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Do college students use online self-help? A survey of intentions and use of mental health  
resources

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### Abstract

Online self-help may help increase the reach of mental health services for college students, but little research has examined students' actual interest/use of these resources. An online survey of 389 college students examined intentions and use of online mental health resources as compared with other support options. Findings indicated the highest intentions/use of informal supports (e.g., parents, friends) for mental health problems and lowest intentions/use for online self-help. However, a subset of students showed a preference for online self-help over other forms of support. Participants were also more likely to request online self-help resources (21%) than in-person therapy resources (9%) when offered these options. Reported barriers were also identified for using mobile apps specifically (e.g., stigma, credibility, privacy). Overall, results suggest mixed findings and relatively low interest for use of online self-help among college students, while highlighting potential barriers that might be addressed to increase engagement.

*Keywords:* College students; Help seeking; Mental health; eHealth; mHealth.

Do college students use online self-help? A survey of intentions and use of mental health resources

Mental health problems are a significant and prevalent issue among college students. Prevalence estimates are as high as almost half of students having a diagnosable disorder in a given year (Blanco et al., 2008). The costs of these disorders are widespread, ranging from suicidality (Drum et al., 2009) to psychosocial impairment in areas including academic success (Eisenberg, Golberstein, & Hunt, 2009). Reports from counseling center directors indicate the severity of mental health problems among students has actually been increasing in recent years (Gallagher, 2015).

Engaging students in evidence-based mental health services is a promising solution given the availability of efficacious treatments for many problems students are likely to struggle with. However, despite the benefits of such services, many students do not seek treatment (Eisenberg, Hunt, & Speer, 2012a). For example, a survey of approximately 13,000 students across 26 campuses found that only 36% of those with a mental health problem sought treatment (Eisenberg, Hunt, Speer & Zivin, 2011). Another survey of 2,188 college students found that approximately 18% of those with a mental disorder sought treatment in the past year (Blanco et al., 2008). Rates of treatment seeking may be especially low among those most in need, such as students at risk of suicide (Drum et al., 2009; Gallagher, 2015). For example, less than half of students seriously contemplating suicide reported seeking professional help in a survey of 26,451 college students (Drum et al., 2009).

The potential solution of expanding access to treatment is further complicated by practical challenges within universities in significantly increasing the scope of in-person mental health services. Currently, college counseling centers are staffed with approximately one

counselor to every 2,000 students (Gallagher, 2015). Assuming up to half of students will have a disorder in a given year (Blanco et al., 2008), *and* only students meeting criteria for a disorder would seek/benefit from treatment, this would still leave each counselor with a caseload of approximately 1,000 students a year if such services were the only solution (i.e., half of the student body with an average of one counselor per 2,000 students). College counseling centers already report having to adjust practices to meet the existing mental health demands for students (Gallagher, 2015), even in the context of limited treatment seeking rates. Thus, alternate, cost-effective solutions are needed to help address the prevalent mental health problems among college students.

Online self-help offers one promising solution to the combined challenges of treatment seeking and resources for mental health services. Over the past few decades, a large literature has emerged demonstrating the efficacy of self-help psychological interventions delivered through the internet for a wide range of problems relevant to students including depression, anxiety, eating disorders, and addictions (Andersson, 2016). More recently, research has begun to emerge demonstrating the potential efficacy of such self-help interventions delivered through mobile apps (Donker et al., 2013; Torous, Levin, Ahern & Oser, in press). The self-guided, online format of these modalities offers the potential for broad dissemination with minimal cost per new user. In support of this, approximately 40% of college counseling centers now provide psychoeducational information on their website for college students, in part as a way to address the increasing demand for mental health services (Gallagher, 2015). Thus, online self-help may be particularly promising for addressing the concern of how to meet increasing demands for services, by offering an alternate, cost-effective format for accessing evidence-based mental health supports.

Offering online self-help may also help increase treatment seeking. Commonly reported barriers to seeking treatment among college students include lack of time, inconvenience, and stigma (Czyz et al., 2013; Eisenberg, Speer & Hunt, 2012b; Lannin et al., 2015). Online self-help programs might overcome each of these barriers by offering a convenient format that can be accessed at any time, and that can be used anonymously without the potential discomfort of in-person treatment seeking. Furthermore, studies with college students indicate a common reason for not seeking professional help is due to wanting to manage the problem oneself, potentially with the use of self-help resources (Czyz et al., 2013; Eisenberg et al., 2011). Thus, online self-help may provide an important additional mental health resource that could increase the number of students receiving support. Since effective, evidence-based programs have been developed (Andersson, 2016; Torous et al., in press), it is reasonable to assume that engaging individuals in such self-help resources would reduce the public health burden of these psychological disorders, similar to promoting engagement in traditional face-to-face services.

