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Depressive Symptoms among College Students: An Exploration of Fundamental Cause Theory

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Depressive Symptoms among College Students: An Exploration of Fundamental Cause Theory

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By P. Austin Carrico, BS

Abstract:

Fundamental Cause Theory suggests that socioeconomic and demographic factors are causal to various illnesses, including depression. However, no known previously existing research has used Fundamental Cause Theory to create a model of depression among college students. To do this, the present study conducted a stepwise binomial logistic regression to examine how socioeconomic status and the sociodemographic variables of Gender, Race, and Sexual Orientation, and others predict depressive symptoms in a large sample of undergraduates when controlling for stressful life events and social support ($N = 2,915$). Results support the hypothesis that socioeconomic disparities in depressive symptoms are the result of stress. In the final model, low Social Support was the most predictive variable of high depressive symptoms (OR = 2.882), followed by being bisexual (OR = 2.061). Being black was significantly protective against high depressive symptoms (OR = 0.613). Implications for future research and university services are discussed.

Keywords: Depression, Socioeconomic Status, College Students, Race, Gender, Sexual Orientation, Stressful Life Events, Social Support

Introduction:

Depression is among the most common and serious illnesses facing college students today. A recent meta-analysis consisting of twenty-four studies from mostly Western countries on university depression found that rates of depression averaged approximately 30.6%, ranging from 10% to 85% (Ibrahim, Kelly, Adams, & Glazebrook, 2013). By comparison, prevalence of depression in the US is only 16.2% (Kessler et al., 2003), suggesting that college students are at a particularly increased risk of depression compared to the general population.

Therefore, given the direct link that exists between depression/mental health and physical health outcomes (Prince et al., 2007) and that the initial onset of depression has the potential to put a person at a permanently higher risk of depression later in life (Post, 1992; Stroud, Davila, & Moyer, 2008), it would be beneficial for university mental health services to identify which of their students might be at increased risk so that targeted interventions can be effectively and efficiently implemented. This study will examine depression in college students through the lens of Link and Phelan's Theory of Fundamental Causes (1995). This will allow the study to develop a multivariate model that identifies sociodemographic predictors of depressive symptoms among college students. Universities can use this model in conjunction with other, similar research to influence how to develop the methods and targets for interventions in order to lower rates of depression in college students.

Fundamental Cause Theory

One of the primary theoretical frameworks used to explain health disparities is Link and Phelan's Theory of Fundamental Causes (1995). The primary tenant of Fundamental Cause Theory is that health inequalities are disproportionately distributed across socioeconomic and

sociodemographic lines, leaving persons of lower status experiencing worse health outcomes than those of higher status. More importantly, these social statuses are not just correlates of health disparity, they are the underlying causes. The theory suggests that this happens through the ways socioeconomic status (SES) and demographic characteristics like gender, race, and sexual orientation affect health outcomes through multiple pathways that persist over time. This phenomenon of self-replication happens through the ways that SES influences multiple disease outcomes, how these outcomes stem from multiple risk factors, how social and economic resources are distributed, and how this inequality persists over time through the replacement of intervening mechanisms (Link & Phelan, 1995).

Since the theory was first published, there has been a growing body of empirical evidence to support the theory's claims (Phelan, Link, & Tehranifar, 2010). A review of this evidence first shows SES is related to multiple disease outcomes, with SES being inversely related with mortality in the categories of chronic disease, communicable disease, and injuries. Similarly, these outcomes are strongly linked to associated risk factors of low SES, including smoking, obesity, sedentary lifestyle, stress, and access to preventative healthcare, among other things. Similarly, the ability of low SES persons to mobilize resources like money, knowledge, power, prestige, and/or social connections is significantly reduced compared to that of high SES individuals. Phelan et al.'s review of existing literature (2010) supports this claim by demonstrating that when the ability to mobilize said resources is obstructed, the association between SES and health is diminished. Examples of such obstructions include situations where medical information is limited, the disease is largely unpreventable and untreatable (i.e. brain cancer), or old age limits the effectiveness of treatment. In such circumstances, the differences

in outcomes between high and low SES is significantly diminished compared to diseases where resources can effective.

Additionally, evidence supports the notion that the effect of SES on health inequality is reproduced through the replacement of intervening mechanisms. For example, historically the link between low-SES and poor health was predominantly caused by lack of sanitation and the spread of infectious disease in low-SES living and working spaces (Link & Phelan, 1995). As those problems were gradually reduced over time thanks to growing knowledge and technological advancements, new mechanisms arose to perpetuate health inequality. Phelan et al. (2010) collected several studies which identified these some of these new mechanisms. For example, one study found that when treatment advances stagnated for certain diseases, such as brain or ovarian cancer, mortality rates across SES remained relatively steady. However, significant SES disparities in mortality did exist for diseases that have seen significant progress in treatment, such as heart disease and colon cancer (Phelan & Link, 2005). Others have found similarly disproportionate rates of disease mortality change in diseases like breast cancer. After links were discovered between breast cancer and hormone replacement therapy, there was a decrease in rates of breast cancer in among higher SES women while rates remain stable among low SES women (Carpiano & Kelly, 2007). Similarly, the development and use of statins, a costly drug used to treat high cholesterol, saw cholesterol levels in high SES groups change from being higher than low SES groups in 1976 to being lower in 2004 (Chang & Lauderdale, 2009).

