Social Support and Mental Health among College Students

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Abstract

This study is the first, to our knowledge, to evaluate the relationship between mental health and social support in a large, random sample of college students. A web-based survey was administered at a large, public university; a total of 1,378 students completed the measures in this analysis (response rate = 57%). The results support our hypothesis that students with characteristics differing from most other students, such as minority race/ethnicity, international status, and low socioeconomic status, are at greater risk of social isolation. In addition, we found that students with lower quality social support, as measured by the Multidimensional Scale of Perceived Social Support, were more likely to experience mental health problems, including a six-fold risk of depressive symptoms relative to students with high quality social support. These results may help administrators and health providers to identify more effectively the population of students at high risk for mental illness and develop effective interventions to address this significant and growing public health issue.

Key Words: social support; mental health; college students

Social Support and Mental Health among College Students

A growing body of evidence indicates that mental disorders are becoming increasingly numerous and serious among college students in the United States. In recent national surveys, 6% of undergraduates reported "seriously considering attempting suicide" (American College Health Association, 2008), and 92% of college counseling center directors reported an increase in severe psychological problems among students (Gallagher, 2006). The consequences of these problems are likely to be significant and lasting, as mental disorders in early adulthood are associated with alcohol and substance abuse (Angst, 1996; Weitzman, 2004), academic success (Kessler, Foster, Saunders, & Stang, 1995), and future employment and relationships (Ettner, Frank, & Kessler, 1997; Kessler, Walters, & Forthofer, 1998).

One important approach to this public health issue is to improve understanding of students' social context and its relationship to mental health. Friends, family, and significant others can provide instrumental, informational, or emotional assistance (House, Umberson, & Landis, 1988). This assistance is commonly referred to as social support and is considered a psychosocial coping resource that positively affects individuals' personal resources such as self-esteem and self-efficacy and buffers the negative effects of stress (Thoits, 1995). Through these mechanisms social support can influence emotional health and well-being (Kawachi & Berkman, 2001). An extensive literature, examining a variety of populations, documents strong associations between social support and mental health (Caron, Latimer, & Tousignant, 2007; Berkman, Glass, Brissette, & Seeman, 2000; Coyne & Downey 1991; House et al., 1988; Kawachi & Berkman, 2001; Leung, Chen, Lue, & Hsu, 2007; Seeman, 1996; Thoits, 1995). For example, psychologically distressed persons are consistently found to be more socially isolated (Kawachi & Berkman 2001; Seeman, 1996), and less contact with friends, lack of a partner or someone to confide in, and feeling alone are also correlated with higher levels of psychological

distress (Coyne & Downey, 1991; Durden, Hill, & Angel, 2007; Stravynski, & Boyer, 2001). Recently social support was found to have a stronger relationship with psychological distress than conditions of poverty (Caron et al., 2007).

Within the social support literature, scholars differentiate between the structural and functional aspects of social support (Kawachi & Berkman, 2001, Thoits, 1995). Structural support refers to the existence and quantity of relationships, whereas functional support refers to the perceived quality of social relationships. A variety of measures of both structural and functional support have been found to be associated with mental health (Seeman, 1996; Son, Lin, & George, 2008; Thoits, 1995). However, individual studies tend to focus on a single dimension of social support resulting in a gap in the research regarding which types of support are independently associated with mental health (Balaji, Claussen, Smith, & Visser, 2008; House et al., 1988; Kawachi & Berkman 2001; Seeman 1996; Thoits, 1995). Another gap in the literature pertains to how social support correlates with specific mental health problems. Previous studies have typically focused on global measures of mental health or distress, without differentiating specific types of symptoms (Caron et al., 2007; Coyne & Downey, 1991; Thoits, 1995).

In addition, for the purpose of identifying people at risk and tailoring possible interventions, more knowledge is needed regarding how social support varies by sociodemographic characteristics. A handful of studies have explored this topic (House et al., 1988; Strine, Chapman, Balluz, & Mokdad, 2008; Thoits, 1995; Turner & Marino, 1994). Lower socioeconomic status is associated with decreased social network size and lower social integration (House et al., 1988; Thoits, 1995). However, the association between socioeconomic status and perceived support quality is inconclusive, with some research finding a positive association (Strine et al., 2008; Turner & Marino, 1994) and others finding no association (Ross & Mirowsky, 1989). Research on gender differences in social support indicates that women

perceive higher quality support (Ross & Mirowsky, 1989; Strine et al., 2008; Turner & Marino, 1994), but less is known about other sociodemographic variables such as age, race, and sexual orientation.