Despite the promise of online self-help for providing a highly desirable, cost effective resource, there has been little research on their use among college students. In one study, 197 undergraduate students who reported at least one heavy drinking episode in the past month were surveyed regarding the likelihood of seeking treatment through various modalities, and computer-based interventions were found to be more acceptable alternatives relative to other modes of formal treatment seeking (Buscemi et al., 2010). Although not with college students, another recent survey of 500 adults found that the internet was the most preferred format for completing mindfulness training relative to other in-person formats (Wahbeh, Svalina, & Oken, 2014). Finally, research among individuals already seeking web-based treatment suggests the reasons for choosing such a modality were consistent with barriers common for college students,

including anonymity and convenience (Young, 2005). Thus, preliminary research suggests students would be interested in, and maybe even prefer, online self-help. However, little research on this topic has been conducted, and has mostly focused on those already using such resources. Further research is needed to characterize the degree to which college students are interested in and actually use online self-help resources, especially relative to other in-person options.

As a brief side note, this study will also consider intentions and use of self-help books. Self-help books have a longer history in psychology, although the rate of research has been slower (Rosen & Lilienfield, 2016) than the recent surge of research on online self-help. Research suggests at least some self-help books can be efficacious in delivering evidence-based interventions (e.g., Ritzert et al., 2016; Jeffcoat & Hayes, 2012). This provides an additional option for receiving mental health support, serving to further expand the “portfolio” of treatment options available. Thus, it is worth including self-help books in the context of examining intentions and use of alternate non-face-to-face treatment options.

The current study sought to examine the level of interest and use of self-help resources relative to professional and informal mental health supports. A secondary aim was to help characterize factors that reduce interest in self-help resources by examining perceived barriers to using mobile apps. An emphasis was placed on mobile apps given their particularly promise as an easy-to-disseminate, low-intensity mental health resource, and given the importance of focusing on a specific modality when examining barriers to adoption of a technology. The results of this study may help to further clarify current interest and use of self-help resources among students as well as ways to further enhance their use.

## **Methods**

### **Participants and Procedures**

A sample of 389 undergraduate college students who were 18 years of age or older from a mid-size university in the Mountain West region of the United States participated in the study for credit in relevant psychology courses. The sample was 20.08 years old on average ( $SD = 3.48$ , range = 18-45) and 70% female. In terms of race/ethnicity, the sample was 91.5% White, 3.9% Hispanic or Latino, 1.5% Asian, .8% Black or African American, .5% American Indian/Alaska Native, .3% Native Hawaiian or other Pacific Islander, and 1.5% multiracial. Most participants were in their first year of college (63%), with 22% in their second year, 11% in their third year, and 4% in their fourth year or higher. Based on empirically derived cutoff scores from the Counseling Center Assessment of Psychological Symptoms (CCAPS-34; CCMH, 2012), 57% of the sample currently had clinically elevated scores on one or more sets of symptoms, suggesting potential need for treatment.

Participants were recruited through the Sona research system, which offers course credit/extra credit in relevant psychology courses. Approximately 8,000 participants were estimated to be available on the SONA research platform at the institution, suggesting a conservative estimate of 5% of this participant pool responding to the current survey study. Based on course enrollments for the relevant academic semester though, a more accurate estimate would suggest approximately 4,000 potential participants, and thus approximately a 10% response rate to the online survey study.

The entirety of the study was completed via online Qualtrics surveys. To begin the study, participants filled out a brief consent form followed by an online baseline survey. A second online survey (follow up) was sent 4-weeks after the baseline survey. One credit was assigned to participant's SONA account after they completed each online assessment. This study was



approved by the participating institution's Internal Review Board. A total of 354 participants (91%) completed the follow up survey.

### **Measures**

All measures of treatment seeking and participant characteristics were collected at time 1 (baseline) with the exception of the behavioral measure of support seeking, at 4-week follow up.

*Treatment Seeking Intentions.* Treatment seeking intentions were assessed using a modified version of the General Help Seeking Questionnaire (GHSQ; Wilson, Deane, Ciarrochi, & Rickwood, 2005). The GHSQ is a psychometrically validated measure of intentions to seek help from a variety of informal and formal sources (Wilson et al., 2005). Modifications were primarily made by adding items assessing intentions with self-help and online resources.