Socioeconomic Disparities in Depression

Given the evidence that disease outcomes are inherently linked to socioeconomic status, one should therefore expect to find that as SES decreases, rates of depression increase. This effect can be observed in several recent studies. For example, in 2003, a meta-analysis of 56

studies predominantly conducted in Europe and North America concluded that low SES individuals were roughly 1.8 times more likely to be depressed than their high SES counterparts (Lorant et al., 2003). The authors additionally suspected that the results demonstrated that low SES increases risk of depression rather than depression limiting social mobility. This directional effect is further supported by longitudinal studies that provide evidence suggesting a causal link between SES and depression (Lorant et al., 2007; Wang, Schmitz, & Dewa, 2010). In particular, Lorant et al. (2007) found that in a seven-year study of Belgian households, negative changes in SES were associated with increased rates of depression, while positive changes in SES did not see a comparative decrease. This suggests that low SES has a lasting effect on rates of depression, even after SES has improved. Results from Gilman et al. (2002) support this idea, which found a significantly higher correlation between low SES as a child and later depression as an adult than in people with higher childhood SES. Subsequently, there is strong support in the literature for the claim that lower SES is associated with increased rates of depression.

However, similar research has also found that other socio-demographic factors might affect depression as well. In their original proposal of fundamental cause theory, Link and Phelan (1995) recognized that sociodemographic factors such as race and gender are intrinsically tied to money, power, social networks, and other resources, and therefore should also be considered fundamental causes of disease. Additions to the theory have likewise proposed that stigmatizing factors like sexual orientation are also fundamental causes, in addition to race and gender (Hatzenbuehler, Phelan, & Link, 2013).

Sociodemographic Disparities in Depression

Gender

If gender should also be considered a fundamental cause, then researchers should expect to also find gender differences in depression. This relationship is well established in existing literature. In a nationally representative sample in the US, women were found to be roughly 1.7 times more likely to have reported a history of major depressive episodes than men (Kessler, McGonagle, Swartz, Blazer, & Nelson, 1993). These results are further supported in the above studies on SES and depression, which found women to also have a higher frequency of depression (Gilman, Kawachi, Fitzmaurice, & Buka, 2002; Lorant et al., 2007; Wang et al., 2010). Furthermore, Piccinelli and Wilkinson (2000), in a review of existing literature, determined which risk factors did or did not explain gender differences in rates of depression. They concluded that the reason women are more likely to have depressive disorders than men is not because of genetic or biological factors but rather an increased likelihood of adverse experiences as a child and role strain due to cultural norms, which in turn interacts with how women experience adverse life events.

However, other literature suggests that such apparent sex differences are not entirely accurate. An alternative explanation for observed gender differences in depression is that the symptoms of depression displayed by men are not recognized by existing diagnostic criteria, while the symptomology of women is. Recent analysis of the National Comorbidity Survey Replication, a nationally representative survey on mental health in the US, included an alternative scale of depressive symptoms that included measures of aggression, substance abuse, and risk taking (Martin, Neighbors, & Griffith, 2013). Researchers found that the significance of the difference in rates of depression between men and women disappeared when including this

alternative list of male symptoms alongside the traditional criteria for depression. These results are congruent with the conclusions of Rosenfield and Smith (2010), who in a review of existing literature argued that gender differences in mental health outcomes are primarily the result of differences in socialization and not gender itself.

Race

Link and Phelan (1995) also identified race as a potential "fundamental cause" of health disparity, suggesting that whites should enjoy greater health outcomes compared to other racial groups due to their advantageous social position. While there is a large body of research demonstrating an interaction between racial differences and depression, the nature of the relationship is somewhat unclear. For example, Plant and Sachs-Ericsson (2004) found that whites had significantly lower rates of depression than non-whites, but this significance was lost when controlling for major financial problems. Other studies have observed no significant differences in depression between blacks and whites (Lincoln, Abdou, & Lloyd, 2014). On the other hand, many studies have shown blacks to be significantly less likely to have depression than whites, a phenomenon sometimes referred to as the "Black-White Paradox" (Keyes, 2009). One such study found that whites of low SES had significantly higher rates of depression than their black peers (Williams, Takeuchi, & Adair, 1992). More recently, a nationally representative sample of over 9,000 Americans found black Americans to be roughly 40% less likely to be at risk for depression than whites or Hispanics (Kessler et al., 2003). Similarly, lower rates of depression among blacks have been found to be independent when controlling for other variables such as age, sex, and education (Barnes, Keyes, & Bates, 2013). These findings are particularly interesting given the "double jeopardy" face by black Americans due to their

lower average economic status (Proctor, Semega, & Kollar, 2016) and experience with discrimination (Taylor & Turner, 2002).

