

Review article

Mental Health Problems and Help-Seeking Behavior Among College Students

Justin Hunt, M.D., M.S.^{a,*}, and Daniel Eisenberg, Ph.D.^b

^aDivision of Health Services Research, Department of Psychiatry, University of Arkansas for Medical Sciences, Little Rock, Arkansas

^bDepartment of Health Management and Policy, University of Michigan School of Public Health, Ann Arbor, Michigan

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Abstract

Mental disorders are as prevalent among college students as same-aged non-students, and these disorders appear to be increasing in number and severity. The purpose of this report is to review the research literature on college student mental health, while also drawing comparisons to the parallel literature on the broader adolescent and young adult populations. © 2010 Society for Adolescent Medicine. All rights reserved.

Keywords:

College students; Mental health; Help-seeking; Prevalence; Depression

Although the homicides by mentally disturbed college students at Virginia Tech and Northern Illinois University recently captured popular attention, these are atypical cases within a much broader public health issue. Mental disorders are as prevalent among college students as same-aged nonstudents [1], and these disorders appear to be increasing in number and severity [2,3]. College students are often viewed as a privileged population, but they are not immune to the suffering and disability associated with mental illness.

Mental health among college students represents not only a growing concern but also an opportunity, because of the large number of people who could be reached during an important period of life. More than 65% of American high school graduates attend postsecondary education [4]. Mental disorders account for nearly one-half of the disease burden for young adults in the United States [5], and most lifetime mental disorders have first onset by age 24 years [6]. The college years represent a developmentally challenging transition to adulthood, and untreated mental illness may have significant implications for academic success [7], productivity [8], substance use [9,10], and social relationships [11].

Campuses have many channels through which they might have a positive effect on mental health. College represents the only time in many people's lives when a single integrated

setting encompasses their main activities—both career-related and social—as well as health services and other support services. Campuses, by their scholarly nature, are also well positioned to develop, evaluate, and disseminate best practices. In short, colleges offer a unique opportunity to address one of the most significant public health problems among late adolescents and young adults.

A robust base of research evidence is necessary for colleges and our society more generally to seize this opportunity. The purpose of this report is to review the published studies on college student mental health, while also drawing comparisons to the parallel published data on the general adolescent and young adult populations. Throughout this report we use the term “college” to refer generally to postsecondary education, which includes both undergraduate and graduate students. We take the approach of a narrative review, rather than a more formal systematic review, because our aim is to weave together multiple disparate topics in a reasonably concise article. In reviewing the research evidence, we focus primarily on sources that are likely to generalize to the overall populations of interest: national studies and large multi-campus studies. Specifically, we focus on four primary topics: (1) the current state of mental health in the college student population; (2) risk factors among college students; (3) the apparent worsening in recent years of mental health in this population, and potential explanations for this trend; and (4) the extent to which students with mental health problems are receiving treatment. We conclude with a discussion of practices and policies addressing

*Address correspondence to: Justin Hunt, MD, MS, Division of Health Services Research, Department of Psychiatry, University of Arkansas for Medical Sciences, 4301 West Markham Street, #554, Little Rock, AR 72205.
E-mail address: huntjustinb@uams.edu

mental health and help seeking on college campuses, and we highlight potential opportunities for improvement.

Current state of mental health among college students

Mental health problems are highly prevalent among college students, according to several data sources. In the 2008 National College Health Assessment sponsored by the American College Health Association (ACHA-NCHA), more than one in three undergraduates reported “feeling so depressed it was difficult to function” at least once in the previous year, and nearly one in 10 reported “seriously considering attempting suicide” in the previous year [2]. According to a study of 26,000 students from 70 colleges and universities in 2006, 6% of undergraduates and 4% of graduate students reported having seriously considered suicide in the previous 12 months [12]. In our own survey data from random samples at 26 colleges and universities in 2007 and 2009 (the Healthy Minds Study), we found that 17% of students had positive screens for depression according to the Patient Health Questionnaire–9, including 9% for major depression, and 10% of students had a positive Patient Health Questionnaire screen for an anxiety disorder (panic or generalized anxiety disorder).

Blanco et al [1] compared college students and non-college-attending young adults across a wide range of psychiatric disorders in a nationally representative sample, the 2002–2003 National Epidemiological Survey of Alcohol and Related Conditions (NESARC) [13]. They found that college students and their non-college-attending young adult peers had approximately the same overall 12-month prevalence of mental disorders using a validated and fully structured diagnostic interview (Alcohol Use Disorder and Associated Disabilities Interview Schedule—DSM-IV version). The overall prevalence of mood and anxiety disorders was also roughly equal across the two groups, although the specific condition of bipolar disorder was less prevalent among students. Almost half of college students met the DSM-IV criteria for at least one mental disorder in the previous year, including 18% for a personality disorder, 12% for an anxiety disorder, and 11% for a mood disorder.