The current study assessed intentions to seek help “if you were having a mental health problem (e.g., anxiety, depression)” for a range of specific resources, each rated on a 7-point scale from 1 “extremely unlikely” to 7 “extremely likely.” Mental health resources included informal resources (intimate partner, friend, parent, other relative/family member, minister or religious leader), professional resources (mental health professional [e.g., psychologist, social worker, counselor], primary care or other medical doctor, psychiatrist, phone helpline), and self-help/online sources (mobile app for mental health, website for mental health, self-help book, and searching online for information on the problem). An option was also providing indicating intentions to “not seek help from anyone.” This measure was used to examine intention ratings for each resource individually as well as by category (informal, professional, online/self-help).

A follow up question, created for the current study, assessed “which of these options would you be *most* likely to use if you had a mental health problem?” with the option to pick

only one resource from the previously rated list. This provided a categorical variable with regards to the most likely resource option that participants would use.

*Treatment Seeking Behavior.* A series of follow up questions created for this study assessed participants' previous use of mental health resources. Participants were asked, "in the past 12 months, have you had any personal, emotional, mental health, alcohol or drug problem?" Those indicating yes were asked, "In the past 12 months, which of the following services or supports have you used for a personal, emotional, mental health, alcohol or drug problem?" with responses options mirroring those rated previously on intentions. Participants selected the resources that had been used in the past 12 months (providing a dichotomous for each resource).

In addition, all participants were asked if they had ever used mental health resources for a personal emotional, mental health, alcohol or drug problem. These options were limited to seeing a mental health professional, using a self-help book, searching online for information, using a website self-help program, or downloading a mental health mobile app. Responses were provided dichotomously in terms of "yes" or "no" with regards to ever using each resource.

*Mobile App Ratings (Pierce, Twohig & Levin, 2016).* A series of items assessed participants' intentions, preferences, and perceived barriers to using mobile mental health apps. These items were previously used in a study of professional attitudes towards mental health apps, with results indicating the items could effectively characterize facets of mobile app intentions, preferences and barriers (Pierce et al., 2016). A definition of mental health mobile apps was provided in the instructions including noting these are phone-based apps specifically designed for helping with personal, emotional, mental health, alcohol or drug problems as well as noting examples (e.g., mindfulness exercises, goal setting, coping resources).

The first set of items examined intention-related variables with mobile apps. Participants were asked how familiar they are with mental health mobile apps from 1 “not at all” to 5 “extremely.” Participants were also asked about their interest in mental health mobile apps and whether they would use such an app if it was recommended by a therapist or friend. These items were rated on a 6-point scale from 1 “strongly disagree” to 6 “strongly agree.”

The second set of items assessed preferences for how mental health mobile apps are used. This included assessing ways such apps might be integrated (or not) with therapy such as a tool to support skills practice between sessions or as a stand-alone resource to replace therapy. Each item was rated on a 5-point scale from 1 “not at all helpful” to 5 “extremely helpful.”

A third set of items assessed perceived barriers to using mental health mobile apps. A total of 18 barriers were rated on a scale from 1 “not at all” to 5 “extremely.” These included barriers related to perceived helpfulness and acceptability of apps, concerns related to apps (e.g., credibility of developers, privacy), and challenges finding or using apps. In addition, spaces were provided for participants to write in additional perceived barriers to mobile app use.

*Behavioral Measure of Treatment Seeking.* A behavioral measure of treatment seeking was used at 4-week follow up. At the end of the follow up survey, participants were offered the opportunity to receive information on mental health services for themselves. Four options were offered, which when selected, would then provide information on the following page. These options included information on “seeing a therapist in my area,” “for a crisis call line,” “a list of recommended mental health mobile apps,” and “online information on mental health issues and self-help materials.” Participants also had the option to not select any responses or to choose “I do not want any resources at this time.” Similar measures have been used in previous studies to assess the behavior of actively seeking treatment information (e.g., Lannin et al., 2015).

*Counseling Center Assessment of Psychological Symptoms (CCAPS-34; CCMH, 2012).*

The 34-item CCAPS was included at baseline as a measure of psychological distress to further characterize the sample in relation to potential need for treatment. This measure includes subscales assessing depression, general anxiety, social anxiety, hostility, eating concerns, academic concerns, and alcohol use. The CCAPS was specifically developed and validated for college students seeking treatment from college counseling centers (CCMH, 2012). Individuals with elevated symptoms suggesting a clinically significant concern were identified using the corresponding CCAPS elevated cutoff scores for each subscale (CCMH, 2012). This variable was used to further examine rates of seeking mental health information among those in distress. The study did not include monitoring or referrals for participants reporting elevated distress, suicidality or thoughts of hurting others on the CCAPS, but all participants were provided mental health resource information should they experience elevated distress.

### **Data Analysis Plan**

To characterize intentions and use of each type of mental health support, descriptive statistics were first reported. Paired sample *t*-tests compared self-reported intentions to use each support relative to mental health professionals (selected as the comparison condition since it is the most common target considered for treatment seeking). A series of one-sample chi square analyses were also conducted to examine the rate of participants selecting informal, professional, or online/self-help options as the support they would *most likely* use.