Riolo et al. (2005) provide a potential explanation to this disagreement in the literature by controlling for different types of depression. They found that while whites were more likely to have major depression, defined as a more severe depression that occurs in brief episodes, blacks and Hispanics were more likely to have dysthymia, a milder but chronic form of depression. This effect was also mediated by financial difficulties, suggesting that racial differences in depression can be at least partially explained by racial differences in socioeconomic status. These results are similar to the findings of Williams et al. (2007), who found that while lifetime prevalence estimates of major depression were higher for whites than blacks, severity of depression was higher for blacks. Furthermore, they found that depression was more likely to reoccur chronically for blacks than whites.

Similarly, a meta-analysis of depression among Latinos in the US shows that Latinos have slightly higher rates of depressive symptoms than whites, but the difference appeared clinically negligible (Menselson, Rehkopf, & Kubzansky, 2008). This is perhaps explained by the well-documented "Hispanic Paradox", a term which describes the relatively high health outcomes enjoyed by Hispanics/Latinos despite their lower average social status (Markides & Coreil, 1986). Asians in the US also seem to have lower rates of depression than other minority groups, however this relationship is also influenced by immigrant status and SES (John et al., 2012).

Sexual Orientation

Research also supports the notion that sexual orientation is strongly associated with

depression. One meta-analysis suggests that homosexual and bisexual men and women are significantly more likely to exhibit several different mental disorders, including depression (King et al., 2008). However, a similar study found that among heterosexuals, homosexuals, and bisexuals, homosexuals had significantly higher rates of depression than heterosexuals, and that bisexuals had significantly higher rates than both homosexuals and heterosexuals (Jorm, Korten, Rodgers, Jacomb, & Christensen, 2002). This disparity between bisexuals and homosexuals is perhaps best explained by Balsam and Mohr, who found that bisexuals had higher levels of identity confusion and lower levels of self-disclosure and community involvement than homosexuals (2007). This suggests that bisexuals lack access to the same resources that homosexuals do, and subsequently should not be bundled together when examining sexual orientation as it correlates to mental health.

College Disparities in Depression

But do disparities in depression among these different groups persist in college students? Existing literature appears to suggest so. Several studies all show that socioeconomic differences in depression exist in college populations, with students from low-SES backgrounds reporting significantly higher depression scores (Bayram & Bilgel, 2008; Eisenberg, Gollust, Golberstein, & Hefner, 2007; Eisenberg, Hunt, & Speer, 2013). Similarly, first-generation college students have also been found to be at higher risk of depressive symptoms (Jenkins, Belanger, Connally, Boals, & Durõn, 2013; Padgett, Johnson, & Pascarella, 2012).

Also, the relationship between gender and depression in college students seems mixed, with some finding significant differences (Eisenberg et al., 2013) and others not (Bayram & Bilgel, 2008; Eisenberg et al., 2007). Racial differences also appear to exist in college depression, with whites having lower rates of depression than racial minorities (Eisenberg et al.,

2007, 2013; Okazaki & Sumie, 1997). However, there is variation in the literature with regards to *which* racial minority groups differ the most, and there appears to be a general disregard for racial differences in many publications on college depression. Sexual orientation also continues to be associated with depression in college students, with homosexual/bisexual students being more likely to exhibit depression than heterosexuals (Eisenberg et al., 2007, 2013; Westefeld, Maples, Buford, & Taylor, 2001). Still, like with the general population, bisexuality appears to be significantly more predictive of college depression than homosexuality (Eisenberg et al., 2007, 2013).

In summary, while SES has been found to be strongly associated with rates of depression, the sociodemographic variables of race, gender, and sexual orientation all appear to also independently have an effect. Though there appears to be some disagreement in the literature, enough evidence exists to suggest that research using fundamental cause theory to examine socioeconomic differences in college depression rates should also control for race, gender, and sexual orientation in order to avoid confounding data and make stronger conclusions.

Stress as a Risk Factor

The first main provision of fundamental cause theory suggests that fundamental causes like SES affect multiple disease outcomes (Link & Phelan, 1995). Provided the literature above, it would be reasonable to suggest that depression is one of the disease outcomes caused by socioeconomic inequality. The second provision of fundamental cause theory states that these outcomes are the result of multiple risk factors (Link & Phelan, 1995). As such, one should expect to find evidence of risk factors inherent to SES that cause differences in rates of depression. Evidence suggests that one of the primary mechanisms linking SES to depression is the associated stress of being poor.

Firstly, there is a substantial body of psychological research suggesting a strong association between increased stress and increased depression. Stress can generally be divided into two categories: chronic and acute stress. Acute stress is brief but intense stress that is often referred to in research as stressful life events (SLEs). Such forms of stress have been found to have a moderate causal effect on depression (Kendler, Karkowski, & Prescott, 1999). Chronic stress, on the other hand, is less intense stress that is experienced in the day to day activities, and has been found to also be associated with depression, albeit less so than acute stress (Hammen, Kim, Eberhart, & Brennan, 2009). Subsequently, it would be reasonable to assume that groups that have disproportionately higher incidences of SLEs and chronic stressors will have higher incidences of depression.