In conjunction with these findings on internalizing disorders, many studies have documented widespread alcohol misuse on campuses [10,14–18]. In the national analysis by Blanco et al, college students had a higher prevalence of alcohol use disorders than their same-age peers but a lower prevalence of drug use disorders and nicotine use [1]. This is consistent with other studies indicating that alcohol use disorders are more prevalent among college students [14,16,18], but nicotine and drug use disorders are more prevalent among same-age nonstudents [15].

Risk factors among college students

Within the college population certain subgroups have a significantly higher prevalence of mental health problems,

which is consistent with studies of the general population [19]. Male undergraduates are at a higher risk for suicide [20], but female students are more likely to screen positive for major depression and anxiety disorders [21]. Students from lower socioeconomic backgrounds are at a higher risk for depressive and anxiety symptoms [10,21,22]. Poor mental health is also more common among students with relationship stressors [1,23], low social support [1,24], or victimization by sexual violence [25].

Although mental health clearly varies across certain demographic and social factors, relatively little is known about how it varies with respect to factors more specific to the college setting, such as academic workload and competition. Some studies show that personality traits, such as perfectionism, are important moderators determining the amount of psychological distress that students report as a result of their college studies [26–29]. The academic environment may be particularly stressful for minority students at predominantly white institutions, according to some studies [30,31]. We were, however, unable to identify any studies with representative samples on how mental health relates to other characteristics of the academic setting, such as enrollment size, selectivity, competitiveness, supportiveness of academic personnel, and field of study. As in the general population of youth [32–36], risk factors for mental disorders among students must also be understood in the context of genetic factors and how these pre-existing vulnerabilities interact with environmental factors in college. Research on these relationships is still in its infancy for college populations and will warrant increased attention in future work. Learning more about the role of these factors in mental health will be useful for informing efforts to create campus environments that promote better mental health.

Are mental health problems increasing among college students?

The epidemiological data summarized above clearly indicate that mental health problems are highly prevalent among college students. Less clear is whether students are more psychologically disturbed today than they were in the past. Two national surveys are cited frequently when researchers, clinicians, and policymakers argue there is increasing prevalence of mental illness among students. First, in a 2008 national survey of directors of campus psychological counseling centers, 95% of directors reported a significant increase in severe psychological problems among their students [3]. Second, in the ACHA-NCHA national surveys of students, the proportion reporting to have ever been diagnosed with depression has increased from 10%–15% since 2000 [2,37]. Although impressive and concerning, this evidence may reflect increases in help-seeking behavior as opposed to increases in overall prevalence of disorders. In this section, we consider this alternative explanation in light of available evidence from the general population. We then consider, if the

prevalence of disorders has in fact increased, whether such an increase would likely be a result of broader societal trends or factors specific to college populations and settings. In framing this discussion, we acknowledge the multiple challenges to interpreting the evidence including the confounding of changing stigma associated with mental illness and seeking mental health care, changing DSM diagnostic criteria, and possibly improved screening for mental illness.

To begin, the near unanimity by which college mental health personnel report increasing numbers of serious mental health problems leaves little doubt that more of these students than ever are coming into contact with campus health services. These reports may, however, represent an increase in help-seeking behavior rather than a true increase in prevalence. The same question applies to other evidence of increasing severity or prevalence among campus health service and counseling clients [38–40]. In the absence of consistent data over time on disorders in overall student populations, it is unclear how the overall prevalence and severity have changed.

One strategy for trying to interpret the trends is to examine how the increase in the number of students with mental disorders who are in contact with health providers (e.g., the increase from 10 to 15 with diagnosed depression) compares with evidence on increases in help-seeking behavior, conditional on having a diagnosable disorder, in general populations. Because there are no consistent data on mental health treatment over time from representative adolescent populations, we examine trends from general adult samples. The Epidemiologic Catchment Area Study was one of the first large-scale studies to provide data on help seeking, showing that in 1985 only 19% of respondents with recent mental disorders received any treatment in the year before the interview [41]. In data collected in 1992, the National Comorbidity Survey (NCS) found that 25% of those diagnosed with 12-month disorders received treatment in the year before the interview [42], indicating an increase relative to the 1980s. Most recently, the National Comorbidity Survey Replication (NCS-R) fielded in 2002 demonstrated that the increase in help seeking continued between the early 1990s and the early 2000s: 41% of the NCS-R respondents meeting criteria for a past-year disorder received treatment in the previous year [43]. Considering that attitudes toward seeking mental health treatment seem to have improved more in young adults than in older adults [44], it seems plausible that the increase in help seeking, conditional on mental health status, among college students has been at least as large as that in the general adult population.