Descriptive statistics were also examined for the behavioral measure at follow up – the rates of students selecting to learn more about various mental health support options. A one-sample chi square analysis was conducted to compare the rates of students only requesting in-person therapist information versus those only requesting online/self-help information. To

further explore treatment seeking preferences, chi square analyses compared the rate of requesting mental health information between students elevated in distress or not, minority and non-minority students, male and female students and first year and non-first year students.

The final set of analyses examined more detailed preferences and barriers related to mobile apps specifically. Focusing in on specific forms of online self-help may more clearly characterize attitudes, preferences and barriers (Pierce et al., 2016). Mobile apps were chosen given the wide availability and potential for broad implementation of these apps as a low-intensity self-help support. Descriptive statistics were calculated to examine interest in, preference for, and barriers to using mobile apps. Paired sample *t*-tests were conducted to test for statistically significant differences in preferred ways for mobile apps to interact with therapy.

## Results

### Intentions and Use of Mental Health Supports

Descriptive statistics for self-reported intentions and use of informal, professional, and online/self-help resources are provided in Table 1. Paired sample *t*-tests compared mean intention scores for using each support (if one had a mental health problem) relative to seeing a mental health professional ( $M = 4.36$ ,  $SD = 1.61$ ). In addition to mental health professionals being a face valid anchor for treatment seeking, the mean was near a 4, which indicates a neutral score (with 3 = “unlikely” and 5 = “likely”). Overall, participants were significantly more likely to seek support from an intimate partner ( $t(388) = 11.43$ ,  $p < .001$ ,  $d = .79$ ), friend ( $t(388) = 5.44$ ,  $p < .001$ ,  $d = .38$ ), or parent ( $t(388) = 9.29$ ,  $p < .001$ ,  $d = .64$ ) relative to a mental health professional, with means for these resources in the “likely” or higher range. Participants were significantly less likely to seek support from a phone helpline ( $t(388) = 27.82$ ,  $p < .001$ ,  $d = 1.60$ ), primary care doctor ( $t(388) = 6.56$ ,  $p < .001$ ,  $d = .31$ ), psychiatrist ( $t(388) = 11.96$ ,  $p <$

.001,  $d = .42$ ), religious leader ( $t(388) = 2.23, p = .03, d = .15$ ), self-help book ( $t(388) = 11.49, p < .001, d = .73$ ), mobile app ( $t(388) = 15.91, p < .001, d = 1.04$ ), or self-help website ( $t(388) = 13.36, p < .001, d = .87$ ) relative to a mental health professional, with means generally in the 3 “unlikely” range or lower. There were no significant differences in intentions between mental health professionals and other family or searching online for information, which both had a mean close to a neutral score of 4. Thus, several informal sources were rated as likely being used and higher than mental health professionals, while online/self-help and phone lines were rated as unlikely to be used and lower than mental health professionals.

Participants were asked to indicate which support they would *most likely* use if they were struggling with a mental health problem. A one-sample chi square analysis indicated significant differences in the rate of picking informal, professional, and online/self-help supports as their top choice,  $\chi^2 = 370.36, p < .001$ . Students were significantly more likely to select an informal, non-professional support (76%) than a professional mental health support (16%),  $\chi^2 = 163.57, p < .001, d = 1.83$ , or self-help support (6%),  $\chi^2 = 249.50, p < .001, d = 3.79$ . Furthermore, students were less likely to select self-help than professional support,  $\chi^2 = 20.51, p < .001, d = 1.12$ . Thus, students overall reported the highest intentions to seek help from informal sources (e.g., parents, intimate partners, friends) and lowest intentions to seek self-help sources (e.g., mobile apps, self-help websites, self-help books), or phone helplines.

These patterns matched actual use of mental health supports. Among those in distress over the past 12 months ( $n = 168$ ), 90% reported seeking informal support, 45% seeking professional help and 32% seeking self-help supports over that same time period. Despite self-help being the least used support, it still appears to help expand services to those who do not seek

face-to-face treatment, with 13% of those in distress who reported using self-help not using any professional mental health supports.

When expanding to life-time history of seeking support, 30% reported using a self-help book, website and/or mobile app at some point in their lifetime for mental health reasons, which increased to 51% when including broader searching online for information. Although 38% reported seeing a mental health professional at some point in their lifetime, an additional 27% reported using one or more self-help or online resources at some point in their life who had never seen a mental health professional. Thus, although self-help resources are used less than other resources, they are still relatively common and appear to reach a segment of those who do not seek other forms of professional care.