Understanding the relationship between mental health and social support is of particular importance among college student populations. The recently defined period of emerging adulthood -- 18-25 years of age -- is characterized by change and exploration and is a crucial time for identity development (Arnett, 2000). During this period of transition to adulthood over half of American youth attend some form of postsecondary educational institution (U.S. Department of Education, 2005a). These students face an entirely new social environment characterized by greater freedom and less adult supervision (Lefkowitz, 2005) and frequently report homesickness, friendsickness, a sense of isolation, and increased interpersonal conflict (Boute et al., 2007). As noted earlier, mental health concerns on campuses are growing and these problems have significant and lasting consequences. The transitions that occur during emerging adulthood have the potential to influence social support, mental health, and their interrelationship. Additionally, for many people college represents the only period in their lives when their social and productive lives are heavily intertwined within a single setting; this affords a unique opportunity to identify, prevent, and treat mental health problems. The present study is the first, to our knowledge, to evaluate the relationship between mental health and social support in a large, random sample of college students.

Specifically we address three questions. First, what is the distribution of social support in the population, overall and by sociodemographic characteristics? We hypothesize that students with characteristics that differ from most other students in our sample, such as minority race/ethnicity, international status, and low socioeconomic status, are at greater risk of social isolation. Second, how is social support associated with mental health problems? We

hypothesize that social support is inversely associated with measures of mental health problems, and this relationship is strongest for depression, which is often characterized by loneliness and lack of interest in social interaction (American Psychiatric Association, 2000). Third, what types and sources of social support are most strongly associated with these measures of mental health? We hypothesize that both quality and frequency are independently associated with mental health; also, we hypothesize that support from friends and significant others is more important than support from family, because in a college setting friends and significant others are typically in closer proximity then students' families.

Method

Sample and Data Collection

Data were collected through the *Healthy Minds Study*, a web-based survey of undergraduate and graduate students at a large, Midwestern, public university in the fall of 2005. Of the 5,021 randomly selected undergraduate and graduate students, 2,843 completed the web-based survey, yielding a 57 percent response rate. To account for differences between responders and non-responders, response propensity weights were constructed based on administrative data (sex, race/ethnicity, degree program, year in school, and grade point average) that were available for the full student population as well as mental health measures obtained from a brief version of the survey completed by a randomly selected subset of non-respondents (response rate = 55 percent). More detailed descriptions of the sample, data collection methods, and adjustments for non-response are in Eisenberg, Gollust, Golberstein & Hefner (2007). The sample for the current analysis consists of the respondents who completed the survey's social support module, which was randomly assigned to half of the sample and completed by 1,378 respondents (response rate of 57 percent). Informed consent for study participation was obtained

at the beginning of the online survey, and the study was approved by the local Health Sciences Institutional Review Board.

Social Support

We measured both structural and functional social support in order to distinguish their independent associations with mental health. Structural support was operationalized as the quantity of social interactions and was measured by two questions from the Berkeley Graduate Student Mental Health Survey about the respondent's frequency of contact with friends and family members (Berkeley Graduate and Professional Schools Mental Health Taskforce, 2004). The first item asks: "In the past 12 months, how often did you talk to a family member (including a quick phone call or email)?" The second item focuses on contact with friends: "In the past 12 months, how often did you do things with any close friends (even a quick phone call or encounter)?" Response choices for both items included "at least once a day," "at least once a week," "at least once a month," "less than once a month," and "not at all."

We measured functional support with the Multidimensional Scale of Perceived Social Support (MSPSS), designed to measure perceptions of social support quality (Zimet, Dahlem, Zimet, & Farley, 1988). This 12-item scale has a 7 point response format (1 = *very strongly disagree*; 7 = *very strongly agree*) and is comprised of three 4-item subscales, which assess the level of family support, friend support, and support from a significant other. The 12 items in the MSPSS are: (1) There is a special person who is around when I am in need; (2) There is a special person with whom I can share my joys and sorrows; (3) My family really tries to help me; (4) I get the emotional help and support I need from my family; (5) I have a special person who is a real source of comfort for me, 6. My friends really try to help me; (7) I can count on my friends when things go wrong; (8) I can talk about my problems with my family; (9) I have friends with whom I can share my joys and sorrows, 10. There is a special person in my life who cares about

my feelings; (11) My family is willing to help me make decisions; (12) I can talk about my problems with my friends.