Thus, the apparent changes on college campuses may represent, at least to a large extent, an increased willingness of students to seek help for their psychiatric symptoms instead of a true increase in prevalence among students. Nevertheless, it is important to keep in mind that college mental health personnel report not only increased numbers of students seeking mental health services but also increased severity among the case mix. Therefore, even if the overall prevalence has not increased dramatically, the prevalence of more severe cases may well have increased.

If the prevalence, or at least the severity, of disorders has in fact increased at least to some extent, this leaves the question of whether such an increase would be likely to stem from broad societal factors or college-specific factors. We first evaluate the potential contribution of broad societal trends, by referring to published data on the general populations. The National Comorbidity Study (NCS), fielded in 1992, and its replication (NCS-R), fielded in 2002, offer the best opportunity to compare epidemiological data on mental disorders over time in the U.S. These studies used validated, in-person diagnostic interviews (Composite International Diagnostic Interview) to study the prevalence of mental illness in nationally representative samples. The results showed no significant change in the prevalence of mental illness among young adults from 1992 to 2002 [45,46]. For example, 15.7% of young adult respondents (ages 15–24 years) in the NCS had a lifetime diagnosis of major depression [47]. In the NCS-R, the results were remarkably similar, with 15.4% of the young adults (ages 18–29) meeting criteria for a lifetime diagnosis of major depression [6]. However, because these two surveys used somewhat different diagnostic criteria (DSM-III-R and DSM-IV, respectively) and the results are available for different age ranges (15–24 in the NCS and 18–29 in the NCS-R), the prevalence rates are not entirely comparable. In contrast, Compton et al, using data drawn from two more recent large national samples (2002–2003 National Epidemiological Survey of Alcohol and Related Conditions and its predecessor, the National Longitudinal Alcohol Epidemiologic Survey), found that the past year prevalence of major depression among U.S. adults increased from 3% to 7% from 1991–1992 to 2001–2002, and that this increase was significant for whites, blacks, and Hispanics as well as for all age groups [48]. Among young adults (ages 18–29), the increase was from 6% to 10%.

Broad population studies involving adolescents have primarily been conducted in other countries; fortunately, results from the National Comorbidity Survey–Adolescent Supplement (NCS-A) should be available in the near future. Until then, we must rely on data from outside the United States. The Institute of Psychiatry in London showed a substantial increase in emotional and conduct problems among adolescents of the United Kingdom from 1970 through 1999 [49], but a leveling out in the past 10 years [50]. West and Sweeting found an increasing burden of mental illness among adolescent girls between 1987 and 1999 [51], and repeated surveys using child and adolescent samples in the Netherlands also show small, but significant increases in externalizing and internalizing mental health problems [52]. A large number of published data support the continuity of adolescent psychiatric problems into adulthood [53–56]; thus, these increases among adolescents are also likely to be present in the college student population.

Thus, the evidence from general populations of adolescents and young adults suggests that, overall, the prevalence of mental disorders has remained steady or at the most shown

moderate increase. Therefore, if a substantial increase has occurred among students, it would need to be related to factors specific to college populations. One potential factor is that more youth are accessing effective treatments during adolescence, which may help them to function at a level that allows college attendance. This dynamic could lead to an increase in prevalence on campus that would not necessarily coincide with an increase among all young people. Widespread evidence indicates increased use of mental health services among child and adolescent populations. Olsson et al found that the overall annual rate of psychotropic medication use by young persons (aged 18 years and younger) increased from 1.4 per 100 persons in 1987 to 3.9 per 100 persons in 1996 [57]. Effective psychotropic medications with fewer side effects, such as the widely prescribed selective serotonin reuptake inhibitors, are now available compared with those available 25 years ago when the tricyclic antidepressants were first-line drugs for depression and anxiety. In conjunction with evidence-based psychotherapy, these treatments may be enabling more emotionally disturbed students to attend and remain in college than in the past.

Related to this possibility, several studies examine how psychiatric disorders relate to college attendance and other academic outcomes. These studies consistently find that childhood onset of externalizing problems such as conduct disorder or substance abuse are negatively associated with subsequent educational attainment, whereas the evidence is more variable for internalizing problems such as depression and anxiety [7,58–60]. Other studies also find that, among secondary school students, depression and attention deficit/hyperactivity disorder are negatively associated with academic measures such as grade point average [61] and verbal test scores [59,61]. Taking into account the adverse educational outcomes associated with adolescent mental disorders, it seems plausible that increased treatment of these illnesses has led to larger numbers of youth with mental disorders attending college.

To what extent are students receiving treatment?