Finally, it is worth noting that the rates of seeking some support was relatively high in the sample. Only 2% of students indicated that they would be most likely to not seek any help if they had a mental health problem. Furthermore, of those indicating a mental health problem in the past 12-months, only 8% reported not seeking any help. Thus, most participants intended to and actually sought help when needed, albeit often turning to informal, non-professional supports.

### **Behavioral measure of help-seeking**

The behavioral measure at follow up examined students' rate of requesting mental health information when provided the option (see Table 2). The majority (75%) did not request any mental health information. The most common requested materials were for online and mobile app self-help (21% requested one or both). Students were significantly more likely to only request online or mobile app information (15%) relative to only in-person therapist information (4%),  $\chi^2 = 25.09, p < .001, d = .55$ . Thus, when measured behaviorally, students fairly frequently

sought self-help and online supports and did so more than seeking mental health professional supports.

Additional analyses examined whether help-seeking rates differed by participant characteristics. Participants who were distressed ( $n = 203$ ) were more likely to seek one or more sources of mental health information than those not distressed, 33% vs. 13% respectively ( $\chi^2 = 19.01, p < .001, d = .48$ ), but did not differ on what sources of information were sought (e.g., online self-help, therapy). Rates of help-seeking were examined for each problem area (see Table 3). Of note, participants elevated in general anxiety and academics had the highest rate of requesting treatment information (51%), while participants struggling with eating problems had the lowest rate (27%). Upon further inspection, a large proportion of students (31%) met the empirically derived cutoff score for eating problems based on the CCAPS (CCMH, 2012). This raised questions regarding the specificity of the eating problem scale and cutoff score in detecting clinically-relevant eating concerns, particularly given the nature of items included in the 34-item version of the CCAPS (e.g., “I eat too much” and “I think about food more than I would like to”). Thus, analyses were repeated with participants who were distressed based on one or more CCAPS subscale, but excluding eating problems ( $n = 167$ ). Results were similar with distressed students being more likely to seek one or more sources of mental health information than those not distressed, 38% vs. 13% respectively ( $\chi^2 = 30.68, p < .001, d = .62$ ), but again not differing on what sources of information were sought (e.g., online self-help, therapy)

Differences in requesting mental health information were also examined based on minority status, year in school, and gender. Minority participants ( $n = 30$ ) were more likely to seek one or more sources of mental health information (40%) than non-minority participants



(23%;  $\chi^2 = 4.02, p = .045, d = .21$ ). Of those seeking information, minority participants were less likely to seek self-help only than non-minority (25% vs. 67%;  $\chi^2 = 7.75, p = .005, d = .30$ ), but were more likely to seek both self-help and therapy information (58% minority vs. 18% non-minority;  $\chi^2 = 9.09, p = .003, d = .33$ ). There were no differences on rates of seeking information between male and female or first year and non-first year students.

### Mobile App Preferences

Additional analyses further explored students' attitudes related to mental health mobile apps. Consistent with findings on intentions and use, students were not familiar with mental health mobile apps ( $M = 1.20, SD = .48$ , 83% 1 “not at all familiar” and 14% 2 “slightly familiar”) and had low interest in such apps ( $M = 2.77, SD = 1.34$ , 44% 4 “slightly agree” or higher). Despite low interest and familiarity, students indicated general intentions to use a mobile app if their therapist recommended it ( $M = 4.70, SD = 1.02$ , 91% 4 “slightly agree” or higher) or if a friend recommended it ( $M = 3.86, SD = 1.16$ , 70% 4 “slightly agree” or higher).

Participants were asked preferences for how they would like apps to interact with treatment on a 5-point scale from 1 “not at all helpful” to 5 “extremely helpful.” The two highest rated uses were “as an additional support between therapy sessions” ( $M = 3.57, SD = .95$ ) and “as an ongoing support after psychological services have been terminated” ( $M = 3.61, SD = .97$ ). The option “as a support while waiting to receive services” ( $M = 3.28, SD = .99$ ), was significantly lower than using apps between therapy sessions based on paired sample *t*-tests ( $t(386) = 6.05, p < .001, d = .30$ ). The lowest rated option was “as a stand-alone self-help program instead of receiving face-to-face psychological services” ( $M = 2.72, SD = 1.16$ ), which was significantly lower than using apps while waiting for services ( $t(386) = 9.00, p < .001, d = .30$ ), and using apps between therapy sessions ( $t(386) = 13.18, p < .001, d = .80$ ). Thus,

participants appeared to prefer mental health mobile apps as a support during or following therapy, with more moderate ratings for using apps while waiting to get services, and the lowest ratings for using apps instead of therapy.

