

Understanding Perceptions of Anxiety Disorders and Their Treatment

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Abstract: Characterizing areas of limited knowledge about anxiety disorders and their treatment may help inform treatment dissemination efforts and public health programming. In a sample of 626 adults recruited via Amazon's Mechanical Turk, this study evaluated 1) perceptions of symptoms of anxiety disorders and depression, 2) perceived usefulness of coping approaches (*i.e.*, professional and non-professional help), and 3) awareness of available resources. Results indicated that participants generally recognized that symptoms warranted professional help, and recognition was associated with self-efficacy for seeking mental health care, but not with participants' own symptoms. Furthermore, participants perceived psychotherapy to be the most useful coping approach. Of concern is the perception that symptoms are the result of personal weakness (particularly among male participants and for social anxiety disorder), as well as limited knowledge about publicly available resources. In all, results suggest that there are areas for growth regarding mental health literacy for anxiety disorders.

Key Words: Anxiety, depression, treatment perceptions, mental health literacy (*J Nerv Ment Dis* 2016;204: 116–122)

Despite improvements in the quality of mental health interventions in recent decades, most individuals with mental illness do not access mental health care (Kessler et al., 2005). This is particularly true for the anxiety disorders where the average treatment delay is approximately a decade or more (Wang et al., 2005). Given that anxiety disorders account for significant societal cost (Lépine, 2002) and comprise one of the largest classes of mental health problems in the United States and worldwide (Kessler et al., 2005; Somers et al., 2006), untreated anxiety represents a tremendous burden on the health care system. For this reason, understanding constructs that impact appropriate help seeking is of growing interest to the field.

One such construct is mental health literacy (Thompson et al., 2004). Mental health literacy refers to an individual's knowledge about mental health disorders and specifically knowledge that enhances an individual's ability to appropriately respond to symptoms (*i.e.*, by accessing appropriate treatments, providing informed recommendations to another person, etc) (Jorm et al., 1997). To date, adult mental health literacy research has focused primarily on mood and psychotic disorders, with relatively less attention directed towards anxiety disorders. That said, initial work in the United States has suggested that (in a college-student population) rates of recognition and help-seeking recommendations were low for some anxiety disorders in particular. Help-seeking recommendations were made by only 64.3% of participants for the social anxiety disorder vignette and 51.8% for the generalized anxiety disorder (GAD) vignette (Coles and Coleman, 2010). Importantly, most participants did in fact recommend treatment across anxiety disorders, a finding consistent with more recent research (Coles et al., 2014; Furnham and Lousley, 2013). Furthermore, trends across previous

studies suggest that social anxiety disorder may be viewed particularly negatively compared with other anxiety disorders. For example, symptoms of social anxiety disorder were perceived as the result of “personal weakness” at high rates (35.3% of the sample; Coles and Coleman, 2010), and vignettes depicting social anxiety disorder were characterized as reflecting people who were less happy and more poorly adjusted than other anxiety disordered patients (Furnham and Lousley, 2013).

Notably, this previous work has had limited success identifying systematic correlates of the ability to recognize symptoms as warranting professional help (*cf.* Schubert et al., 2014). Previous attempts to identify individual differences associated with symptom recognition for anxiety disorders have focused exclusively on demographic variables (*e.g.*, sex, race, education). Studying the potential relationship between symptom recognition and psychological variables, such as an individual's current symptoms of anxiety or confidence in seeking mental health treatment, is warranted. Although previous research suggests that one's own symptoms may not be associated with improved mental health literacy for depression (Dahlberg et al., 2008; Goldney et al., 2001), this remains to be tested for anxiety disorders. Furthermore, given that confidence in one's ability to seek treatment when needed (*i.e.*, self-efficacy for treatment seeking) is associated with higher rates of appropriately accessing treatment (Moore et al., 2015), this domain-specific version of self-efficacy is likely to be associated with greater ability to recognize when treatment is warranted, yet this also has not yet been explored.