The questions regarding a significant other refer to a "special person," which was not defined so as to allow the respondent to interpret this person as someone relevant to him or her, such as a romantic partner, friend, teacher, counselor, or some other important person in one's life (Canty-Mitchell & Zimet, 2000). A higher score on each of these scales indicates higher quality support. Following the standard algorithm for coding the MSPSS, a measure of overall social support quality was generated by averaging a respondent's score across the three scales; scores ranged from 1 to 7. In descriptive analysis the scores were divided into three categories: low (1-3), medium (4-5), and high (6-7). These categories correspond, respectively, to very strongly disagreeing/strong disagreeing/disagreeing, being neutral/slightly agreeing, and agreeing/strongly agreeing/very strongly agreeing with the statement that one has high quality social support. The friends/family/significant other subscales were also scored separately to serve as three distinct variables, in order to examine the independent associations of different sources of support. The reliability, validity, and factor structure of the MSPSS have been demonstrated across multiple populations including university students (Zimet et al., 1988; Dahlem, Zimet, & Walker, 1991; Kazarian & McCabe, 1991).

Potential Correlates of Social Support

Mental Health Measures

The survey assessed symptoms of five types of mental health-related disorders and problems: depression, anxiety, suicidal ideation, non-suicidal self-injury, and eating disorders. We focused on these conditions because they are some of the most prevalent in college populations. The estimated past-year prevalence of mood disorders and anxiety disorders are 11 and 12 percent, respectively (Blanco, Okuda, Wright, Hasin, Grant, Liu et al., 2008). Past-year

suicidal ideation is reported by 6 percent of students (American College Health Association, 2008), and past-year self-injury has been reported by as many as 17 percent of students (Whitlock, Eckenrode & Silverman, 2006). Symptoms of eating disorders, particularly in the subclinical range, are also prevalent among more than 10 percent of students (Eisenberg, Nicklett, Roeder, & Kirz, 2009). Symptoms of current depression and anxiety were measured using the Patient Health Questionnaire (PHQ) (Spitzer, Kroenke, & Williams, 1999). Following the standard algorithms for interpreting the PHQ, we categorized people as screening positive for a depressive disorder (including major depression and less severe depression such as dysthymia or depression not otherwise specified) or an anxiety disorder (including generalized anxiety disorder and panic disorder). This screening tool has been validated against diagnosis by mental health professionals (Diez-Quevedo, Rangil, Sanchez-Planell, Kroenke, & Spitzer, 2001; Kroenke, Spitzer, Williams, 2001; Henkel et al., 2004; Lowe et al., 2004) and other depression assessment tools (Kroenke, Spitzer, Williams, 2001; Henkel et al., 2004; Lowe et al., 2004; Martin, Rief, Klaiberg, Braehler, 2006) in a variety of populations.

A question from the National Comorbidity Survey Replication was used to assess suicidal ideation in the past four weeks (Kessler, Berglund, Borges, Nock, & Wang, 2005). A single-item measure, developed for this study, assessed self-injury in the last four weeks (blinded for review, in press). Self-injury was indicated if a respondent reportedly engaged in at least one of the most common forms of self-injury, ranging in severity from hair-pulling and wound interference to cutting. Potential eating disorders were measured using the SCOFF screening instrument, a 5-item questionnaire about disordered eating behavior (Morgan, Reid, & Lacey, 1999). As in the standard algorithm for this instrument, respondents who agreed with two or more statements were classified as having a possible eating disorder. The SCOFF has been

validated in college student samples (Cotton, Ball, & Robinson, 2003; Parker, Lyons, & Bonner, 2005).

Demographics

The survey included the following sociodemographic information: gender, age, race/ethnicity, nationality (U.S. or international), sexual orientation, graduate or undergraduate status, current financial situation (possible responses were "It's a financial struggle," "It's tight but I'm doing fine," or "Finances aren't really a problem"), and current living situation (alone, with roommates, with relatives, or with a significant other). Additional description of sociodemographic, mental health-related, and other measures collected by the *Healthy Minds Study* can be found in Eisenberg et al. (2007).

Statistical Analysis

We first estimated pair-wise correlations among the various social support variables. We then calculated frequencies for the social support measures across different sociodemographic and mental health variables. For each sociodemographic variable, a Pearson chi-squared test was used to identify a significant difference in social support between groups. Bivariate linear regressions were used to test for significant differences in the distribution of mental health variables across social support categories. To examine independent associations between measures of mental health and social support, we conducted multivariate logistic regressions with the dichotomous mental health measures as the dependent variables. Control variables in the models were gender, age, race/ethnicity, nationality (U.S. or international), sexual orientation, graduate or undergraduate status, current financial situation, and current living situation. All estimates included the non-response weights described above and Taylor-linearized standard errors using Stata 9.0.