### **Mobile App Barriers**

Students were asked to rate a number of potential barriers related to using mental health apps on a 5-point scale from 1 “not at all” to 5 “extremely” (see Table 4). The highest rated barriers (above 3.5 out of 5) were related to students not being interested in using apps, the app not fitting the main problem, concerns that others would see the student using a mental health app, not enough guidance on which mental health apps are credible and effective, and concerns about the credibility of app developers. A notable percent also rated “extremely” for concerns about privacy of data collected (19%) and students not owning smartphones (24%). Of note, barriers reflective of strong negative attitudes towards apps were the least endorsed (i.e., apps aren’t helpful, are harmful, or interfere with therapy).

### **Discussion**

This study sought to understand students’ level of interest in and use of online self-help options relative to other mental health supports as well as to identify factors that impede use. Surprisingly, students were least likely to intend or have used self-help options (including websites, mobile apps, and books) with large effect sizes relative to professional and informal mental health supports. Furthermore, students were generally unfamiliar with and relatively uninterested in using mobile apps for mental health reasons. That said, there was a notable subsample of students who were interested in or have used these self-help options, including some who use self-help but not professional supports. Furthermore, students were more likely to actually seek online self-help information than therapist information when measured

behaviorally, with a medium effect size. Overall, these results suggest a “mixed reception” to online and related self-help options among students, with notable interest among a subset of students that might be enhanced by addressing relevant barriers.

These results stand in contrast with a common perception that online self-help can relatively easily increase broad use of mental health supports among students. Theoretically, online self-help would expect to garnish broad appeal among students given their convenience and anonymity, which would help overcome barriers such as stigma and lack of time (Eisenberg et al., 2012b). However, it appears that students generally prefer in-person supports through informal or professional sources. In fact, the only professional resource that was not in-person (phone helpline) was one of the poorest rated options (with a large effect size relative to seeing a therapist). Given the potential benefits of online self-help, this raises significant questions regarding why students are not more interested.

The results from reported barriers to using mobile apps highlights a few potential reasons. First of all, although online self-help is often assumed to overcome stigma related to seeking treatment, students reported a common concern that others would see they are using a mental health mobile app. This suggests that for some students and with at least some formats, perceived stigma for seeking treatment is as much or even more of a concern with online self-help. Consistent with this, a recent study similarly found that self-stigma related to treatment seeking predicted students’ willingness to seek online information about mental health in addition to seeking in-person therapist information (Lannin et al., 2015). These findings highlight that the ability of online self-help to overcome the effects of stigma should not be assumed. More research is needed to clarify when online self-help is impeded by stigma and how it might be best implemented to overcome this barrier.

A second set of barriers identified in this study refer to combination of concerns about the credibility of apps, how apps handle privacy of data, and a lack of guidance on which apps are credible and effective. This represents a broader concern noted by mental health professionals (Pierce et al., 2016) and researchers (Torous et al., in press). The benefits of mobile apps include the ability to easily disseminate apps to the public through app stores, but this also increases the potential for untested, ineffective, or even iatrogenic apps, to also reach the public. Besides user ratings, the app stores provide little guidance to users on what mental health apps to select. This challenge has led to some efforts to provide recommendation lists and reviews of mobile apps (Torous et al., in press). However, these recommendations would still need to find their way to students in need. One solution highlighted in this study is to focus on providing app recommendations to therapists, given students reported being far more likely to use an app if their therapist recommended it. In addition, given the propensity for students to rely on informal supports (parents, friends, partners), such app recommendation lists might also be shared more widely with potential social supports for students. Although informal support may be sufficient for some students' concerns, in other cases, a student may benefit from additional professional resources that trusted friends and family might recommend. The high rates (21%) of participants requesting a list of online self-help resources, which increased to between 30% and 34% among those currently in distress, suggests students are likely to be interested in such online self-help resource lists.

A third theme was that students were concerned about mobile apps being used as a replacement for in-person therapy. This was noted by several students in open responses and was highlighted by students providing the lowest ratings for using apps as a replacement for therapy (with small to large effect sizes). Students are more interested and willing to use apps as a

service integrated with seeing a provider. This is consistent with findings from a survey of professionals, which indicated mental health providers see apps as more beneficial integrated with, rather than as a replacement for, therapy (Pierce et al., 2016). This is not to say that mobile apps might not be used among those who are not receiving professional services, but this may be a less preferred format for many.

It is worth noting that the majority of distressed students (67%) did not request any mental health information when offered. This is consistent with previous studies that have found only 18% to 36% of distressed students seek treatment (Blanco et al., 2008; Eisenberg et al., 2011) as well as a study finding that only 8% to 15% of distressed students request counseling information when offered (Lannin et al., 2015). In addition to common barriers to seeking treatment, it is likely that some students did not request information due to already being aware of available treatment options. For example, 45% of students who were distressed in the past year reported seeing a therapist, and thus it is unlikely they would request to receive information on in-person providers. This may account in part for why students were significantly more likely to request online/app-based self-help relative to in-person therapist information, due to already being aware of the latter.