Not only is it important to characterize knowledge and beliefs about symptoms of anxiety disorders, but also, a holistic picture of mental health literacy must include an assessment of knowledge connected to mental health promotion (*e.g.*, knowledge about treatment and how to access it). This may be particularly important with anxiety disorders given the apparent disconnect between laypeople's recognition of symptoms as warranting professional help and affected individuals accessing treatment. For example, in the Coles and Coleman (2010) study, 80.6% of participants indicated that the vignette depicting panic disorder was someone who should seek professional help. Yet, evidence suggests that people with panic disorder who access treatment do so after treatment delays of (on average) 10 years (Wang et al., 2005). In short, effectively accessing care for mental health problems requires not only recognizing that symptoms warrant help but also recognizing that treatment may be useful and knowing how to access it.

Unsurprisingly, positive perceptions of treatment are associated with receiving mental health care (ten Have et al., 2010). For this reason, characterizing perceptions of treatment—and relatedly, knowledge about accessing such treatment—are important areas of focus for mental health literacy research. Previous research suggests that laypeople have negative attitudes about psychopharmacological treatments (Dahlberg et al., 2008; Riedel-Hiller et al., 2005) and may prefer informal to professional help (Jorm and Wright, 2007) and unsupported to evidence-based treatments (Jorm et al., 2008). Notably, however, this previous work has rarely focused on anxiety disorders and has primarily been conducted outside the United States. The latter is important given that the United States is unique in that it is one of only two nations (with New Zealand) where pharmacological medications are marketed directly to consumers, and for that reason, treatment attitudes may diverge from other countries in meaningful ways. The limited research evaluating treatment beliefs for anxiety disorders in the United States

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suggests that patients have positive attitudes about both medication and psychotherapy (Deacon and Abramowitz, 2005), although to our knowledge, such attitudes have not been measured in laypeople.

While treatment beliefs are associated with the likelihood of accessing treatment, mental health literacy refers not only to knowledge and beliefs but specifically knowledge and beliefs that aid “the recognition, management or prevention” of mental health problems (Jorm et al., 1997, p. 182). To this end, assessment of mental health literacy should focus not only on perceptions of various coping approaches but also on individuals' knowledge about *how* to access appropriate support for coping with symptoms of mental health problems. For example, there are excellent resources available to the general public in the form of informational Web sites (e.g., of the Anxiety and Depression Association of America; adaa.org), evidence-based patient workbooks (e.g., *Mastery of Your Anxiety and Panic*; Barlow and Craske, 2007), and therapist-finders (e.g., “find a therapist” through abct.org). To our knowledge, no previous work has evaluated awareness of such potential resources among laypeople.

In a sample of US adults, the current study was designed to replicate and extend previous work in this area. We expected to replicate previous research indicating that laypeople generally recognize that symptoms of anxiety disorders warrant professional help (but at lower rates than depression; Schubert et al., 2014) and that social anxiety disorder is perceived more negatively than other anxiety disorders (Coles and Coleman, 2010; Furnham and Lousley, 2013). Furthermore, the study extends this previous research in three important ways. First, this study explored potential psychological correlates of an individual's ability to recognize symptoms, including participants' own experiences of symptoms of anxiety and depression as well as their self-efficacy for seeking mental health care. On the basis of previous research, we hypothesized that symptom recognition would be associated with self-efficacy, but not with participants' symptoms. Second, we measured beliefs about the helpfulness of various approaches to coping with symptoms of anxiety disorders (including both professional and nonprofessional intervention). On the basis of positive perceptions of psychotherapy in previous work, we expected high ratings for the usefulness of psychotherapy, although perceptions of other approaches were more exploratory. And lastly, we evaluated awareness of potentially useful resources for coping with such symptoms. Given the lack of previous work in this area, this aim was exploratory.