Results

A total of 1,378 students-a random sample from the full student population of a large university-completed the survey's social support module. Table 1 shows some of the social and demographic characteristics of the sample. The estimated proportions are weighted to reflect the overall student population from which the sample was drawn. The racial/ethnic breakdown is 61% white, non-Hispanic, 20% Asian/Asian-American, 6% black/African-American, 4% Hispanic, and 10% other or multiple categories. The gender breakdown is 51% male and 49% female. This demographic profile is roughly similar to the national population of students in terms of race/ethnicity (64% white, non-Hispanic, 7% Asian/Pacific Islander, 13% black, 11% Hispanic) (U.S. Department of Education, 2005b).

The distribution of the sub-scales (friends, family, and significant other) and overall scores on the Multidimensional Scale of Perceived Social Support (MSPSS) reveals that the majority of students scored on the upper end of the distribution (indicating high quality support). Nine percent of students scored a three or less on the overall scale (indicating low quality social support). Among the sub-scales, support from significant others was more likely to be at either extreme (low or high) than support from family or friends. The mean score on the family subscale was slightly higher, 5.60, compared to 5.47 on the significant other scale, and 5.50 on the friend scale.

The correlation matrix shown in Table 2 reveals that the measures of support quality (the MSPSS) were only weakly correlated with the frequency of contact measures, with correlation coefficients between 0.1 and 0.3. Within the MSPSS, the friend, family, and significant other subscales were highly correlated with each other (r between 0.52 and 0.58) and with the overall scale (r between 0.83 and 0.85).

Table 3 presents the level of social support reported by students across various demographic and social characteristics. Lower quality social support (at $p<0.01$) was reported by males, Asians, those in the “other or multiple" racial/ethnic category, international students, students not living with a significant other, and students reporting financial struggles. Frequency of contact with family was significantly lower for those in older age groups ($p<0.001$), males ($p<0.001$), graduate students ($p<0.001$), whites ($p<0.05$), Asians ($p<0.05$), those classified as “other race” ($p<0.05$), those reporting financial struggles ($p<0.05$), bisexual and gay/lesbian students ($p<0.001$), and those not living with relatives ($p<0.001$). Frequency of friend contact differed significantly by the same demographic subgroups as family contact, with the exception of gender and sexuality.

Table 4 presents the proportion of students in each social support category who screened positive for each measured mental health problem. Thirty-one percent of those reporting low quality social support screened positive for probable depression, versus 16 percent in the medium support category ($p<0.001$), and five percent in the high support category ($p<0.001$). Respondents in the low social support category also had a significantly higher probability of anxiety (12%) than those with medium (5%, $p<0.01$) or high (4%, $p<0.001$) quality social support. The same pattern is true for suicidal ideation; 10 percent of respondents with low social support had suicidal thoughts in the past four weeks versus two percent with medium support ($p<0.001$) and one percent with high support ($p<0.001$). By contrast, there were no significant associations between quality of social support and symptoms of eating disorders or self-injury. Finally, the three social support subscales were significantly associated with the mental health measures in a pattern similar to the overall scale (results not shown in tables, but summarized here).

Among the frequency of contact variables, less frequent family contact was associated with an increased probability of suicidal ideation ($p<0.05$), but a *decreased* probability of a positive eating disorder screen ($p<0.001$). Nineteen percent of respondents with at least daily family contact screened positive for a possible eating disorder versus seven percent of respondents with less than weekly contact ($p<0.01$). The only significant association between frequency of contact with friends and mental health was an elevated risk of a positive eating disorder screen among those with contact less than once a week ($p<0.05$).

The multivariate logistic regression models presented in Table 5 explore the independent associations between the measures of mental health and the social support measures, controlling for other individual characteristics. The dependent variable for each regression is a binary variable indicating whether the respondent screened positive for the mental health problem (depression, anxiety, self-injury, suicidality, and eating disorders). A higher score on the scale of social support quality was independently associated with a significantly ($p<0.05$) lower likelihood of depression, anxiety, suicidality and symptoms of eating disorders (odds ratios between 0.61 and 0.86 for a one point increase on the MSPSS, which is equivalent to 0.86 standard deviations). Social support quality was also negatively associated with symptoms of self-injury, but this relationship was not significant at $p<0.05$.