Another pattern in the results was that students were more likely to be interested in and have sought support by searching for mental health information online. This was assessed separately from using more structured online/self-help supports and suggests another route for increasing engagement in evidence-based online resources. One interpretation of this pattern is that students are looking for a different type of resource when turning to the internet versus in-person professionals. Part of the ambivalence towards using online self-help may be due to the skeuomorphisms (i.e., unnecessary features included for decorative purposes that were necessary

in older versions) that were brought over from the in-person therapy model of support such as a series of long, weekly sessions completed online (Schueller, Munoz & Mohr, 2013). An alternative approach is to look to what students want from online resources. For example, students may want online content more focused on answering specific questions with brief bits of information that can be quickly browsed and options to read more in-depth. It is unclear if matching a more typical online browsing format would be beneficial, but it at least seems beneficial to hold existing assumptions lightly about how online self-help should be implemented while focusing much more on what students actually want to receive from these resources.

Although online self-help didn't demonstrate the level of intentions and use that were hypothesized, it is worth noting that this modality does still seem to have an important potential public health impact in its current form. This study found a notable portion of individuals who did intend to use such supports or report using these supports in the past. Most importantly, a segment of students were identified who used online/self-help resources, but not in-person, professional supports. One interpretation is that there is a sub-sample of students who are not willing to seek professional help, but are willing to use online/self-help resources. This is a key theorized benefit of online self-help, that it helps expand the reach of mental health services to those who otherwise would not receive professional help. Theoretically, using such online resources might also help "open the door" for some students to seek professional supports as they start to see the benefits of learning psychological skills and become accustomed to working on a mental health problem. Continuing to study and improve how online self-help resources are disseminated might further expand reach to students who otherwise might not get help or as an additional support on top of the help they are receiving from a professional.

A significant caveat in this area of research is that we have not yet focused on how to ensure students receive effective, evidence-based services if they do seek help. It is unclear whether students who sought professional services or used self-help received evidence-based care or were possibly even provided methods known to be harmful. Research has found high rates of mental health professionals failing to meet evidence-based practice standards (e.g., Garner, 2009) and that students often do not receive a minimally adequate dosage of treatment from professionals (Eisenberg & Chung, 2012). This issue is heightened with online self-help. Reviews of mobile apps in some behavioral health areas suggest that the majority of apps do not use evidence-based methods (e.g., Abroms et al., 2013; Azar et al., 2013). Concerns have been raised for decades regarding the lack of research on self-help books and the potential for such books to be inert or even iatrogenic (Rosen & Lilienfeld, 2016). Increasing the availability of evidence-based practices among professionals and self-help resources is a complex issue, but at the very least, we need to be cognizant of these challenges with increasing treatment seeking. One strategy may be direct-to-consumer advertising (Becker, 2015), in which individuals who might seek care are informed of and motivated to seek evidence-based care specifically. This could be combined with efforts to engage students in online self-help by providing clear information regarding apps that are evidence-based and the advantages of using such apps.

There are some notable limitations to this study that should be considered in interpreting the results. The largest limitation is that a representative sample of college students was not collected and thus the generalizability of these findings to students more broadly is tenuous. Unique features of this sample included being composed of students in psychology courses and a racially/ethnically homogeneous group with very few minority students. The use of a psychology-based student sample may have limited generalizations to other student groups given

research has shown disciplines commonly associated with psychology report both higher distress and willingness to seek treatment (Lipson et al., 2016). Similarly, minority groups have been found to be less willing to seek treatment (e.g., Masuda et al., 2009) and it is unclear how this translates to online/self-help resources. Interestingly, in the current study there was a small effect size difference such that minority students were actually more likely to request in-person and self-help information. Further research is needed to examine these patterns in more representative student samples as well as specific cultural groups.

Another limitation was that the study largely relied on unvalidated measures. It is unclear whether students generally understood references to “mental health problems” and the various resources listed, particularly self-help books, mobile apps, and websites. The lower intention and use ratings may in part reflect negative reactions to these terms (e.g., associating “self-help” with a more limited subset of books that are disliked). Difficulties with understanding key terms in the survey are reflective of the very problem being characterized. If students do not have a common word for or understanding of online self-help resources, then they are likely not aware that such resources are available and there is a lack of even basic information that would guide informing them of supports. The observed rates (21%) of students who asked for online self-help information may in part reflect that they do not know much about these supports, but are willing and interested to learn more if an opportunity is provided.