METHOD

Participants

A total of 628 participants were recruited through Amazon's Mechanical Turk (mTurk) Web site. mTurk is an Internet-based marketplace that allows companies and researchers to pay people small amounts of money to complete “Human Intelligence Tasks” (HITs). Eligibility to complete this study on mTurk was restricted to US residents who had at least a 95% approval rate from previous HITs (which reflects the percentage of submissions that have been approved in relation to the number of submissions completed). To ensure data integrity, two validity questions asked participants to respond accurately to simple questions, for example, “Please choose answer ‘C’ (this question is a validity check).” Of the original 628 participants, two responded incorrectly to one or both of these validity checks and thus were excluded from subsequent analyses; the final sample consisted of 626 participants (60.5% female). The sample was 73.3% white, 8.3% multiracial, 8.0% black, 6.4% Asian, 1.1% American Indian, 1.3% other, and 0.5% unknown. Participants' mean (SD) age was 34.4 (12.7) years, 23.8% were graduates from a 4-year college, 19.2% of the sample was unemployed and looking for work, and 34.2% were currently married. Notably, a meaningful proportion of the sample reported that they had been to mental health treatment in the past (34.5%). Of those who reported a

history of mental health treatment, 19.9% reported that the treatment was “therapy only,” 18.5% reported “medication,” and 57.4% reported “therapy and medication” (4.2% did not specify treatment type).

Materials

The research was approved by Skidmore College's institutional review board. Participants were recruited from Amazon's mTurk, where they were invited to participate in a survey study advertised as: “Give us your opinion about how different people cope.” If participants were interested, a link directed them to the online survey hosted by SurveyMonkey. All study questions were administered via SurveyMonkey, a Web-based data collection software program.

The Mental Health Literacy Survey

The Mental Health Literacy Survey (MHLS) included vignettes characterizing clinical levels of mental illnesses (depression, GAD, panic disorder, social phobia, obsessive compulsive disorder, alcohol abuse, and one vignette characterizing subclinical psychosocial distress). The results of vignettes depicting depression (in a woman), social phobia (in a man), GAD (in a woman), and panic disorder (in a man) are reported herein (vignettes were the same as those used by Coles et al., 2014). Following each vignette, participants were prompted to respond to a series of questions evaluating 1) whether the person in the vignette should seek professional help (on a 1–4 Likert scale where 1 is “definitely not,” 2 is “probably not,” 3 is “probably yes,” and 4 is “definitely yes”), 2) what causes are likely to explain the individual's symptoms (participants were asked to rank the likelihood of the following: stress, problems related to the person's environment, chance/bad luck, person's upbringing, mental illness, personal weakness, and problems related to the brain), and 3) how useful various approaches are (e.g., psychotherapy, exercise, avoidance, medications) would be for coping with the symptoms (with anchors labeled as 0, “maybe harmful,” 1, “definitely not helpful,” 4, “maybe helpful,” and 7, “definitely helpful”).

At the conclusion of the survey, participants responded to the open-ended prompt, “If you or someone you knew were experiencing difficulties like those described in some of the previous stories, are there any resources (i.e., books, websites, organizations) that you would recommend?” To develop codes for these open-ended responses, we used an approach (Crabtree and Miller, 1999) that has been implemented in previous work evaluating patient preferences (Battle et al., 2013). The first author (CAS) and an independent reader (JL) read all of the written responses and independently developed a list of codes that characterized these responses. There were few differences between the two lists, and the two readers collaborated to agree upon a final set of codes (these codes included none, Internet, religious, book, seek help, physical health care, talk to nonprofessional, avoid the Internet, miscellaneous). Next, two readers (JL and LT) used this list of codes to categorize all responses. In most (87%) of the responses, the readers codes were in agreement; discrepant codes were discussed among all three readers (CAS, JL, and LT) until 100% consensus was reached.

Patient Health Questionnaire-4

The Patient Health Questionnaire-4 (PHQ-4; Löwe et al., 2010) is a four-item self-report questionnaire, with two subscales measuring participants' feelings of anxiety and depression over the last 2 weeks. Participants responded using a Likert scale ranging from 0 to 3, indicating “not at all,” “several days,” “more than half the days,” and “nearly every day,” as well as “prefer not to answer” choice. This measure has been shown to have strong internal consistency ($\alpha = 0.82$; Löwe et al., 2010), as well as convergent validity with the Rosenberg Self-Esteem Scale, Questionnaire on Life Satisfaction, and Resilience Scale (Löwe et al., 2010). In the current study, $\alpha = 0.88$.