In multivariate analysis the frequency of contact with friends or family was significantly associated with symptoms of eating disorders and self-injury, but not depression, anxiety, or suicidal ideation. Reporting contact with friends “at least once a week” and “at least once a day” versus “less than once a week” were both associated with lower odds of a positive eating disorder screen ($p<0.01$). More frequent contact with family, in contrast, was associated with an increase in the likelihood of both symptoms of eating disorders and self-injury ($p<0.05$).

The regression results presented in Table 5 were repeated with the social support scale divided into three subscales, corresponding to friends, family, and significant other (results not shown in tables, but summarized here). Support from friends was associated with a lower likelihood of depression (OR=0.71, $p<0.001$), and support from family was associated with a lower likelihood of self-injury (OR=0.82, $p<0.05$). In contrast, support from a significant other was associated with a higher probability of self-injury (OR=1.20, $p<0.05$).

Discussion

Summary of Results

This analysis is the first study, to our knowledge, to evaluate the relationship between mental health and social support in a large, random sample of university students. In this population we found support for our hypothesis that students with characteristics that differ from most other students, such as minority race/ethnicity, international status, and low socioeconomic status, are at greater risk of social isolation. In particular, significantly lower quality social support was reported by Asian students, those classified as “other or multiple" racial/ethnic categories, international students, and those reporting current financial struggles. Lower quality support was also reported by males and students not living with a significant other. Next, we found that social support was negatively and significantly associated with measures of mental health. In bivariate analysis this relationship was strongest for depression (31 percent among those with low quality social support, versus 5 percent among those with high quality social support), as we hypothesized. Finally, we found that both structural and functional measures of support were independently associated with better mental health. The latter, operationalized as perceived quality of support, was most strongly and persistently associated with measures of mental health. In fact, higher perceived quality of social support was strongly associated with a

lower likelihood of depression, anxiety, suicidality and eating disorder, independent of frequency of social contacts and other individual characteristics.

Interpretation of Results and Comparison to Existing Literature

The finding that males report lower support is consistent with other studies of social support that used representative community samples in general adult populations (Ross & Mirowsky, 1989; Strine et al., 2008; Turner & Marino, 1994). The strong positive association between living with a significant other and social support is also not surprising given the persistent link between marriage and higher quality support (House et al., 1988; Strine et al., 2008). The present study also found that current financial struggles were associated with lower quality support and less contact with family and friends. The link between less frequent social contact and financial struggles has been established in the literature (Thoits, 1995; House et al., 1988), but the evidence regarding quality of support is less clear. Contrary to the present study, in a population of Illinois adults in 1985, family income was unrelated to social support quality (Ross & Mirowsky, 1989). By contrast, among a representative community sample in Toronto, Canada, low socioeconomic status, operationalized as occupational prestige level, was associated with less social support – using a detailed scale of perceived social support similar to the present study (Turner & Marino, 1994).

There is a gap in the literature regarding how social support correlates with specific mental health problems. Previous studies have typically focused on global measures of mental health or distress, without differentiating specific types of symptoms (Caron et a., 2007; Coyne & Downey, 1991; Thoits, 1995). The literature does show a consistent link between social support and depression (Balaji et al., 2007; Coyne & Downey, 1991; Seeman, 1996; Son et al., 2008), but little is known about other categories of mental disorder. We found that social

support was strongly associated with a lower likelihood of not only depression, but also anxiety, suicidality, self-injury, and symptoms of eating disorders.

Many theoretical models linking social support to mental health conceptualize social support as multidimensional, consisting of both functional and structural components (Seeman, 1996; Thoits, 1995). Studies that employ a single measure of support – either structural or functional – have shown a consistent link to both mental and physical health (Ostberg & Lennartsson, 2007; Thoits 1995). One of the few studies to adopt a multidimensional definition of social support found that economic support, having someone for company, and someone with whom to discuss personal problems were all independently associated with depression (Ostberg & Lennartsson, 2007). In our study we found that functional support was most strongly associated with better mental health; specifically, higher perceived quality of social support was strongly associated with a lower likelihood of depression, anxiety, self-injury, suicidality and symptoms of eating disorders.

Structural support, operationalized as frequency of social contact, was associated with self-injury and eating disorder, although the direction of the association was mixed. Increased frequency of friend contact was associated with a decreased likelihood of symptoms of eating disorders and frequent family contact was associated with in increased likelihood of both symptoms of eating disorders and self-injury. The positive association between family contact and these mental health-related problems may reflect reverse causality, in which the presence of one of these disorders, or related problems, leads students to be in more frequent contact with family. However this finding may also represent evidence that frequent, negative contact with family members can contribute to these destructive behaviors. Previous research has demonstrated support for this explanation for both anorexia and self-injury (Friedman, 1985; Repitti, Shelley, & Seeman, 2002; Farber, 2008). Negative family interactions may also account

for the low correlation between the measures of structural and functional support (Table 2, r = 0.2). The group of students who report a high frequency of contact with family and friends may include students who perceive low quality support, despite the frequent contact. This may attenuate the expected correlation between frequent contact with family and friends and high quality social support.