Low SES can be stressful in many ways. Pearlin et al. (2005) write specifically to this point, demonstrating that health related stressors are linked to both the hierarchical organization of SES in society and the concept of stress proliferation. In other words, not only are low SES people more likely to experience stress due to the stratification of resources, the stressors from this direct inequality go on to influence other stressors. Consider a scenario where a high SES and low SES person get in a bad car accident where neither of the drivers is at fault. The high SES person might experience stress after the event and maybe even broke their arm. Still, they have good insurance and money set aside to cover the medical bills and replace the car, and before long life is relatively back to normal. The low SES person, however, might not have the resources to get proper medical care or replace their car. Now this person can't get to work in a timely manner, and even when they are there, they have less functionality due to their poorly treated injury. A few late clock-ins later thanks to the irregularity of public transportation and

now they're out of a job. It is not hard to imagine how such a situation could be incredibly stressful.

Empirical evidence supports and expands on the above hypothetical situation. Meta-analysis of existing literature unanimously found that low SES people report higher levels of stressful life events, traumatic and otherwise (Hatch & Dohrenwend, 2007). Furthermore, Vrshek-Schallhorn et al. (2015) found that low SES was associated with both SLEs and chronic stress in non-interpersonal forms. This means the associated stressors were not because of social interactions but of things like the inability to mobilize resources like money to pay for bills, and supports findings by Zimmerman and Katon that financial strain was the primary reason for SES disparities in depression (2005).

Similarly, there is significant stress associated with being in college. A meta-analysis of 40 qualitative studies on the stressors of college, mostly from the United States, identified several categories of stressors faced by college students such as diversity, academic expectations, and others (Hurst, Baranik, & Daniel, 2012). Additionally, students from low SES backgrounds in Australia experienced significantly greater stress from financial problems or family issues than students from higher SES backgrounds. Furthermore, the low SES students were also significantly more likely to have academic difficulties in response to stress and were more likely to consider dropping out of school (Ameera Karimshah, 2013).

This suggests that low SES college students face a "double-jeopardy" situation when it comes to stressors, which may explain the higher rates of depression in college students compared to the general population. Given educational attainment's association with social mobility (Sirin, 2005), it is therefore possible that the stress faced by lower SES college students works to prevent social mobility for future generations. Additionally, first-generation status

might confound the relationship between SES and depression in college students because first generation students are more likely to come from low SES backgrounds (Jenkins et al., 2013), but have a unique lack of social capital used for navigating the college environment that is associated with greater psychological distress (Padgett et al., 2012).

The other sociodemographic factors identified as being linked to depression – race, gender, and sexual orientation – are also associated with increased levels of stress. This is perhaps best explained by the stigmatization faced by said groups, thought to be another fundamental cause of disease inequality (Hatzenbuehler et al., 2013). Meta-analysis suggests that in the general population, men are more likely to experience traumatic events than women, but there are inconsistencies in the rates of non-traumatic SLEs (Hatch & Dohrenwend, 2007). Similarly, exploratory research on the distribution of stress measured across the US suggests that while women were more likely to experience stress than men in general, men were more stressed by loss of status or income (Cohen & Janicki-Deverts, 2006). In college, however, it appears that women are significantly more likely to experience stress than men (Dixon et al., 2008).

Differences in racial experience of stress also exist. Though some can be explained by when controlling for SES (Plant & Sachs-Ericsson, 2004), most race related stress in the US appears to come from discrimination. For example, significant differences in health outcomes have also been found between blacks and whites due to chronic stress stemming from discrimination (Taylor & Turner, 2002). Additionally, it has been observed that for blacks, race-related stress is more predictive of negative mental health outcomes than more generalized stressful life events (Utsey, Giesbrecht, Hook, & Stanard, 2008). Stress for black college students is further complicated by increased feelings of imposter syndrome, an inability to internalize their success and feelings of being a fraud (McClain et al., 2016).

Minority stress is also felt by homosexuals/bisexuals, described by Meyer as being a combination of social stigma, prejudice, and discrimination from both the self and society (2003). This process effect on stress is observed both in the general population (Balsam & Mohr, 2007; Mays & Cochran, 2001) and in college students (Lewis, Derlega, Brown, Rose, & Henson, 2009). In both populations, bisexuals reported greater distress than homosexuals (Balsam & Mohr, 2007; Lewis et al., 2009).

Subsequently, the existing literature demonstrates that college depression is affected by the ways low SES increases stress. However, unique differences in the way race, gender, and sexual orientation are associated with stress make them distinct from SES, suggesting that they too are fundamental causes.

Mobilization of Resources

The third main component of fundamental cause theory is the mobilization of resources like money, power, knowledge, or social connections. For depression, this manifests itself primarily through barriers to treatment and access to social support. Social support has been found to protect against stress largely through two pathways, the direct-effect model and the buffering model (Cohen & Wills, 1985). The direct-effect model suggests that social support passively protects against stress by increasing well-being over the course of daily life. The buffering model, on the other hand, suggests that social support is a resource that can be mobilized to "buffer" the effects of stress. Examples of this buffering effect could range from simply having friend you can talk to when you're upset to having someone you trust be available at short notice to watch your kids during an emergency.