TABLE 1. Professional Help Recommendations and Relationship With Self-Efficacy and Symptoms of Anxiety Disorders

	Definitely Not (%)	Probably Not (%)	Probably Yes (%)	Definitely Yes (%)	Correlation With SE-SMHC	Correlation With PHQ-4
Depression	1.0	5.8	44.2	46.5	0.28**	0.10*
Social anx dis	3.2	17.3	47.4	32.0	0.20**	0.08
GAD	2.8	11.3	44.0	41.9	0.23**	0.05
Panic	1.3	2.5	20.3	75.9	0.23**	0.03

* $p < 0.05$.** $p < 0.0125$.

Self-Efficacy for Seeking Mental Health Care

The Self-Efficacy for Seeking Mental Health Care (SE-SMHC; Moore et al., 2015) is a nine-item self-report questionnaire that measures participants' beliefs about their competence to seek mental health care. Participants responded using a Likert scale from 1 (no confidence) to 10 (complete confidence), as well as a "prefer not to answer" choice, with total scores ranging from 9 to 90. This measure has shown strong internal consistency demonstrated known groups validity in previous research (Moore et al., 2015). Internal consistency in the current sample was strong, $\alpha = 0.92$.

Procedure

After choosing to participate in the survey through mTurk, participants read the informed consent form and indicated their decision to participate by clicking "I agree" or "I decline." Participants began the survey with brief demographic questions, followed by the MHLS, the SE-SMHC, and the PHQ-4. After participants completed the survey, they provided a completion code to collect their reward of \$0.25. Participants were then provided an option to be debriefed.

RESULTS

Professional Help Recommendations

Across the vignettes depicting symptoms of depression and anxiety, most participants recommended professional help (88.7%). Consistent with previous research, professional help was recommended (*i.e.*, participants responded that they either "probably" or "definitely" recommend professional help) less frequently for the social phobia vignette (79.4%) than for depression (93.1%) and panic (96.2%). Of note, results from this study revealed high rates of professional help recommendations for GAD (85.9%), which stands in contrast to previous studies where the percentage of respondents recommending

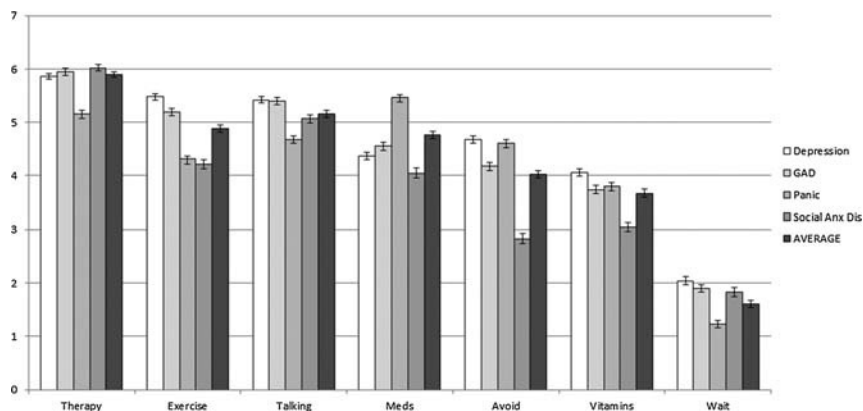
professional help was much lower (51.8%; Coles and Coleman, 2010) and help recommendations for GAD were lower than those seen for social anxiety disorder (Furnham and Lousley, 2013). Across all of the clinical vignettes, participants who had a history of mental health treatment were more likely to recommend professional help (smallest $t = 2.54$, largest $p = 0.01$, d values range from 0.23 to 0.53). Furthermore, there were consistently significant correlations (at the Bonferroni corrected alpha of $0.05/4 = 0.0125$) between self-efficacy for seeking mental health care and professional help recommendations, revealing that higher self-efficacy was associated with professional help recommendations. On the other hand, there were no significant correlations between help recommendations and participants' symptoms of anxiety and depression (see Table 1).