Contrary to our hypothesis that support from friends and significant others may be more important than support from family in this college population, the independent associations between mental health and the three potential sources of social support were not generally significant when assessed simultaneously in a multivariate model. This finding may be due at least in part to the high correlation between these three subscales, reducing the statistical power by which to estimate their independent associations. However, there was one finding of significance: high quality support from friends was associated with a lower likelihood of depression. This finding is notable given the focus on depression among university administrators and in the college student mental health literature (Voelker, 2003).

Implications for Policy, Practice, and Research

This study provides support for the already established links between social support and mental health; however, its unique contribution lies in revealing the details within those broader patterns regarding the types and sources of social support that are independently associated with mental health problems within a college student population. Many of these details add useful information for both policy and practice. The strong associations between functional support and mental health suggest that measures of social support quality could serve as important indicators of well-being and risk in student populations. Given the finding that quality of support, as opposed to frequency of social contact, is most consistently associated with mental health, the

focus should perhaps be on measuring the former more than the latter. For example, a social support quality screening tool could be incorporated into the intake assessment given to students during their initial appointment with the campus counseling and health services, and periodically to monitor changes during the course of treatment or follow-up. Measuring functional support may entail slightly longer screening instruments (as quality is harder to assess than quantity), but may be worth the small time cost. In addition, colleges and universities may want to monitor levels of social support quality in their general student populations, and not just in clinical settings, in order to assess risk of mental health problems and general student wellbeing.

Considering the substantial differences in social support across sociodemographic groups, it may be beneficial for interventions to target certain groups (e.g., men, Asian students, and international students) in an effort to improve the quality of social ties and reduce mental health risk. For example, interventions could focus on generally strengthening supportiveness within peer networks, given our findings that perceived quality of support from friends is significantly related to risk of depression. The target audience should perhaps be the student organizations and residential communities of these at-risk groups, because social support interventions are most effective when targeted at naturally occurring social networks (Brand, Lakey, & Berman, 1995). Interventions might also include tailored educational messages regarding recognition of symptoms, the potential value of professional mental health services, and strategies for enhancing social support. These interventions could be coordinated with university services that reach students with financial difficulties (e.g., the student loan office), who are risk for lower social support as well as poor mental health (blinded for review, 2007).

The results of this study highlight some potential priorities for future research in this area. First, an important next step is to assess the generalizability across campus communities and among the young adult population that does not attend higher education. Another direction is to

develop and implement interventions based on suggestions such as those outlined above and to conduct detailed evaluations of their effectiveness. Specifically, our practice recommendation of incorporating a social support quality screening tool into intake assessments may seem self-evident; however, this is not common practice on most college campuses, to our knowledge. It is our hope that this study's conclusions might stimulate further research into what is common practice in this respect. Finally, as noted earlier, college settings contain several channels by which to have a positive impact of young adults' lives, but knowledge is still lacking on how to take advantage of these opportunities through effective and cost-effective interventions.

Limitations

In most studies of social support and mental health, including ours, it is not possible to determine definitively whether a lack of social support leads to mental health problems, or if people with mental health problems build weaker social support networks due to the symptoms of their disorders or other related factors. While one literature review from 1988 claimed that prospective studies and controls for confounding had solved some of the causal ambiguity (Seeman, 1996), a more recent 2001 review pointed out that it is hard to assess causality even from longitudinal studies because certain personality traits, such as introversion, could be associated with both lack of network participation and the occurrence of depressive symptoms (Kawachi & Berkman, 2001).

Another potential limitation of this study is the use of self-reported measures of social support. People experiencing distress may judge their social relationships more negatively, resulting in a potential source of measurement error (Kessler et al., 1985). One solution to this problem is to employ measures of support from the perspective of third-parties, such as friends or family members. This represents a potentially important direction for future research.

A third limitation is that we do not address social network structure, an important aspect of structural support (Thoits, 1995). Doing so adequately would likely require a different and more intensive approach to data collection. In the present study we chose to focus on two other dimensions of social support, perceived quality of support and frequency of contact. Incorporating social network structure is another important direction for future research.