The high and possibly increasing prevalence and severity of disorders among college students would be less concerning if most students with disorders were receiving appropriate treatment. Even with the apparent surge in help seeking; however, multiple studies indicate that untreated mental disorders are highly prevalent in student populations. This is consistent with the general population, in which a median delay of 11 years was noted between onset of illness and presenting for treatment [43,45,62]. Among college students, the ACHA-NCHA found that only 24% of those diagnosed with depression were receiving treatment [2]. Similarly, Blanco et al [1] found low treatment rates across all psychiatric disorders, with fewer than half of those with mood disorders and less than 20% of those with anxiety disorders receiving treatment. They also found that college students with alcohol or drug use disorders were significantly less likely to receive treatment compared to their non-

college-attending peers, but beyond these disorders, no significant differences were noted in rates of help seeking across the two groups. Finally, in our Healthy Minds Study we have found that fewer than half of students who screened positive for major depression or anxiety disorders have received any mental health services in the previous year [63]. These consistent findings across multiple studies are particularly concerning when one considers that failure to seek early treatment is associated with a longer course of illness and more frequent relapses [64–66].

Multiple studies have identified barriers to help seeking in student populations, including lack of time, privacy concerns, lack of emotional openness, and financial constraints [67–71]. In our research we found that common barriers include a lack of a perceived need for help, being unaware of services or insurance coverage, and skepticism about treatment effectiveness [63]. We also found that service use was especially infrequent among students from lower socioeconomic backgrounds, international students, and Asian American students. In addition, we found that stigmatizing attitudes of students about mental illness (but not their perceptions of others' stigma) were associated with lower help-seeking behavior [72]. On the other hand, our data suggest that ability to pay is probably not a major barrier for most students, as more than 90% of students in our samples have health insurance and the majority of campuses offer free or highly subsidized health services.

Although we are beginning to understand some of the individual and social barriers and facilitators to help seeking among college students, there is a surprising lack of evidence on how campus-level interventions, policies, and resources affect help seeking. For example, campuses vary widely in their supply of mental health providers and other resources [3], but, to our knowledge, there is no published evidence on how these factors relate to treatment use. Future studies should concentrate on disentangling how demand-side versus supply-side barriers affect help seeking among students. In terms of campus interventions, many campuses have adopted screening programs and stigma-reduction campaigns, but there are limited published reports demonstrating the effectiveness of these programs, and it is often difficult to generalize results across campuses with differing populations and resources.

An example of a promising recent development is the American Foundation for Suicide Prevention's College Screening Project, which uses a Web-based intervention to increase help-seeking behavior in college students [73]. Further expansion of this project (renamed the Interactive Screening Program), along with other efforts such as those funded by the SAMHSA Campus Suicide Prevention Grants at more than 50 campuses, should lead to improved knowledge about interventions to increase identification of mental illness and help seeking. Another promising development is the National College Depression Partnership, led by New York University, which represents a growing network of campuses collaborating in an effort to deliver screening, early

intervention, and more continuous, integrated treatment of depression for students [74].

Discussion and implications

Priorities for improving the research base

As reviewed earlier, a basic understanding of the prevalence and correlates of mental disorders among college students is emerging, but less is known about approaches that go beyond the clinical level to improve mental health in this population. Although it is intuitive that contextual factors such as peer support, residential settings, and the supportiveness of academic personnel would affect student mental health, researchers have yet to examine these relationships rigorously. In addition, the evidence on interventions, programs, and policies is especially lacking. This situation is already changing, with the inception of the SAMHSA Suicide Prevention Grants (sponsored under the Garrett-Lee Smith Act) in 2004, the National Institute of Mental Health's inclusion of college populations as a new priority area in the 2009 Challenge Grant program, and the expansion of the National College Depression Partnership. There are also a number of ongoing multicampus epidemiological studies that will increase understanding of college student mental health in the future. These include the Center for the Study of College Student Mental Health, based at Penn State University, which is leading an effort to collect standardized data on clients at hundreds of campus psychological counseling centers nationwide [75]; the Study of College Student Wellbeing (based at Cornell) [76]; a national study of suicidal ideation and behavior on campus (based at the University of Texas at Austin and conducted through the collaboration of the National Research Consortium of Counseling Centers in Higher Education) [77]; the College Student Health Survey Reports (based at the University of Minnesota) [78]; the Healthy Minds Study (based at the University of Michigan) [79]; and the ACHA-NCHA surveys, which increased the number of items on mental health in 2008 [80].

An important challenge will be to build on these mostly descriptive studies by developing and evaluating programs to improve prevention, identification, and treatment. Given that mental health on campuses appears to be changing each year, it is especially important for program evaluations to include credible control groups, ideally by randomizing across and/or within campuses. In addition, these research efforts would undoubtedly benefit from importing and adapting ideas that have already shown promise in settings outside of college campuses, such as interventions that have been effective in general populations of adolescents or young adults.