Perceptions of Personal Weakness

Consistent with previous research, personal weakness was rated as the most likely cause of the symptoms depicted in vignettes at relatively high rates for the social phobia vignette (22.6%) compared with all of the other vignettes (6.9%–10.9%). Furthermore, personal weakness was more than twice as likely to be identified as the most probable cause of symptoms by participants who indicated that the vignette did not warrant professional help for both social anxiety (38.3% *vs.* 18.3%) and panic disorder (23.8% *vs.* 7.2%). Of note, across all of the clinical vignettes, men ranked personal weakness to be a more likely explanation for symptoms compared with women (all t values > 2.00 , p values range from < 0.001 to 0.04, d values range from 0.18 [GAD] to 0.32 [social anxiety disorder]).

Helpfulness Ratings of Treatment/Coping Approaches and Self-Efficacy

Note that helpfulness ratings were provided only by those participants who indicated that the vignette warranted professional help (see Fig. 1 for a summary of ratings). Across the vignettes, relatively

**FIGURE 1.** Ratings of the usefulness of various approaches to coping with symptoms by vignette and across vignettes (*i.e.*, average).

high ratings were given for the helpfulness of professional mental health treatments such as psychotherapy ($M = 5.89$, $SD = 0.96$), and medications ($M = 4.76$, $SD = 1.26$). Positive ratings were also provided for the informal coping approaches of exercise ($M = 4.88$, $SD = 1.29$) and talking with someone ($M = 5.16$, $SD = 1.20$). Of concern are the relatively high ratings of the utility of “avoiding situations that are stressful,” particularly for coping with symptoms of panic disorder ($M = 4.61$, SD , where 0 = “maybe harmful” and 7 = “definitely helpful”). Encouragingly, “wait (it will get better with time)” was given low ratings across the vignettes ($M = 1.61$, $SD = 1.24$), supporting the help recommendations data that participants recognize the appropriateness of intervention. A history of mental health treatment was associated with greater self-reported current symptoms, $t(404.49) = 7.84$, $p < 0.001$, $d = 0.70$, as well as small but significant differences in helpfulness ratings consistent with higher mental health literacy compared to participants with no treatment history. In particular, participants with a history of treatment provided more positive average ratings for medication and psychotherapy (p values ≤ 0.001 , d values > 0.37) and less positive ratings of the informal approach of talking ($p = 0.03$, $d = 0.23$) and the unsupported approach of taking vitamins ($p = 0.03$, $d = 0.22$). They also provided less positive ratings of the contraindicated approaches of avoidance ($p = 0.054$, $d = 0.20$) and waiting without seeking treatment ($p < 0.001$, $d = 0.38$). All of these analyses maintained significance when controlling for current symptoms. Furthermore, current symptoms were only associated (positively) with medication ratings ($r = 0.17$, $p = 0.002$; all other p values > 0.13).

Awareness of Resources

Of note, responses often reflected more than one code (21.88% of the time). As shown in Figure 2, the most common response to this open-ended question was that the participant did not know of any potential resources (38.45%). The next most frequent responses were those that suggested getting help (37.42%). There was variability in the specific nature of these help recommendations, and the recommendations were rarely to specific resources. That is, the overwhelming majority of responses in this category suggested that an affected person speak with a physician/therapist/counselor, join a support group, or contact one's insurance for recommendations. The suggestion to seek out resources on the Internet was also common (33.74%). Of those who recommended the Internet, many made

nonspecific recommendations (e.g., “I'm sure there are websites for most of these issues”). That said, specific recommendations were also common, and among those who recommended using the Internet, a meaningful proportion (25%) specifically recommended WebMD. This recommendation was followed in frequency by Google (13.83%). A minority of responses (7.45%) reflected established organizations for conducting scientific research or mental health advocacy (e.g., Mayo Clinic, National Institute of Mental Health, National Alliance for Mental Illness, and American Psychological Association). Similarly, small numbers of respondents suggested idiosyncratic websites (7.45%; e.g., realage.com, dr.phil.com, reddit.com) or Wikipedia (3.19%). Of the participants who suggested that an individual use books (12.88%), most made nonspecific or idiosyncratic suggestions, primarily to nonspecific “self-help” texts. That said, one title was suggested by multiple participants; three participants (0.4% of total sample, 4.7% of those suggesting books) identified *Feeling Good* by David Burns. Lastly, four additional participants (0.7% of total sample, 6.3% of those suggesting books) suggested books that have foundations in cognitive and behavioral principles (e.g., *Mastery of Your Anxiety and Worry*). Less common responses included the suggestion to seek support from religion or religious leaders (4.5%) or engage in activities related to physical health (3.07%).