Significant disparities through which SES affects the mobilization of resources exists. Mojtabai (2009) found that that concerns about costs were the biggest barriers to unmet treatment for depression in the US, and that those with private insurance were more likely to have received treatment than those with Medicaid, Medicare, or others. Similarly, Hunt and Eisenberg found that college students from lower SES backgrounds were less likely to receive treatment for depression than their higher SES peers (2010). Not only are low SES individuals less likely to get depression treatment, some evidence suggests that depression treatment is less effective for them than higher SES people (Falconnier, 2009). Furthermore, findings from a longitudinal study of Finns from age 16 to 32 that examined the relationship between social support, SES, and depression suggests that there is some variation in social support across socioeconomic lines, with higher SES individuals enjoying greater social support (Huurre, Eerola, Rahkonen, & Aro, 2007). However, social support did not appear to significantly alter the relationship between SES and depression. Lack of financial resources therefore appears to be the biggest barrier for low SES individuals

Again, sociodemographic differences also exist when it comes to mobilizing resources. While women may be more likely to experience negative life events then men, they are more likely to have stronger social support groups and are subsequently no more vulnerable to such negative events than men (Dalgard et al., 2006). Similarly, although men in general seem less likely have depression than women, men who do have depression are less likely to receive treatment because of how men experience depression, norms for masculinity, and the stigma of mental illness (Hinton, Zweifach, Tang, Unützer, & Oishi, 2006). Comparable differences in depression treatment were also found in college students (Hunt & Eisenberg, 2010).

Alegria et al. (2008), for example, found that non-whites were significantly less likely than whites to have received professional treatment for their depression. However, blacks have been shown to have greater access to social support via family, church, and other social/cultural networks (Utsey et al., 2008). This effect is consistent among college students. For example, one study found white college students to be roughly 3.7 times more likely to receive treatment for depression than non-whites, despite having no significantly different rates of depression (Herman et al., 2011). Similarly, strong attachment to ethnic identity appears to be protective against depression in black college students (Walker, Wingate, Obasi, & Joiner, 2008). Black and Latino college students has also been found to be less likely to be open to seeking psychological treatment if they have high perceived levels of social support (Constantine, Wilton, & Caldwell, 2003). However, studies have also shown that sources of social support like family and close friendships do not vary greatly enough to explain why some research shows blacks as having lower rates of depression than whites (Mouzon, 2013; 2014).

Resource mobilization varies via sexual orientation as well. Family acceptance among homosexual and bisexual adolescents can be greatly protective against depression in later life (Ryan et al., 2010), as were family, friend, and community support, albeit less protective than family acceptance (Snapp et al., 2015). Furthermore, while both gays and bisexuals reported higher use of mental health service on average than heterosexuals (Cochran, Mays, & Sullivan, 2003), lower levels of social support among bisexuals might explain why bisexuals have such significantly higher rates of depression than homosexuals and heterosexuals (Lewis et al., 2009).

Present Study

Low socioeconomic status is a fundamental cause of depression, as supported by the literature discussed above. This happens through of combination of stress associated with lower

SES and an inability to mobilize resources. Additionally, sociodemographic data suggests that gender, race, and sexual orientation all also have significant correlations with rates of depression, determined by a combination of stressors and resources that mediate or moderate their relationships. This study advances the understanding of depression among college students by applying Fundamental Cause Theory to a large sample of undergraduates.

Methods

Population and Sampling

In order to examine the stratification of depression among college students, the present study is a secondary analysis with an analytic sample size of 2,915 undergraduate participants from the Spit for Science study. Specifically, participants selected for this study came from a cross-sectional sample of respondents from the spring 2015 semester. Participants in the Spit for Science dataset were recruited as incoming freshman from years 2011 to 2014 at a large, urban, public university in Virginia using surveys sent to the students' university email account. Follow-up surveys were sent out every subsequent spring semester throughout their undergraduate college careers. The sample used in this study consisted of students ranging from their first to fourth years as undergraduates.

All participants were at least 18 years old when first recruited. Initial cohort sampling had a response rate of roughly 68%, and there appeared to be no significant variations in survey item responses for measures such as depression between students who did not complete follow-up survey in the spring, other than a very slight decrease in response by whites and males (Dick et al., 2014). This suggests that the Spit for Science data is highly representative of the general student population, should the following cohorts also retained similar response rates.

Exclusions

Participants with missing responses for any questions used in this study were excluded using listwise deletion. Because only data collected from the Spring 2015 semester was considered, participants who did not complete that specific survey were excluded, even if they had responded to other, previous surveys. Additionally, any missing responses or responses of "I choose not to answer" for items analyzed in this study were also excluded. Finally, participants who were above the age of 25 when they completed the survey will be excluded based on previous findings suggesting significant differences in college depression between that age group and younger students (Eisenberg et al., 2007). The final analytic sample size after exclusions was 2,915 undergraduates.

Before exclusions, the dataset contained 9,892 participants. However, 5,266 of those participants did not complete the depressive symptom questions and were subsequently excluded. A further combined total of 1,700 participants failed to answer at least one of the independent variables. Eleven participants were excluded for being older than 25 years old.