Priorities for improving practice and policy

As knowledge increases on mental health and help seeking among students, it will ideally be translated into practices and policies on campus that emphasize the effective and

efficient use of limited resources. To better understand current practices and policies, we refer to the most recent National Survey of Counseling Center Directors, the only national data source with information on resources and programs for student mental health. According to the 2008 survey, the overall ratio of students to psychological counselors is about 1,900:1, with even higher ratios at larger institutions. Common administrative concerns among directors are finding community referrals for students requiring long-term care (67%), dealing with the growing demand of services without a concurrent increase in resources (60%), and the related challenge of handling an increasing number of students with serious psychological problems (50%). Also, at 66% of the schools in the 2008 survey there was an increase in calls from faculty seeking consultation about high-risk students [3], likely reflecting the heightened concern about risk management and safety in the aftermath of the incidents at Virginia Tech and Northern Illinois.

Perhaps the only way to summarize current practice and policy across the nation is to note that there is substantial variation across campuses—in terms of resources available to counseling and health centers, how those resources are organized and used, and the general policies guiding campus mental health. This diversity has potential benefits, as new and effective approaches can emerge and spread to other campuses. For example, a phone triage program developed by Harry Rockland-Miller (University of Massachusetts) and Gregory Eells (Cornell University) has improved the ability of several campuses to offer prompt evaluations for students in emotional distress [81]. More than 200 campuses have also adopted the QPR (Question, Persuade, Refer) program, which educates faculty and staff on becoming more effective “gatekeepers,” by identifying and referring students with mental illness (see <http://www.qprinstitute.com> for further information). Given the reported shortage of mental health professionals on campus [3], these informal providers fulfill an important role in the identification and management of mental illness. Gatekeeper programs might be especially effective if they equip peers to help each other, given that many late adolescents are inclined to disclose their mental health issues only to their friends [82].

More generally, however, the variation across campuses in resources, programs, and policies does not appear to be based on systematic evidence about what works best in different types of campus settings. This situation undoubtedly stems in large part from the limitations in the research evidence noted earlier; if there are few campus-level programs and policies that have been shown definitively to work, then it is not surprising that each campus functions differently.

Because of the sparse research evidence on effective programs and policies, it would be premature to draw specific conclusions about how campuses should move forward on these fronts. Certain general principles, however, seem promising. Because of the multiple channels by which students can be reached on college campuses, practices and policies based

on a holistic, public health approach seem particularly promising. These strategies would view mental health as a foundation for the well-being and success of the student, and would emphasize not only treatment but also prevention and the promotion of positive mental health.

These priorities might be addressed most effectively with an approach across campuses nationwide, between research and practice, within campuses, and integrated between campuses and their local communities. Although there are many innovative programs and policies dispersed across the nation, these innovations are not necessarily being evaluated rigorously and disseminated in a coordinated manner. There are several organizations with great potential to facilitate the integration of efforts across campuses, including the Association of University and College Counseling Center Directors, Student Affairs Administrators in Higher Education, the American College Personnel Association, and the American College Health Association (ACHA). Organizations such as these, in partnership with the emerging multi-campus research efforts noted above, can strengthen the evidence base and foster the dissemination of best practices and policy.

Given the significant burden of mental illness among young adults and the self-perpetuating link between mental health and socioeconomic status during the course of life, colleges offer a promising venue for prevention and treatment, which can help set late adolescents and young adults on a path to success and well-being. To seize this opportunity, it is important to improve the research base and coordinate a more cohesive response informed by the evidence. To the extent that mental health is a foundation for the well-being and academic success of students, all colleges and universities, regardless of their interest in mental health per se, clearly have an incentive to promote this agenda. In society, more generally, many other people and organizations in the public and private sector invest significant resources into postsecondary education and reap its rewards, and thus also have an interest in meeting this challenge.