DISCUSSION

Results provide evidence that participants recognize symptoms of anxiety and depression in others as warranting professional intervention. This recognition was reliably associated with self-efficacy for seeking mental health care but was not associated with the participants' self-report of their own symptoms of anxiety and depression. Although it is concerning that individuals experiencing symptoms do not seem to be adept at recognizing symptoms as problematic, the relationship between self-efficacy and recognizing symptoms in others suggests that considering this domain-specific form of self-efficacy may prove useful in future mental health literacy promotion research (assuming this correlational research is replicated in future prospective work). That is, these results provide initial evidence to suggest that mental health literacy programming may consider borrowing self-efficacy promotion approaches from behavioral health interventions. Among other things, such programs focus on identifying and reinforcing previous successes, highlighting positive models of successful health behavior, and helping

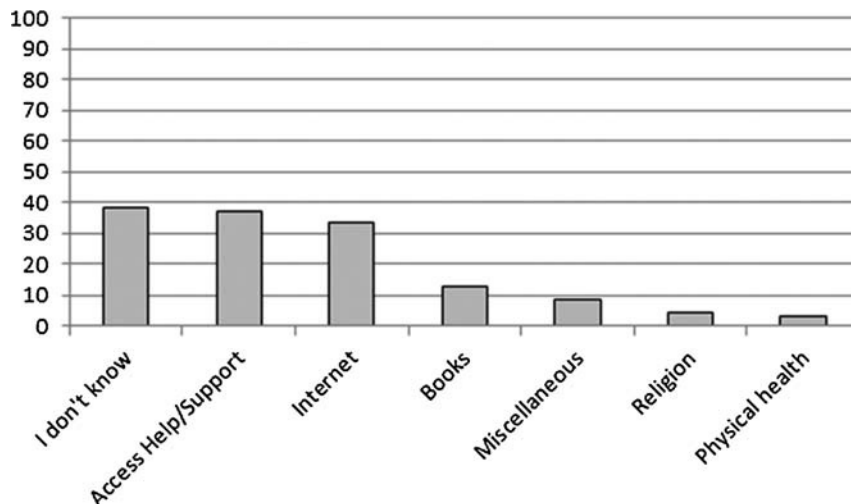


FIGURE 2. Frequency of the most common codes assigned to responses to the open-ended question “If you or someone you knew were experiencing difficulties like those described in some of the previous stories, are there any resources (i.e., books, Web sites, organizations) that you would recommend?”

patients to accurately identify and understand their emotional experiences (*cf.* Marks et al., 2005). Encouragingly, previous work in medical disease-management research has demonstrated that high self-efficacy is associated with increased treatment engagement, including both attendance (*e.g.*, Gyurcsik et al., 2003) and compliance (Brus et al., 1999) with intervention. In the current study, although the overall high rates of symptom recognition are encouraging, it is important to draw a distinction between recognition that symptoms warrant professional help and actually engaging with treatment when those symptoms are one's own. Particularly for anxiety disorders, previous work has indicated that failure to recognize the need for treatment represents one of the primary barriers to treatment access, but that "few of the correlates of perceived need predicted help-seeking among individuals who perceived a need" (Mojtabai et al., 2002, p. 82). For these reasons, it will be important for future work to explore the potential disconnect between perceptions of need and actual behavioral outcomes (*i.e.*, assessment of treatment engagement) consistent with seeking professional help.

