link were taken to the online intervention portal. In order to log-in, participants created an account using an email address and unique password. Once logged on to the website, first time visitors completed the registration process by answering a series of questions that queried their symptoms and needs. Participants were then able to log-on to the intervention website at any time to complete the intervention modules and worksheets as well as view available educational and motivational content. The online intervention web portal captured information on the referral source (behavioral health versus primary care), number of log-ins, modules/worksheets completed, and other site metrics.

Each day a research assistant downloaded the contact information for those individuals who agreed to participate. The research assistant made telephone calls up to five times for up to a week period to each participant in order to complete a baseline survey. Information from the calls and survey responses was recorded in separate databases to keep identifying information separate from survey responses. The research assistant also contacted participants by telephone approximately 30 days (i.e., 28–35 days) after the baseline survey date to complete a follow-up survey. Participants who completed the survey were mailed a $5 gift card to a popular store at both baseline and follow-up survey time points.

The brief survey included single-item questions on overall physical and mental health as well as standardized multi-item measures to assess depression and anxiety. Depression was measured using the 9-item Patient Health Questionnaire (PHQ-9) (Kroenke, Spitzer, & Williams, 2001), and anxiety via the 7-item Generalized Anxiety Disorder (GAD-7) scale (Spitzer, Kroenke, Williams, & Lowe, 2006). Both measures are valid and reliable for use in various healthcare settings, and the questions correspond to the criteria used for major depression and generalized anxiety disorder as defined in the Diagnostic and Statistical Manual of Mental Disorders (APA, 2000). Additionally, these instruments were chosen because of their brevity and wide use in clinical settings throughout the US (Solberg et al., 2013).

Demographic data on all patients were collected from the electronic medical record system within the health system. Data were available on age, sex, and race/ethnicity. These data were integrated with the survey and intervention data into a single database for use in the study.

The Intervention

The online intervention under study is a commercially available web and/or mobile application which extends treatment for mental health concerns with psychoeducational content, action plans and tools beyond the constraints of the real-time face-to-face visit. The application teaches evidenced based interventions like cognitive behavioral therapy and acceptance and commitment therapy while also providing wrap-around wellness, motivational and inspirational content. Intervention users receive a customized mental health “workout” each time they login to the site. In addition to the core workout, both mobile and web applications offer a diverse set of tools for monitoring mood, altering unhealthy cognitions, and building motivation/self-empowerment. Consumer engagement with the online intervention is also supported via a weekly e-mail series. The intervention is designed to be used as an adjunct to traditional behavioral health care. Patients and providers are encouraged to discuss lessons and skills from the intervention within their regular sessions (MyStrength, Inc., 2016).

Data Analysis

Statistical analyses began with the calculation of descriptive characteristics of the sample, including the sex, age group, and race/ethnicity of participants. Then, participation and engagement in the intervention were examined. The number and percentage of participants referred to the intervention by behavioral health, primary care, and combined were calculated for 1) agreement to participate, 2) initial log-in and registration on the intervention website, and 3) continued use as measured by 2- and 5-logins during a 30-day follow-up period. Among those who registered for the intervention, the number and percent who completed baseline and 30-day follow-up assessments were calculated. Next, depression and anxiety severity were compared from baseline to follow-up among those who registered for the intervention. Depression and anxiety were measured at each time point as total mean scores on the assessment instruments as well as the percentage meeting criteria for moderate–severe conditions based on established cut-off scores for each instrument. Finally, provider satisfaction with the intervention
was examined using responses to Likert-scale and open-ended qualitative questions.

RESULTS

In total, 96 patients were referred to the study – 60 individuals by behavioral health and 36 by primary care providers. Among these individuals, 87 patients (90.6%) agreed to participate in the intervention and were sent an automated, emailed welcome message with a link to the intervention website. As shown in Table 1, the majority of participants in each demographic category were female (n = 62, 71.3%), non-Hispanic White (n = 48, 55.2%), and aged 40–64 years old (n = 47, 54.0%). Interest in participation was greater among patients referred by behavioral health providers – over 98% (n = 59) agreed to participate when referred by behavioral health versus 78% (n = 28) from primary care.

As shown in Table 2, approximately 43% (n = 41) of individuals registered for the intervention, which required at least one log-in to the website. After the initial log-in, approximately 27% (n = 26) of all referred participants completed 2 logins and 9% (n = 9) made at least 5 logins within 30 days of referral. Patients referred by behavioral health providers more often registered for the site (n = 32, 53.3%) as well as logged on to the website at least 2-times (n = 20, 33.3%) and 5-times (n = 6, 10%) as compared to those referred by primary care. Participation in the baseline and 30-day follow-up assessment was comparable across provider type, with slightly greater participation (~5% greater) among those referred by behavioral health. In total, 24 individuals completed baseline assessment and 20 completed the follow-up assessment.