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References

- [1] Blanco C, Okuda M, Wright C, et al. Mental health of college students and their non-college-attending peers: results from the National Epidemiologic Study on Alcohol and Related Conditions. *Arch Gen Psychiatry* 2008;65:1429–37.
- [2] American College Health Association. American College Health Association–National College Health Assessment: Reference Group Data Report, Spring 2008. Baltimore, MD: American College Health Association, 2008.
- [3] Gallagher R. National Survey of Counseling Center Directors, 2008 [Online]. Available at: <http://www.iacsinc.org/2008%20National%20Survey%20of%20Counseling%20Center%20Directors.pdf>. Accessed on: April 16, 2009.
- [4] US Department of Education. The Condition of Education. Washington, DC: US Department of Education, 2008.
- [5] World Health Organization. Global Burden of Disease: 2004 Update. Geneva: World Health Organization, 2008.
- [6] Kessler RC, Berglund P, Demler O, et al. Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the national comorbidity survey replication. *Arch Gen Psychiatry* 2005;62:593–602.
- [7] Kessler RC, Foster CL, Saunders WB, et al. Social consequences of psychiatric disorders, I: educational attainment. *Am J Psychiatry* 1995;152:1026–32.
- [8] Wang P, Simon GE, Avorn J, et al. Telephone screening, outreach, and care management for depressed workers and impact on clinical and work productivity outcomes—a randomized controlled trial. *JAMA* 2007;298:1401–11.
- [9] Angst J. Comorbidity of mood disorders: a longitudinal prospective study. *Br J Psychiatry* 1996;30(Suppl)31–7.
- [10] Weitzman ER. Poor mental health, depression, and associations with alcohol consumption, harm, and abuse in a national sample of young adults in college. *J Nerv Ment Dis* 2004;192:269–77.
- [11] Kessler RC, Walters EE, Forthofer MS. The social consequences of psychiatric disorders, III: Probability of marital stability. *Am J Psychiatry* 1998;155:1092–6.
- [12] Drum DJ, Brownson C, Denmark AB, et al. New data on the nature of suicidal crises in college students: Shifting the paradigm. *Prof Psychol Res Pract* 2009;40:213–22.
- [13] Grant BF, Kaplan K, Shepard J, et al. Source and accuracy statement for Wave 1 of the 2001–2002 National Epidemiologic Survey on Alcohol and Related Conditions. Bethesda, MD: National Institute of Alcoholism and Alcohol Abuse, 2003.
- [14] Dawson DA, Grant BF, Stinson FS, Chou PS. Another look at heavy episodic drinking and alcohol use disorders among college and noncollege youth. *J Stud Alcohol* 2004;65:477–88.
- [15] Gfroerer JC, Greenblatt JC, Wright DA. Substance use in the US college-age population: differences according to educational status and living arrangement. *Am J Public Health* 1997;87:62–5.
- [16] Slutske WS. Alcohol use disorders among US college students and their non-college-attending peers. *Arch Gen Psychiatry* 2005;62:321–7.
- [17] Slutske WS, Hunt-Carter EE, Nabors-Oberg RE, et al. Do college students drink more than their non-college-attending peers? Evidence from a population-based longitudinal female twin study. *J Abnorm Psychol* 2004;113:530–40.
- [18] Wu L, Pilowsky DJ, Schlenger WE, Hasin D. Alcohol use disorders and the use of treatment services among college-age young adults. *Psychiatr Serv* 2007;58:192–200.
- [19] Hasin DS, Stinson FS, Ogburn E, Grant BF. Prevalence, correlates, disability, and comorbidity of DSM-IV alcohol abuse and dependence in the United States—results from the National Epidemiologic Survey on Alcohol and Related Conditions. *Arch Gen Psychiatry* 2007; 64:830–42.