Perceptions of the helpfulness of professional treatments (both therapy and medications) were generally high and consistent with previous work suggesting that therapy is rated more positively than medication (McHugh et al., 2013). However, again, positive perceptions of the effectiveness of treatments do not necessarily translate into willingness to use these treatments oneself, as previous research evaluating American attitudes toward psychiatric medications has suggested (Croghan et al., 2003). Furthermore, future work exploring whether the relatively positive attitudes toward medication treatment documented herein are unique to the United States (as a country with direct-to-consumer pharmaceutical marketing) is warranted. Perceptions of nonprofessional approaches that have garnered some empirical support, such as exercise (Cooney et al., 2013) and engaging with social support ("talking to a loved one"; Taylor, 2007), were also positive. Furthermore, ratings of the nonproductive approach to "wait (it will get better with time)" were encouraging in that the low ratings suggest that participants identified the risk of this strategy. Discouragingly, but perhaps not surprisingly, relatively high ratings were provided for the utility of avoidance for both GAD and panic (*i.e.*, "avoid situations that might be stressful"). Given the integral role that avoidance plays in the maintenance of anxiety disorders and previous research that highlights the public perception that avoidance is an effective way to prevent mental health problems (Jorm et al., 2010), this particular misunderstanding may be an important consideration for targeted public health campaigns, particularly for specific anxiety disorders.

It is notable that past treatment experience was associated with more sophisticated perceptions of coping approaches (*i.e.*, more positive perceptions of professional intervention and less positive perceptions of contraindicated approaches). On the other hand, current symptoms were only associated with positive perceptions of medication. These results call for replication but underscore that being symptomatic oneself does not seem to be associated with greater sophistication in terms of either 1) recognizing the appropriateness of professional help or 2) what interventions may be helpful versus harmful. On the other hand, a history of treatment does seem to be related to greater mental health literacy, although the study methods preclude us from establishing whether treatment history conveys such literacy or if people who seek treatment are more literate at baseline (or both). The inconsistency in the relationship between the mental health literacy and treatment history compared with mental health literacy and symptoms may not be entirely surprising. Previous epidemiological work has indicated that a large portion (nearly one third) of people who have accessed mental health treatment do not have symptoms severe enough to warrant a psychiatric diagnosis (Wang et al., 2005; *i.e.*, met unmet), whereas most people who have symptoms of mental health problems do *not* seek treatment (*i.e.*, unmet need). Furthermore, those who do access treatment may be people who have access to greater resources

in terms of health care, education, support, and relatedly, mental health literacy. Future work understanding specifically what resources enable met unmet may help to inform efforts designed to address unmet need.

Negative perceptions of social anxiety disorder seem to eclipse those of the other clinical disorders (*i.e.*, the condition is the result of personal weakness), which is consistent with previous research demonstrating that this common anxiety disorder elicits more negative public attitudes than other anxiety disorders and depression (Coles and Coleman, 2010) as well schizophrenia and post-traumatic stress disorder (Reavley and Jorm, 2011). This may help to explain why most individuals with social anxiety disorder do not access treatment until the condition is comorbid with another psychiatric condition (Wittchen and Fehm, 2003), at which point prognosis becomes worse (Bruce et al., 2005). Furthermore, it is important to note that men were more likely than women to make the attribution of weakness across *all* of the clinical vignettes, potentially revealing an attitudinal barrier associated with the masculine sex role that may be particularly noteworthy for men with internalizing disorders.

Notably, a meaningful proportion of participants in the current study indicated that they had no knowledge of potentially helpful resources for coping with symptoms of these common mental health conditions. Although recommendations to seek help were relatively common, they were typically vague and often suggested accessing a generalist physician as opposed to a mental health specialist, a finding consistent with recent research (Schubert et al., 2014). Furthermore, although many participants recommended the Internet, there was limited recognition of organizations that specifically promote evidence-based information about these conditions. Of particular potential concern is the fact that no participants identified either the websites for the Association for Behavioral and Cognitive Therapy (abct.org) or the Anxiety and Depression Association of America (adaa.org). In addition, despite that a small minority of participants recommended evidence-based resources in the form of books, many more participants made recommendations for self-help books. Although cognitive-behavioral based self-help interventions have demonstrated efficacy for improving symptoms of anxiety disorders (Cuijpers and Schuurmans, 2007), this industry is not regulated by a scientific body and many marketed self-help approaches have not been tested. In all, results from these open-ended responses suggest a number of potential areas of focus for dissemination efforts. First, promoting traffic to Web pages that rely on clinical science to determine what interventions to promote for treating anxiety disorders (*e.g.*, adaa.org, abct.org) will be important, particularly through WebMD's page and through Google searches (where, as of this writing, a search for *anxiety treatment* yields adaa.org as the seventh result and abct.org does not make it onto the first page). Second, it will be important for our field to be actively engaged with efforts to make evidence-based approaches more visible to the lay-public, including direct-to-consumer marketing approaches suggested in recent work (*cf.* Gallo et al., 2013).