There are a few threats to validity that are important to note. First, as mentioned earlier, the demographic profile of this university is roughly similar to the national population of college students in terms of ethnicity; however, in other respects, such as being a large and academically competitive research university, the institution is not necessarily representative of colleges and universities in general. This could limit generalizability across campus communities. As suggested in the Implications section this is an important direction for future research.

Another potential threat to validity is differential non-response. In our brief non-response survey (administered to a random subset of nonresponders to the main survey, with a response rate of 55%), respondents had lower levels of depression and mental health service use. This indicates that depression and mental health service use were positively correlated with the likelihood of responding to the main survey, probably because these people had a vested interest in the topic of the survey. We used this information from the non-response survey, along with demographic and grade point average information from the full student population, to construct non-response weights. We describe these weights in more detail in Blinded for Review (blinded for review). This still leaves the possibility that our sample is not representative in terms of social support, even after weighting for differential non-response by depression, mental health service use, demographics, and grade point average. This limitation would affect our estimates of the distribution of social support in the population, although not necessarily our estimates of

the relationship between social support and mental health. We hope to address this limitation more thoroughly in future work.

Conclusion

This study sheds light on the relationship between social support and mental health in a college student population. Certain groups of students – males, Asians, those classified as “other or multiple" racial/ethnic categories, those who do not live with a significant other, and those with current financial struggles – report lower social support. We also found that social support, particularly perceived quality of support, is an important correlate of depression, anxiety, suicidality, and symptoms of eating disorders. This information may help campus administrators and health providers to more effectively identify the population of students at high risk for mental illness and develop effective interventions to address this significant and growing public health issue.

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Table 1

Distribution of the Sample by Sociodemographic Groups

Demographics	Number	Weighted Percent
Total Sample	1,378	
Age 18-22	623	65.1
Age 23-25	292	13.9
Age 26-30	295	13.2
Age 31 and over	168	7.8
Male	632	50.6
Female	746	49.4
Undergraduate	582	66.6
Graduate student	796	33.4
White, non-Hispanic	828	60.7
Black/African-American	55	5.6
Hispanic	56	4.0
Asian/Asian-American	304	19.5
Other or multiple categories	124	10.2
U.S. citizen or resident	1,149	88.6
International student	229	11.4
"It's a financial struggle"	191	13.4
"It's tight but I'm doing fine"	777	53.3

"Finances aren't really a problem"	409	33.3
Heterosexual	1,303	96.0
Bisexual	27	1.9
Gay/lesbian	32	1.8
Lives alone	266	15.3
Lives with relatives	140	14.4
Lives with significant other	308	15.0
Lives with roommates/housemates	662	55.3

Note: all percents are calculated using response propensity survey weights

Table 2

Correlations: Psychosocial variables

	Quality of Social Support Scale	Subscale- Friends	Subscale- Family	Subscale- 'Special Person'	Frequency of Contact with Family	Frequency of Contact with Friends
Social Support Scale	1.00					
Subscale- Friends	0.83	1.00				
Subscale- Family	0.83	0.58	1.00			
Subscale- 'Special Person'	0.85	0.56	0.52	1.00		
Contact with Family	0.19	0.09	0.25	0.14	1.00	
Contact with Friends	0.22	0.30	0.16	0.14	0.19	1.00

Table 3

Level of Social Support by demographics and service utilization characteristics of students

	Quality of Social Support Scale				Frequency of Contact with Family				Frequency of Contact with Friends			
Demographics	"High" (6-7)	"Medium" (4-5)	"Low" (1-3)		at least once/day	at least once/week	less than once/week		at least once/day	at least once/week	less than once/week	
Total Sample	0.42	0.49	0.09		0.42	0.52	0.06		0.60	0.32	0.08	
Age 18-22	0.41	0.49	0.09		0.44	0.52	0.05	*	0.70	0.26	0.04	*
Age 23-25	0.46	0.45	0.09		0.41	0.53	0.06		0.50	0.41	0.09	
Age 26-30	0.46	0.47	0.08		0.35	0.58	0.07		0.41	0.43	0.16	
Age 31 and over	0.37	0.56	0.07		0.44	0.43	0.13		0.30	0.47	0.24	
Male	0.35	0.55	0.08	*	0.31	0.61	0.08	*	0.57	0.35	0.08	
Female	0.49	0.43	0.10		0.54	0.42	0.04		0.63	0.30	0.07	
Undergraduate	0.41	0.49	0.10		0.44	0.51	0.05	*	0.68	0.27	0.05	*
Graduate Student	0.44	0.49	0.08		0.38	0.54	0.08		0.43	0.43	0.14	

