



Classification models for subthreshold generalized anxiety disorder in a college population: Implications for prevention



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ABSTRACT

Generalized anxiety disorder (GAD) is one of the most common psychiatric disorders on college campuses and often goes unidentified and untreated. We propose a combined prevention and treatment model composed of evidence-based self-help (SH) and guided self-help (GSH) interventions to address this issue. To inform the development of this stepped-care model of intervention delivery, we evaluated results from a population-based anxiety screening of college students. A primary model was developed to illustrate how increasing levels of symptomatology could be linked to prevention/treatment interventions. We used screening data to propose four models of classification for populations at risk for GAD. We then explored the cost considerations of implementing this prevention/treatment stepped-care model. Among 2489 college students (mean age 19.1 years; 67% female), 8.0% (198/2489) met DSM-5 clinical criteria for GAD, in line with expected clinical rates for this population. At-risk Model 1 (subthreshold, but considerable symptoms of anxiety) identified 13.7% of students as potentially at risk for developing GAD. Model 2 (subthreshold, but high GAD symptom severity) identified 13.7%. Model 3 (subthreshold, but symptoms were distressing) identified 12.3%. Model 4 (subthreshold, but considerable worry) identified 17.4%. There was little overlap among these models, with a combined at-risk population of 39.4%. The efficiency of these models in identifying those truly at risk and the cost and efficacy of preventive interventions will determine if prevention is viable. Using Model 1 data and conservative cost estimates, we found that a preventive intervention effect size of even 0.2 could make a prevention/treatment model more cost-effective than existing models of “wait-and-treat.”

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1. Introduction

Generalized anxiety disorder (GAD) is one of the most common psychiatric disorders among college students, with 7% prevalence in 14,175 students across 26 college campuses (Eisenberg, Hunt, & Speer, 2013). Onset occurs at approximately 20 years of age for most individuals (Brown, O’Leary, & Barlow, 2001; Yonkers, Warshaw, Massion, & Keller, 1996). Therefore, a college sample is an ideal group within which to examine models of prevention.

Preventing and treating GAD among young people has tremendous public-health significance. Left untreated, GAD has a chronic

course and persistent symptoms (Yonkers, Bruce, Dyck, & Keller, 2003) and, in young people, tends to persist into adulthood (Costello, Foley, & Angold, 2006). Untreated GAD is also very costly in terms of distress, disability, quality of life, and medical problems (Newman, 2000). Even individuals who do not meet the full criteria for GAD (i.e., subthreshold cases) have demonstrated important similarities to those with the full GAD syndrome in functional impairment, medically unexplained symptoms (Beesdo et al., 2009), quality of life (Mendlowicz & Stein, 2000), socio-demographic features, and other key correlates (Beesdo et al., 2009; Bienvenu, Nestadt, & Eaton, 1998; Carter, Wittchen, Pfister, & Kessler, 2001; Hunt, Issakidis, & Andrews, 2002; Kendler, Neale, Kessler, Heath, & Eaves, 1992; Kessler et al., 2005; Maier et al., 2000; Ruscio et al., 2005; Wittchen et al., 2002).

GAD and subthreshold GAD are also significant predictors of first onset of later mood disorders as well as later anxiety disorders, substance-use, and impulse-control (Kessler, 2000; Ruscio

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et al., 2007). The presence of GAD symptoms increases the cost of healthcare from twofold to greater than fourfold (Bereza, Machado, & Einarson, 2009), with disorder severity positively correlated with total medical costs (Marciniak et al., 2005). Furthermore, those with clinical and subthreshold GAD often score similarly on measures of disability and help-seeking (Kessler et al., 2005; Ruscio et al., 2005).

However, Hunt and Eisenberg (2010) demonstrated that a majority of affected college students did not receive treatment for a variety of reasons. For example, students were often uninformed about their disorder or available treatment options. In addition, many were reluctant to seek treatment due to barriers such as time, stigma, or cost. Finally, inadequate counselor availability prevented even those who sought help from getting it.

In an attempt to address these barriers, researchers have developed and tested technology-based solutions. For instance, low intensity pure self-help (SH) interventions have proven efficacious for treating individuals diagnosed with anxiety disorders including GAD (Al-Asadi, Klein, & Meyer, 2014; Christensen, Mackinnon, et al., 2014; Lewis, Pearce, & Bisson, 2012; Newman, Szkodny, Llera, & Przeworski, 2011). In addition, Lewis et al. (2012) conducted a meta-analysis of 31 randomized controlled trials (RCTs) that included SH interventions for anxiety disorders. When comparing SH with wait list, they found a significant effect size of 0.84 favoring SH. When comparing SH with therapist-administered treatments, there was a significant difference in favor of therapist-administered treatment with an effect size of 0.34. In another study, individuals identified as having clinical GAD received a fully-automated SH anxiety program and achieved significant improvements across primary symptom severity measures as well as secondary measures such as self-confidence in managing mental health issues and quality of life (Al-Asadi et al., 2014). These findings suggest that purely SH interventions for anxiety, although less efficacious than therapist-administered treatments, are less resource intensive yet still efficacious.