The results of this study should be considered within the context of study limitations. First, this Internet-based survey necessarily reflects the perspectives of a population of individuals with access to the Internet as well as a sample that is predominantly white. Also of note is the relatively high percentage of the sample who are unemployed and looking for work (19.2%), which is much higher than the current national average of ~5% (US Bureau of Labor Statistics, United States Department of Labor, 2015), and the high rate of mental health treatment history in the current sample (34.5% compared with an annual rate of approximately 13.5%; Substance Abuse and Mental Health Services Administration, 2014). In this way, broadly generalizing study results is inappropriate before replication in more representative samples. That said, our sample characteristics are relatively comparable in some ways with 2012 US Census population data (77.9% [73.3%] white, 50.8% [60.5%] female, 28.5% [23.8%] completed 4-year college degree; US Census Bureau, 2012; values for current study data

in brackets). Furthermore, the cross-sectional nature of the study undermines our ability to draw causal claims about the relationship between self-efficacy and mental health literacy. Lastly, our assessment of coping approaches lacked nuance in terms of evaluating various types of psychotherapy and pharmacotherapy. Although accessing care is an integral component of responding appropriately to the presence of mental health symptoms, not all treatments are created equal, and some treatments can be harmful (Lilienfeld, 2007). And to complicate issues for consumers, there are hundreds of different treatment options available for mental health problems (Eisner, 2000). As highlighted by the limited sophistication participants demonstrated in terms of recommending resources, distinguishing which treatments are most likely to be useful may be particularly challenging. For these reasons, evaluating knowledge of targeted and empirically supported interventions for anxiety disorders will be an important avenue for future work, as will efforts to improve this knowledge.

In terms of developing efficacious treatments for anxiety disorders, psychological research has come a long way in 20 years. Despite these efforts, efficacious treatments are underused. Although limitations in consumer knowledge and self-efficacy by no means represent the only barriers to appropriately accessing treatment (*cf.* Gunter and Whittal, 2010), the dissemination of such treatments is undoubtedly stilted by misinformation, lack of knowledge, and attitudinal obstacles. This study indicates that particularly relevant areas of misinformation may be positive perceptions of avoidance behavior, attitudinal barriers such as the belief that symptoms are the results of personal weakness (particularly for men), and limited knowledge about publicly available and evidence-based resources. With this information in mind, the challenge of the next 20 years should undoubtedly include increased attention toward public education and treatment dissemination.

CONCLUSIONS

In all, the results of this study provide both good and bad news with regard to lay-people's knowledge and understanding of anxiety disorders and their treatment. Encouragingly, most participants recognized symptoms as warranting professional help. Furthermore, elevated self-efficacy for mental health care was reliably associated with greater symptom recognitions, whereas participants' symptoms themselves were not associated with such symptom recognition. In general, professional interventions (*i.e.*, psychotherapy and medication) were perceived positively, with psychotherapy perceived more positively than medication. Participants with a history of mental health treatment provided more sophisticated perceptions of treatment options, including relatively negative perceptions of contraindicated approaches such as avoidance and waiting without treatment. In general, participants demonstrated limited awareness of potentially useful resources for coping with symptoms, but themes emerged for commonly considered resources, providing some insight into ways to improve visibility of effective treatments.

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DISCLOSURE

The authors declare no conflict of interest.

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