Testing Measures

Depression was measured using a variant subscale of the SCL-90 test (Derogatis, Lipman, & Covi, 1973) consisting of four items. Questions asked participants to rate discomfort towards a particular symptom of depression on a five point scale, with response options being "not at all," "a little bit," "moderately," "quite a bit," and "extremely." Higher scores indicated a higher frequency and/or intensity of depressive symptoms. While ideally a measure of depression would consist of a more thorough battery of questions, short scales using variations of the SCL-90 have been found to be similarly sensitive and valid as longer scales (Müller, Postert,

Beyer, Furniss, & Achtergarde, 2010). Existing literature has used the upper quartile as a cut-off

point to dichotomize depression (Bhui et al., 2003; Smolderen et al., 2009). For the purposes of

this study, depression will be coded as "depressive symptoms" and will be dichotomized along

the upper quartile. Scores of 12 or higher will be coded as "High" depressive symptoms; scores

below will be coded as "Low". Responses missing less than half of the items for depression

were pro-rated by averaging the available items and multiplying it by the total number of items

for depression, four.

Socioeconomic status was determined by two items: a self-report of participants' family

financial situation and the highest level of educational attainment achieved by either parent. For

the self-report, participants were asked "In terms of finances, which of the following best

describes you/your family's situation?" Responses consisted of "More money than you need,"

"Just enough for your needs," or "Not enough for your needs." These responses acted as a proxy

to represent high-, mid-, and low-SES, respectively. As existing research suggests, it is low-SES

that is associated with increased rates of depression (Lorant et al., 2003; Lorant et al., 2007;

Wang et al., 2010). Therefore, this study dichotomized self-reported family financial status into

categories of "Not enough for your needs" or "More than/Just enough for your needs".

Educational attainment has also long been used as an adequate proxy for SES in social

science and health research, with higher levels of education representing higher SES (Jenkins et

al., 2013; Miech & Hauser, 2001; Shavers, 2007). Given that all participants were current

college students, the highest level of education achieved by either parent was used to measure

SES instead of participants own level of education. The responses were categorized as "Less

than highschool," "Highschool or highschool equivalent," "Some college," "Trade school or

related degree," "4-year college degree," and "Professional/Graduate degree".

Gender was measured using by asking participants if they were "Male" or "Female."

Race was measured as "White," "Black/African American," "Asian," "Hispanic/Latino," "More than one race," or "Other," with the "Other" grouping consisting of the responses "Unknown," "American Indian/Alaska native" and "Native Hawaiian/Other Pacific Islander" due to low response numbers. This coding follows the methods of existing literature (Eisenberg et al., 2007, 2013). Sexual orientation was measured by asking participants how they would describe their sexual orientation within the options of "Heterosexual," "Homosexual," and "Bisexual".

In addition to these variables already discussed in the theoretical framework, similar studies to this project have found some variation in depression scores based on academic year, student housing, and relationship status (Bayram & Bilgel, 2008; Eisenberg et al., 2007, 2013). Academic year was determined by cohort, ranging from cohort 1 being in "Year 4" of their undergraduate careers to cohort 4 being in "Year 1" at the time of survey completion. "Year 1" and "Year 2" students are expected to have higher rates of depression (Bayram & Bilgel, 2008).

Existing research suggests that differences in student housing might have significant effects on mental well-being as well (Eisenberg et al., 2007). Therefore, this study will also look at the relationship between housing and depressive symptoms, with housing categorized by "On Campus," "Off Campus (without family)," "With Family," and "Other". Additionally, Relationship status was also considered, specifically with regard to marital status, given evidence that suggests marriage specifically is protective against depression (Eisenberg et al., 2007; Kessler & Essex, 1982). Given the age range of this study's sample and subsequent low rate of marriage, married and engaged participants were grouped together as "Married/Engaged," and all other relationship statuses were categorized as "Other".

Stress was measured by differentiating between exposure to potentially traumatic events and life stress. Exposure to potentially traumatic events was measured by asking participants if they had ever experienced a natural disaster, physical assault, sexual assault or other unwanted sexual experience, or transportation accident, using a variation of the Life Events Checklist which has been found to be significantly correlated with measures of depression among undergraduates (Gray, Litz, Hsu, & Lombardo, 2004).

Life stress, representing common stressful life events, was measured by asking participants if they had ever had any of the following twelve events occur: "Broken engagement or steady relationship," "Separation from another loved one or close friend," "serious illness or injury," "Burglarized or robbed," "Trouble with the police," "Laid off or fired from a job," "Major financial problems," "Serious housing problems," "Serious difficulties at school," "Someone close to you pass away," "Your mother or father had a serious illness or injury," or "Someone else close to you had a serious illness or injury." These questions were based on previous research where similar stressful events were found to have a causal effect on episodes of major depression (Kendler et al., 1999).