More intensive guided self-help (GSH) interventions have proven even more effective than pure SH interventions (Cuijpers, Donker, van Straten, Li, & Andersson, 2010; Paxling et al., 2011). GSH interventions comprise the psychoeducational content in SH interventions and the support of a program guide or “online coach” who provides encouragement, monitors progress, and gives feedback typically via messaging within the program. In an RCT for the treatment of GAD comparing GSH to a wait-list control condition, there were large effect sizes (Cohen’s $d > 0.8$) both within the treatment group and between the groups in favor of GSH on measures of worry, anxiety, and depression (Paxling et al., 2011). Furthermore, at one and three-year follow-ups, symptoms had improved further or were sustained. GSH interventions were also as or more efficacious than in-person therapy for clinical levels of anxiety and depression in a meta-analysis of 21 RCTs ($N = 810$). The overall effect size at post-test was $d = -0.02$, in favor of GSH. However, there was no significant difference at one-year follow-up or between dropout rates (Cuijpers et al., 2010). These findings suggest that less costly GSH interventions may be an adequate substitution for traditional in-person therapy.

Low cost technology-based interventions might prove even more cost-effective if used in a stepped-care fashion. A stepped-care model of service delivery, in which increasing levels of symptomatology are aligned with interventions of increasing intensity, can be developed to prevent and treat GAD. The UK has demonstrated the feasibility and scalability of stepped-care models integrating such technology-based, self-help interventions via the Improving Access to Psychological Therapies (IAPT) initiative (Gyani, Shafran, Layard, & Clark, 2013). In its first three years of operation (ending March 2012), the new program served more than 1 million people, achieved recovery rates above 45%, and helped move 45,000 people off sick pay and/or other disability

benefits. Although IAPT’s early success demonstrated that stepped-care models could improve issues of accessibility, the treatment primarily focused on clinical disorders and did not address sub-threshold disorders or prevention.

Historically, universities have focused on populations with acute, disabling symptoms. However, from a public health perspective, the optimal goals in a college population are to reduce the prevalence and incidence of GAD and to increase the availability of effective treatments. Thus, an intervention that reduced symptom progression and prevented onset would reduce the incidence of developing GAD.

Preventive interventions are generally classified as either universal interventions delivered to the entire population, including those at risk, or selective interventions delivered to those with known risk, or indicated interventions delivered to those who are symptomatic but subthreshold (Gordon, 1983). Studies of possible GAD risk factors have suggested that subthreshold symptoms might predict onset (Karsten et al., 2011; Kessler et al., 2003; Ruscio et al., 2007). In the prevention nomenclature, individuals with subthreshold GAD might be appropriate for selective/indicated preventive interventions that aim to reduce symptoms and halt symptom progression.

University population-based intervention for GAD would then focus on two general strategies: reducing symptom progression in symptomatic but not yet clinical individuals who are classified as “at-risk” and reducing symptoms in clinical individuals. Thus, the goal of the present research was to evaluate results from a population-based screening of college students to inform a stepped-care model of service delivery. A primary model was developed to illustrate how increasing levels of symptomatology could be linked to prevention/treatment interventions. Whereas the well-defined and highly restrictive criteria detailed in the fifth edition of the Diagnostic and Statistical Manual (DSM-5) can identify those most in need of treatment, determining how to relax these criteria to identify those most at-risk for developing GAD and/or those suffering most from subthreshold symptoms is required to design a stepped-care model. Unfortunately, little prospective data is available to determine who is at risk. To explore how universities might identify those who are at risk, we proposed four models that used different criteria for allocating students into this at-risk category. Each of the four criteria reflects a unique domain of severity and/or impairment that might reasonably merit early intervention. Following, using conservative assumptions about the cost, efficacy, and feasibility of delivering self-help indicated preventive interventions, we also estimated costs. Thus we aimed to explore the feasibility and cost-benefit considerations of implementing a prevention/treatment stepped-care model.

2. Methods

2.1. Procedure

College students were recruited to participate in this study through the university’s research participation program. Students completed a battery of self-report measures among a larger pool of assessments and received partial course credit for their participation. The university’s institutional review board approved all study procedures.

2.2. Participants

Participants were undergraduate students ($N = 2489$) enrolled in introductory psychology courses at a large, public university in the northeast who completed an anxiety screen in 2014. The majority of the sample was female (67.4%), and the mean age was 19.1 years

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