Overall, this study highlights that students may not be as interested and willing to use online and self-help resources as might be assumed. However, there is some current interest and use, including for a portion of students who are not receiving professional services. Systematic research is now needed to further understand *why* students use or do not use these resources. This



can lead to evidence-based efforts to increase engagement in online self-help resources, providing a pathway to significantly expand the reach of mental health services to those in need.

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Table 1. Self-reported intentions and use of mental health supports.

	Intentions ( <i>n</i> = 389) <sup>a</sup>		Use ( <i>n</i> = 168) <sup>b</sup>	
	<i>M</i> ( <i>SD</i> )	% Top pick	% 12 months	Ever <sup>c</sup>
Parent	5.40 (1.66)	34%	64%	
Intimate partner	5.60 (1.52)	28%	42%	
Friend	4.94 (1.44)	10%	58%	
Other relative/family	4.14 (1.63)	2%	29%	
Minister or religious leader	4.09 (2.01)	3%	30%	
<i>Total for informal support</i>		<i>76% total</i>	<i>90% one or more<sup>d</sup></i>	
Mental health professional	4.36 (1.61)	13%	36%	38%
Primary care / medical doctor	3.84 (1.73)	2%	18%	
Psychiatrist	3.65 (1.79)	1%	10%	
Phone helpline	1.97 (1.36)	0%	0%	
<i>Total for professional support</i>		<i>16% total</i>	<i>45% one or more</i>	
Self-help book	3.16 (1.69)	1%	7%	17%
Mobile app for improving mental health	2.67 (1.63)	0%	5%	8%
Website self-help for mental health	2.95 (1.64)	1%	7%	15%
Search online for info on my problem	4.23 (1.82)	4%	26%	51%
<i>Total for self-help support</i>		<i>6% total</i>	<i>32% one or more</i>	<i>51% one or more</i>
I would not seek help from anyone	2.37 (1.61)	2%	8%	

Note: A 4 is a neutral response between 3 "unlikely" and 5 "likely."<sup>a</sup> analyses conducted with the full sample of students (*n* = 389),<sup>b</sup> analyses conducted with *n* = 168 who reported a mental health problem in the past 12 months.<sup>c</sup> Only a subset of resources were assessed for ever being used.<sup>d</sup> Participants could indicate using more than one support over the past 12 months, but the combined variable includes the total percent who selected one or more options in a given category.

*Table 2. Rate of requesting mental health information at follow up.*

Type of information	% Requested	% Only requesting this category
No options selected	75%	-
In-person therapist	9%	4%
Crisis call line	1%	0%
Online information	16%	5%
Mobile app information	14%	4%
<i>Either online or app info</i>	<i>21%</i>	<i>15%</i>

*Table 3. Rate of requesting mental health information at follow up among students with elevated scores on CCAPS subscales.*

Elevated Score on CCAPS Subscale	<i>n</i>	% Requesting any resources	% Requesting in- person therapist info	% Requesting online or app info
General anxiety	68	51%	18%	47%
Academics	37	51%	14%	46%
Depression	88	43%	16%	36%
Alcohol	12	42%	17%	42%
Social anxiety	97	39%	18%	33%
Hostility	56	36%	13%	34%
Eating	107	27%	13%	21%
Not distressed	151	13%	5%	10%



*Table 4. Ratings for potential barriers to app use*

	<i>M (SD)</i>	% = 5 "extremely"
Students not interested in using mental health mobile apps	3.94 (1.00)	36%
The mobile app not fitting the main psychological problem	3.76 (.85)	20%
Concerns that others will see the student is using a mental health app	3.65 (1.04)	24%
Not enough guidance on which mobile apps are credible and effective	3.60 (.97)	17%
Concerns about credibility of app developers	3.52 (1.10)	21%
Mobile mental health apps are too general to be effective	3.35 (.94)	11%
Concerns about privacy of data collected by apps	3.36 (1.13)	19%
The mobile app not fitting with the students' cultural background	3.18 (1.05)	10%
Problems troubleshooting technical issues	3.15 (1.14)	12%
Low evidence base for mental health mobile apps	3.09 (.99)	8%
Students not owning a smartphone	3.08 (1.40)	24%
Concerns about commercial interest in the development of apps	2.92 (1.07)	9%
Too many apps to choose from	2.70 (1.11)	6%
Concerns about technical problems with apps	2.67 (1.12)	7%
Problems learning how to use the mobile app	2.63 (1.21)	7%
Mental health mobile apps aren't helpful for students	2.51 (.89)	2%
Mental health mobile apps get in the way of working with a professional	2.45 (1.05)	3%
Mental health mobile apps are potentially harmful	2.33 (1.09)	3%