The average depression severity score at baseline was 7.9 and 37.5% (n = 9) had a score of ≥10, as the established cut-off indicative of a moderate–severe condition (Table 3). At the 30-day follow-up assessment, the average depression severity score was 5.9 – representing a decline of 2 points from baseline to follow-up. In addition, 25% of participants (n = 5) had a score of 10 or higher, which also represented a reduction from baseline. The average anxiety severity score was 6.8 at baseline and 6.3 at 30-day follow-up, a decline of 0.5 points. The number and percent of individuals with moderate to severe anxiety scores of ≥10 was similar at baseline (n = 9, 37.5%) and 30-day follow-up (n = 8, 40.0%).

In total, 5 of the 7 providers rated their satisfaction with the intervention, including all 4 behavioral health providers and 1 primary care physician. Using a Likert-scale, all providers had a positive overall impression of the intervention and thought that the intervention was helpful to their patients. Furthermore, 4 of 5 providers indicated that they would continue to use the tool with their patients, including the primary care provider, while 1 behavioral health provider was ‘unsure’ stating that the intervention “works for some patients.” Again, 4 of 5 providers said they would recommend the tool to their colleagues. All of the providers said that they spent less than 5 minutes discussing the intervention at each visit. Qualitative questions were also used to query providers regarding the overall intervention. One critique mentioned by 3 of 5 providers was that, in the future, more training is necessary prior to launching the intervention to ensure providers understand all of the features and modules available to their patients. Another important critique was that the providers found the required documentation necessary for the research study to be arduous, and indicated that the processes would be much smoother in a regular clinical environment. In addition, the following comments from providers indicated the reasons the intervention was most helpful: 1) “provided one more option that I have to offer patients,” 2) “gives patients more control,” and 3) “allows patients access on their own schedule.”

DISCUSSION

This study evaluated the feasibility, acceptability, and preliminary effectiveness of this online intervention as an adjunct to standard care of depression and anxiety in a primary care settings by both primary care and integrated behavioral health providers. The intervention was designed to support treatment in behavioral health, and overall, individuals receiving traditional services by behavioral health providers more often 1) agreed to participate in the intervention, 2) registered and viewed the website, and 3) logged in multiple times, as compared to primary care patients. In particular, the rate of agreement to participate in the intervention was very high across both referral sources (>80%), and was near 100% in behavioral health, suggesting that participants agreed to the intervention when discussing treatment options with their providers. Participation drop off occurred most frequently between agreement to participate and initial log-in as well as from the initial log-in to a subsequent log-in.

One-third of behavioral health patients logged into the website multiple times during the 30-day follow-up period versus less than 17% of primary care patients. While these participation rates appear low, they are consistent with participation in other similar adjunctive web-based interventions (Whiteside et al., 2014). Nonetheless, the online intervention appears to be most acceptable as an adjunct to behavioral healthcare. This is not surprising given that behavioral health providers have longer visit times and commonly offer exercises or ‘homework’ for patients to complete between appointments. As such, the intervention modules from the online intervention can be used in the same fashion. Because behavioral health appointments are traditionally scheduled more frequently, particularly psychotherapy, individuals may be more likely to use the intervention during this treatment. Alternatively, standard care practice guidelines for ‘watchful waiting’ in primary care recommend follow-up appointments every 90 days ([APA], 2010). Medication management may require follow-up between 30 and 90 days in either treatment venue depending on the length of the prescription. Therefore, complimentary use of the online intervention with traditional primary care services or within the context of a medication management regimen may require different implementation within the clinical work flow and include patient reminders between visits to ensure greater engagement with the program. Additional research may shed more light on reasons patients do or do not engage with this product in various settings.

Preliminary results demonstrated an improvement in both depression and anxiety severity as well as a reduction in the proportion of patients meeting criteria for moderate–severe depression during the 30-day follow-up period. These results are consistent with other studies demonstrating improvement in depression and anxiety after participating in online behavioral health programs (Andrews et al., 2010). These data support a future clinical trial to provide more definitive evidence on whether this model may reduce depression and anxiety severity. Additional study is particularly important given that this online intervention is a widely used product in healthcare and evidence of its effectiveness is essential for future clinical practice.