Potentially traumatic events and life stress were both measured by the total "Yes" responses to questions across the lifetime and within past 12 months prior to completing the survey. Both timeframes were included because while some studies suggest more recent stress predicts the onset of depressive episodes (Kendelr et al., 1999; Kendler & Gardner, 2016), others suggest that the effects of stressful life events are longer lasting (Haberstick et al., 2016; Shapero et al., 2014) or even have a cumulative effect over time (Vinkers et al., 2014). Totals were dichotomized along their upper quartile, with higher scores denoting high levels exposure to potentially traumatic events and/or life stress, as previously done in existing stress-related

research (Perreira & Sloan, 2001; Sarenmalm, Browall, Persson, Fall-Dickson, & Gaston-Johansson, 2013).

Social support was measured based on the respective measure in the Medical Outcomes Study (Hays, Sherbourne, & Mazel, 1995). Participants were asked three questions: "How often was… someone available to give good advice about a crisis?" "someone available to get together with for relaxation?" and "someone available to confide in or talk about your problems?" Responses ranged from a score of one to four, with one representing "None of the time" and four representing all of the time. Scores for the three questions were totaled and dichotomized into groups using the lower quartile as a cutoff point, given that low social support in particular is associated with higher rates of depression (Dalgard et al., 2006; Hefner & Eisenberg, 2009; Plant & Sachs-Ericsson, 2004; X. Wang, Cai, Qian, & Peng, 2014). Scores below the lower quartile represented low social support and scores above the lower quartile represented high social support.

Data Analysis

Data analysis was done using SPSS Statistics 24. Because the dependent variable, depressive symptoms, and all independent variables were categorized, chi-square tests were used in simple bivariate analysis to determine which independent variables were significantly associated with the dependent variable, depressive symptoms, seen in Table 1 and Table 2. Independent variables found to be significant in bivariate analysis ($\alpha = 0.05$) were run together in a step-wise binary logistic regression test to identify predicting characteristics of high depressive symptoms, seen in Table 3.

Results

Demographics

In the sample, just under a third of all participants appeared in the "High" category for depressive symptoms (29.3%). This rate is close to the average rate of university student depression of 30.6% found by Ibrahim et al. (2013). This supports the validity of this study's measure of depressive symptoms.

As shown in Table 1, the majority of participants were female (69.8%). Most participants were white (48.7%), with black/African American second (20.4%), and Asian third (17.1%). The remaining racial categories combined represented 13.7% of the sample. The majority of participants also had at least one parent who had completed a four year degree (73.3%), while only 11.8% had parents whose highest level of education was highschool or less. Similarly, most participants' family financial status was described as having "More than enough money" or "Just enough to meet your needs" (83.1%). Just over half of participants lived in on-campus housing (51%), followed by just over a third living off campus without family (37.9%). Only 2% were engaged or married.

Table 2 shows sample characteristics and bivariate analysis for stressful life events and social support. The lower quartile point for social support was 4.5, with 713 participants falling below that score (24.5%). Upper quartiles for life stress were 5 for lifetime totals and 3 for past year totals. 1,016 participants fell into the high life stress group (34.9%), and 855 fell into the high past year life stress group (29.3%). Upper quartiles for potentially traumatic events were 3 for lifetime totals and 1 for past year totals. 885 participants were in the high lifetime trauma group (30.4%) and 1,080 were in the high past year trauma group (37.0%).

Bivariate Analysis

Shown in Table 1, among proxies for SES, self-reported family financial status was found to be significantly associated with depressive symptoms (p=0.01). Though responses of "Not enough to meet your needs", representing low SES, only made up 16.9% of the sample, they accounted for 19.7% of "High" depressive symptom scores. Race was also significantly correlated with depressive symptoms (p=0.012), notably with whites representing 48.7% of the sample and 52.7% of those with high depressive symptoms and blacks/African Americans representing 20.4% of the sample and only 16.7% of high depressive symptoms.

The relationship between depressive symptoms and sexual orientation was extremely significant (p<0.0001). Not only did bisexuals make up 14.5% of the "High" depressive symptoms category despite being only 8.5% of the sample, there were actually more bisexuals in the "High" category (*n* = 124) than the "Low" category (*n* = 123). Depressive symptoms were also significantly associated independently with relationship status and academic year (p=0.042; p=0.036, respectively).

As seen in Table 2, Social Support and all measures of stress were also extremely significant in bivariate analysis (p<0.0001). Low social support scores made up 40.3% of high depressive symptom scores despite only representing 24.5% of the sample. Participants with high total life stress scores made up 48.9% of high depressive symptom scores while only being 34.9% of the sample. For life stress over the past year, high scores made up 45.2% of high

Table 1

Description and Bivariate Analysis of Sociodemographic Characteristics and Depressive Symptoms