- [20] Silverman MM, Meyer PM, Sloane F, et al. The Big Ten Student Suicide Study: a 10-year study of suicides on midwestern university campuses. *Suicide Life Threat Behav* 1997;27:285–303.
- [21] Eisenberg D, Gollust SE, Golberstein E, Hefner JL. Prevalence and correlates of depression, anxiety, and suicidality among university students. *Am J Orthopsychiatry* 2007;77:534–42.
- [22] Cuellar I, Roberts RE. Relations of depression, acculturation, and socioeconomic status in a Latino sample. *Hisp J Behav Sci* 1997;19:230–8.
- [23] Kisch J, Leino EV, Silverman MM. Aspects of suicidal behavior, depression, and treatment in college students: results from the Spring 2000 National College Health Assessment Survey. *Suicide Life Threat Behav* 2005;35:3–13.
- [24] Hefner JL, Eisenberg D. Social support and mental health among college students. *Am J Orthopsychiatry* (In press).
- [25] Stepakoff S. Effects of sexual victimization on suicidal ideation and behavior in U.S. college women. *Suicide Life Threat Behav* 1998;28:107–26.
- [26] Baker SR. Intrinsic, extrinsic, and amotivational orientations: their role in university adjustment, stress, well-being, and subsequent academic performance. *Curr Psychol* 2004;23:189–202.
- [27] Miquelon P, Vallerand RJ, Grouzet FM, Cardinal G. Perfectionism, academic motivation, and psychological adjustment: an integrative model. *Pers Soc Psychol Bull* 2005;31:913–24.
- [28] Rice KG, Leever BA, Christopher J, Porter JD. Perfectionism, stress, and social (dis)connection: a short-term study of hopelessness, depression, and academic adjustment among honors students. *J Couns Psychol* 2006;53:524–34.
- [29] Tyssen R, Dolatowski FC, Rovik JO, et al. Personality traits and types predict medical school stress: a six-year longitudinal and nationwide study. *Med Educ* 2007;41:781–7.
- [30] Neville HA, Heppner PP, Ji P, et al. The relations among general and race-related stressors and psychoeducational adjustment in black students attending predominantly white institutions. *J Black Stud* 2004;34:599.
- [31] Smith WA, Allen WR, Danley LL. “Assume the position. You fit the description”—psychosocial experiences and racial battle fatigue among African American male college students. *Am Behav Sci* 2007;51:551–78.
- [32] Caspi A, Sugden K, Moffitt TE, et al. Influence of life stress on depression: moderation by a polymorphism in the 5-HTT gene. *Science* 2003;301:386–9.
- [33] Boyce WT, Ellis BJ. Biological sensitivity to context: I. An evolutionary-developmental theory of the origins and functions of stress reactivity. *Dev Psychopathol* 2005;17:271–301.
- [34] Grossman AW, Churchill JD, McKinney BC, et al. Experience effects on brain development: possible contributions to psychopathology. *J Child Psychol Psychiatry* 2003;44:33–63.
- [35] Nemeroff CB. Neurobiological consequences of childhood trauma. *J Clin Psychiatry* 2004;65:18–28.
- [36] Pujol J, Vendrell P, Junque C, et al. When does human brain development end? Evidence of corpus callosum growth up to adulthood. *Ann Neurol* 1993;34:71–5.
- [37] American College Health Association. American College Health Association-National College Health Assessment: Reference Group Data Report, Spring 2000. Baltimore, MD: American College Health Association, 2000.
- [38] Benton SA, Robertson JM, Tseng W, et al. Changes in counseling center client problems across 13 years. *Prof Psychol Res Pract* 2003;34:66–72.
- [39] Erdur-Baker O, Aberson CL, Barrow JC, et al. Nature and severity of college students’ psychological concerns: a comparison of clinical and nonclinical national samples. *Prof Psychol Res Pract* 2006;37:317.
- [40] Robbins SB, May TM, Corazzini JG. Perceptions of client needs and counseling-center staff roles and functions. *J Couns Psychol* 1985;32:641–4.
- [41] Psychiatric Disorders in America. In: Robins LN, Regier DA, eds. *The Epidemiologic Catchment Area Study*. New York, NY: Free Press, 1991.
- [42] Kessler RC, Zhao S, Katz SJ, et al. Past-year use of outpatient services for psychiatric problems in the national comorbidity survey. *Am J Psychiatry* 1999;156:115–23.
- [43] Wang PS, Berglund P, Olfson M, et al. Failure and delay in initial treatment contact after first onset of mental disorders in the national comorbidity survey replication. *Arch Gen Psychiatry* 2005;62:603–13.
- [44] Mojtabai R. Americans’ attitudes toward mental health treatment seeking: 1990–2003. *Psychiatr Serv* 2007;58:642–51.
- [45] Kessler RC, Demler O, Frank RG, et al. Prevalence and treatment of mental disorders, 1990 to 2003. *N Engl J Med* 2005;352:2515–23.
- [46] Kessler RC, McGonagle KA, Zhao S, et al. Lifetime and 12-month prevalence of DSM-III-R psychiatric disorders in the United States: results from the National Comorbidity Study. *Arch Gen Psychiatry* 1994;51:8–19.
- [47] Blazer DG, Kessler RC, McGonagle KA, Swartz MS. The prevalence and distribution of major depression in a national community sample: The National Comorbidity Survey. *Am J Psychiatry* 1994;151:979–86.
- [48] Compton WM, Conway KP, Stinson FS, Grant BF. Changes in the prevalence of major depression and comorbid substance use disorders in the United States between 1991–1992 and 2001–2002. *Am J Psychiatry* 2006;163:2141–7.
- [49] Collishaw S, Maughan B, Goodman R, et al. Time trends in adolescent mental health. *J Child Psychol Psychiatry* 2004;45:1350–62.
- [50] Maughan B, Collishaw S, Meltzer H, Pickles A. Recent trends in UK child and adolescent mental health. *Soc Psychiatry Psychiatr Epidemiol* 2008;43:305.
- [51] West P, Sweeting H. Fifteen, female and stressed: changing patterns of psychological distress over time. *J Child Psychol Psychiatry* 2003;44:399–411.
- [52] Tick NT, Van der Ende J, Verhulst FC. Twenty-year trends in emotional and behavioral problems in Dutch children in a changing society. *Acta Psychiatr Scand* 2007;116:473–82.
- [53] Fombonne E, Wostear G, Cooper V, et al. The Maudsley long-term follow-up of child and adolescent depression 1. Psychiatric outcomes in adulthood. *Br J Psychiatry* 2001;179:210–7.
- [54] Fombonne E, Wostear G, Cooper V, et al. The Maudsley long-term follow-up of child and adolescent depression 2. Suicidality, criminality and social dysfunction in adulthood. *Br J Psychiatry* 2001;179:218–23.
- [55] Kandel DB, Davies M. Adult sequelae of adolescent depressive symptoms. *Arch Gen Psychiatry* 1986;43:255–62.
- [56] Rutter M, Kim-Cohen J, Maughan B. Continuities and discontinuities in psychopathology between childhood and adult life. *J Child Psychol Psychiatry* 2006;47:276–95.
- [57] Olfson M, Marcus SC, Weissman MM, et al. National trends in the use of psychotropic medications by children. *J Am Acad Child Adolesc Psychiatry* 2002;41:514–21.
- [58] Breslau J, Lane M, Sampson N, Kessler RC. Mental disorders and subsequent educational attainment in a US national sample. *J Psychiatr Res* 2008;42:708–16.
- [59] Fletcher JM. Adolescent depression: diagnosis, treatment, and educational attainment. *Health Econ* 2008;17:1215–35.
- [60] Miech RA, Caspi A, Moffitt TE, et al. Low socioeconomic status and mental disorders: a longitudinal study of selection and causation during young adulthood. *Am J Sociology* 1999;104:1096–131.
- [61] Ding W, Lehrer S, Rosenquist J, et al. The impact of poor health on education: new evidence using genetic markers. Working Paper, Queens University, Belfast, 2007.
- [62] Wang PS, Berglund PA, Olfson M, et al. Delays in initial treatment contact after first onset of a mental disorder. *Health Serv Res* 2004;39:393–415.
- [63] Eisenberg D, Golberstein E, Gollust SE. Help-seeking and access to mental health care in a university student population. *Med Care* 2007;45:594–601.
- [64] Hingson RW, Heeren T, Winter MR. Age of alcohol-dependence onset: associations with severity of dependence and seeking treatment. *Pediatrics* 2006;118:e755–63.