White, non-Hispanic	0.45	0.46	0.09	*	0.41	0.54	0.05	*	0.62	0.31	0.08	*
Black/African-American	0.56	0.36	0.08		0.61	0.37	0.02		0.53	0.41	0.06	
Hispanic	0.42	0.50	0.07		0.48	0.49	0.03		0.58	0.35	0.08	
Asian/Asian-American	0.36	0.55	0.08		0.39	0.52	0.09		0.56	0.35	0.09	
Other or multiple categories	0.25	0.63	0.13		0.43	0.51	0.06		0.61	0.30	0.10	
U.S. citizen or resident	0.44	0.47	0.09	*	0.43	0.51	0.05	*	0.62	0.31	0.07	*
International student	0.31	0.64	0.06		0.33	0.57	0.10		0.43	0.44	0.14	
"It's a financial struggle"	0.31	0.53	0.15	*	0.38	0.51	0.11	*	0.46	0.39	0.16	*
"It's tight but I'm doing fine"	0.43	0.49	0.08		0.43	0.53	0.04		0.59	0.34	0.07	
"Finances aren't really a problem"	0.46	0.47	0.07		0.42	0.51	0.06		0.66	0.27	0.06	
Heterosexual	0.43	0.48	0.09		0.42	0.52	0.06	*	0.60	0.32	0.08	
Bisexual	0.18	0.73	0.09		0.39	0.61	0.00		0.55	0.43	0.02	
Gay/lesbian	0.26	0.63	0.11		0.38	0.44	0.17		0.55	0.28	0.17	
Lives alone	0.39	0.51	0.10	*	0.38	0.57	0.05	*	0.54	0.39	0.07	*
Lives with relatives	0.42	0.49	0.09		0.60	0.38	0.02		0.59	0.37	0.04	
Lives with significant other	0.50	0.45	0.05		0.48	0.43	0.09		0.26	0.50	0.24	

Lives with roommates/housemates	0.41	0.50	0.10	0.37	0.57	0.07	0.71	0.24	0.05

Note: all values are proportions calculated using response propensity survey weights; '*' indicates that social support varies significantly (chi-square test, $p<0.05$) across categories of this independent variable.

Table 4

Mental Health Status by Social Support Variables

	N	Depressive	Anxiety	Self-Injury	Suicidality	Eating Disorder
Social Support Scale						
Low	122	0.31	0.12	0.12	0.10	0.20
Medium	671	0.16*	0.05*	0.10	0.02*	0.15
High	585	0.05*	0.04*	0.07	0.01*	0.15
Contact with Family						
less than once/week	94	0.18	0.05	0.06	0.06	0.07
At least once/week	732	0.15	0.05	0.10	0.03*	0.14
At least once/day	576	0.12	0.05	0.09	0.02*	0.19*
Contact with Friends						
Less than once/week	108	0.21	0.05	0.13	0.05	0.22
At least once/week	504	0.13	0.06	0.08	0.03	0.14*
At least once/day	741	0.12	0.05	0.10	0.02	0.15

Notes: all values are proportions calculated using response propensity survey weights; "*" indicates significant difference from the italicized reference group at $P<0.05$

Table 5

Associations between Mental Health and Social Support, Controlling for Other Characteristics

D.V. = Screened Positive for Mental Health Disorder

Multivariate Logistic Regressions

	Depressive		Anxiety		Self-Injury		Suicidality		Eating Disorder	
N	1,351		1,350		1,339		1,350		1,345	
Reference group is italicized	OR	P-value	OR	P-value	OR	P-value	OR	P-value	OR	P-value
Social Support Scale, higher=more support	**0.65**	0.000	**0.71**	0.000	0.86	0.052	**0.61**	0.000	**0.86**	0.040
Contact family less than once a week										
Contact family at least once a week	0.85	0.719	1.23	0.742	**4.09**	0.009	0.61	0.410	**2.76**	0.012
Contact family at least once a day	0.80	0.636	1.17	0.810	**3.71**	0.021	0.60	0.399	**3.24**	0.005
Contact friends less than once a week										
Contact friends at least once a week	0.77	0.452	1.27	0.642	0.59	0.174	0.80	0.731	**0.38**	0.005
Contact friends at least once a day	0.66	0.241	1.13	0.829	0.79	0.537	1.19	0.761	**0.37**	0.004

Note: Control variables in the regressions were gender, age, race/ethnicity, nationality (U.S. or international), sexual orientation, graduate or undergraduate status, current financial situation, and current living situation; Bold typeface indicates the odds ratio is different from 1.0 at $p<0.05$.