There is promise for the use of online psychotherapeutic products in traditional clinical care. This is supported by the overall positive
feedback on the intervention provided by clinicians in this study. Furthermore, recent evidence suggests that use of online psychotherapy in real-world practice may have similarly positive effects as compared to those found in clinical trials and other research studies (Ruwaard, Lange, Schrieken, Dolan, & Emmelkamp, 2012). One particular advantage of using an online therapeutic program as an adjunct to standard care (rather than instead of in-person visits) is that the therapeutic alliance between the patient and provider can be established and maintained. This is considered an important part of psychotherapy (Krupnick et al., 1996). Providers in this study found the intervention to be helpful, because it was another tool they could offer their patients. Nonetheless, there are also significant barriers to complete adoption of online products. For example, significant training may be required to assist providers with an understanding of all the available tools and options, as was demonstrated by comments from several providers in this study. In addition, lack of insurance reimbursement for online therapeutic products may also be a major barrier (Spurgeon & Wright, 2010). New models for insurance reimbursement are needed in order to facilitate full adoption of these products, otherwise, healthcare systems or providers will need to pay for these products without reimbursement.

Limitations

The findings should be interpreted in the context of limitations. First, this study was not a clinical trial and does not provide causal evidence of the effectiveness of this intervention to mitigate mental health symptoms. The observed improvement in severity may have been due to other active treatment factors or regression to the mean. Nonetheless, the effectiveness of this intervention to mitigate mental health symptoms may have similarly positive effects as compared to those found in clinical trials and other research studies (Ruwaard, Lange, Schrieken, Dolan, & Emmelkamp, 2012). One particular advantage of using an online therapeutic program as an adjunct to standard care (rather than instead of in-person visits) is that the therapeutic alliance between the patient and provider can be established and maintained. This is considered an important part of psychotherapy (Krupnick et al., 1996). Providers in this study found the intervention to be helpful, because it was another tool they could offer their patients. Nonetheless, there are also significant barriers to complete adoption of online products. For example, significant training may be required to assist providers with an understanding of all the available tools and options, as was demonstrated by comments from several providers in this study. In addition, lack of insurance reimbursement for online therapeutic products may also be a major barrier (Spurgeon & Wright, 2010). New models for insurance reimbursement are needed in order to facilitate full adoption of these products, otherwise, healthcare systems or providers will need to pay for these products without reimbursement.

Conclusions

Overall, this study provided data on the feasibility, acceptability, and preliminary effectiveness of a widely used online psychotherapeutic mental health and wellness intervention as an adjunct to standard care for depression and anxiety in primary care and behavioral health settings. The information gathered in this study provides important evidence to guide future research on this online intervention across healthcare delivery settings. Specifically, a future clinical trial of this intervention would provide important information to support its use in clinical practice. While several challenges exist, this online intervention is a promising option to expand the availability of treatment options for patients with behavioral health conditions.

CONFLICT OF INTEREST

Abigail Hirsch is an employee of myStrength, Incorporated©. All other authors report no conflicts of interest for this project.

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References


Table 2

Participation in the Intervention by Referral Source.

<table>
<thead>
<tr>
<th>Patients referred</th>
<th>Behavioral health patients</th>
<th>Primary care patients</th>
</tr>
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<tbody>
<tr>
<td>n (%) of referred</td>
<td>n (%) of referred</td>
<td>n (%) of referred</td>
</tr>
<tr>
<td>Agreed to participate at clinic visit; sent email invitation</td>
<td>96 (90.6)</td>
<td>60 (98.3)</td>
</tr>
<tr>
<td>Registered for site (at least 1 login)</td>
<td>87 (42.7)</td>
<td>59 (53.3)</td>
</tr>
<tr>
<td>At least 2 logins</td>
<td>26 (27.1)</td>
<td>20 (33.3)</td>
</tr>
<tr>
<td>At least 5 logins</td>
<td>9 (9.4)</td>
<td>6 (10)</td>
</tr>
</tbody>
</table>

Table 3

Mental Health Outcomes for Intervention Participants.

<table>
<thead>
<tr>
<th>Telephone survey outcome</th>
<th>Baseline (n = 24)</th>
<th>1-Month follow-up (n = 20)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall average score, mean (SD)</td>
<td>Depression (PHQ-9)</td>
<td>7.9 (4.3)</td>
</tr>
<tr>
<td>Moderate to severe (score ≥ 10), X (n)</td>
<td>37.5 (9)</td>
<td>25 (5)</td>
</tr>
<tr>
<td>Anxiety (GAD-7)</td>
<td>Overall average score, mean (SD)</td>
<td>6.8 (4.9)</td>
</tr>
<tr>
<td>Moderate to severe (score ≥ 10), X (n)</td>
<td>37.5 (9)</td>
<td>40.0 (8)</td>
</tr>
</tbody>
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