- [65] Post RM, Leverich GS. The role of psychosocial stress in the onset and progression of bipolar disorder and its comorbidities: the need for earlier and alternative modes of therapeutic intervention. *Dev Psychopathol* 2006;18:1181.
- [66] Ryan ND. Child and adolescent depression: short-term treatment effectiveness and long-term opportunities. *Intern J Methods Psychiatr Res* 2003;12:44.
- [67] Givens JL, Tjia J. Depressed medical students' use of mental health services and barriers to use. *Acad Med* 2002;77:918–21.
- [68] Komiya N, Good GE, Sherrod NB. Emotional openness as a predictor of college students' attitudes toward seeking psychological help. *J Couns Psychol* 2000;47:138–43.
- [69] Megivern D, Pellerito S, Mowbray C. Barriers to higher education for individuals with psychiatric disabilities. *Psychiatr Rehabil J* 2003;26:217–31.
- [70] Mowbray CT, Megivern D, Mandiberg JM, et al. Campus mental health services: recommendations for change. *Am J Orthopsychiatry* 2006;76:226–37.
- [71] Tjia J, Givens JL, Shea JA. Factors associated with undertreatment of medical student depression. *J Am Coll Health* 2005;53:219–24.
- [72] Eisenberg D, Downs M, Golberstein E, et al. Stigma and help-seeking for mental health among college students. *Med Care Res Rev* 2009;66:522–41.
- [73] Garlow SJ, Rosenberg J, Moore JD, et al. Depression, desperation, and suicidal ideation in college students: results from the American Foundation for Suicide Prevention College Screening Project at Emory University. *Depress Anxiety* 2008;25:482–8.
- [74] National College Depression Partnership. Available at: http://www.nyu.edu/shc/about/college_depression_partnership.html. Accessed April 16, 2009.
- [75] The Center for the Study of College Student Mental Health. Available at: http://www.sa.psu.edu/caps/research_center.shtml. Accessed April 16, 2009.
- [76] Study of College Student Wellbeing based at Cornell University. Available at: <http://www.crpsib.com/projects.asp>. Accessed April 16, 2009.
- [77] Research Consortium at UT-Austin. Available at: <http://www.cmhc.utexas.edu/researchconsortium.html>. Accessed April 16, 2009.
- [78] College Student Health Survey based at the University of Minnesota. Available at: <http://www.bhs.umn.edu/healthdata/surveys/index.htm>. Accessed April 16, 2009.
- [79] Healthy Minds Study based at the University of Michigan. Available at: <http://www.healthymindsstudy.net/>. Accessed April 16, 2009.
- [80] ACHA-NCHA. Available at: <http://www.acha-ncha.org/>. Accessed April 16, 2009.
- [81] Rockland-Miller HS, Eells G. The implementation of mental health clinical triage systems in university health services. *J Coll Student Psychother* 2006;20:39.
- [82] Hennig CW, Crabtree CR, Baum D. Mental Health CPR: peer contracting as a response to potential suicide in adolescents. *Arch Suicide Res* 1998;4:169–87.