	Total N (%)	Depressive Symptoms ($N = 2,915$)		p-value
		High (%)	Low (%)	
Family Financial Status				
"More than/Just enough to meet your needs"	2,423 (83.1%)	686 (80.3%)	1,737 (84.3%)	0.010**
"Not enough to meet your needs"	492 (16.9%)	168 (19.7%)	324 (15.7%)	
Highest Parent Education				
Less than highschool	66 (2.3%)	19 (2.2%)	47 (2.3%)	
Highschool or equivalent	277 (9.5%)	82 (9.6%)	195 (9.5%)	
Some College	279 (9.6%)	91 (10.7%)	188 (9.1%)	0.226
Trade school or related degree	158 (5.4%)	33 (3.9%)	125 (6.1%)	
4-year College Degree	1,164 (40.0%)	344 (40.3%)	821 (39.8%)	
Professional/Graduate degree	970 (33.3%)	285 (33.4%)	685 (33.2%)	
Gender				
Male	880 (30.2%)	240 (28.1%)	640 (31.1%)	0.114
Female	2,035 (69.8%)	614 (71.9%)	1,421 (68.9%)	
Race				
White	1,421 (48.7%)	450 (52.7%)	971 (47.1%)	
Black/African American	596 (20.4%)	143 (16.7%)	453 (22.0%)	
Asian	499 (17.1%)	149 (17.4%)	350 (17.0%)	0.012*
Hispanic/Latino	180 (6.2%)	44 (5.2%)	136 (6.6%)	
More than one race	176 (6.0%)	56 (6.6%)	120 (5.8%)	
Other	43 (1.5%)	12 (1.4%)	31 (1.5%)	
Sexual Orientation				
Heterosexual	2,549 (87.4%)	687 (80.4%)	1,862 (90.3%)	
Homosexual	119 (4.1%)	43 (5.0%)	76 (3.7%)	<0.0001***
Bisexual	247 (8.5%)	124 (14.5%)	123 (6.0%)	
Relationship Status				
Married/Engaged	58 (2.0%)	10 (1.2%)	48 (2.3%)	0.042*
Other	2,857 (98.0%)	844 (98.8%)	2,013 (97.7%)	
Housing				
Campus Housing	1,488 (51.0%)	429 (50.2%)	1059 (51.4%)	0.478
Off Campus	1,106 (37.9%)	319 (37.4%)	787 (38.2%)	
With Family	218 (7.5%)	73 (8.5%)	145 (7.0%)	
Other	103 (3.5%)	33 (3.9%)	70 (3.4%)	
Academic Year				
Year 1	1032 (35.4%)	334 (39.1%)	698 (33.9%)	0.036*
Year 2	743 (25.5%)	216 (25.3%)	527 (25.6%)	
Year 3	629 (21.6%)	169 (19.8%)	460 (22.3%)	
Year 4	511 (17.5%)	135 (15.8%)	376 (18.2%)	

Notes: Percentages displayed by row; *p < .05. **p < .01. ***p < .001

depressive symptom scores and 29.3% of the sample. Likewise, higher scores of lifetime

exposure to potentially traumatic events corresponded with 39.9% of high depressive symptom

scores while being 30.4% of the sample, and past year exposure with 43.8% of high depressive

symptom scores while 37.0% of the sample.

Table 2

Description and Bivariate Analysis of Stress/Social Support and Depression

	Total N (%)	Depressive Symptoms (*N* = 2,915)		p-value
		High (%)	Low (%)	
Social Support				
High Support	2,202 (75.5%)	510 (59.7%)	1,692 (82.1%)	<0.0001***
Low Support	713 (24.5%)	344 (40.3%)	369 (17.9%)	
Life Stress Total				
High	1,016 (34.9%)	418 (48.9%)	598 (29.0%)	<0.0001***
Low	1,899 (65.1%)	436 (51.1%)	1,463 (71.0%)	
Life Stress Past Year				
High	855 (29.3%)	386 (45.2%)	469 (22.8%)	<0.0001***
Low	2,060 (70.7%)	468 (54.8%)	1,592 (77.2%)	
Total Lifetime Trauma				
High	885 (30.4%)	341 (39.9%)	544 (26.4%)	<0.0001***
Low	2,030 (69.6%)	513 (60.1%)	1,517 (73.6%)	
Total Recent Trauma				
High	1,080 (37.0%)	374 (43.8%)	706 (34.3%)	<0.0001***
Low	1,835 (63.0%)	480 (56.2%)	1,355 (65.7%)	

Notes: Percentages displayed by row; *p < .05. **p < .01. ***p < .001

Multivariate Analysis

Table 3 represents the results of the Multiple Binary Logistic Regression model to show

the odds of having high depressive symptoms predicted by sociodemographic characteristics,

stress, and social support. Only variables with a significance level of at least $\alpha = 0.05$ were

included in the model. Block 1 examined the following sociodemographic variables found to be

significant in bivariate analysis: Family Financial Status, Race, Sexual Orientation, Relationship

Status, and Academic Year. All of these variables had at least one category that significantly

associated with high depressive symptoms. However, the adjusted r-square suggests that the sociodemographics alone explained less than 5% of variance (R^2=0.042).

Compared to a "Having more/Just enough for your needs," participants who responded having "Not enough to meet your needs" in terms of family finances were significantly more likely to display high depressive symptoms by roughly 35% (OR=1.354, 95% CI=1.095-1.674, p=0.005). Blacks/African Americans were the significant racial category in the model, being over 30% less likely to have high depressive symptoms relative to whites (OR=0.693, CI=0.554-0.866, p=0.001). Both homosexuals and bisexuals also showed significantly higher rates of high depressive symptoms in comparison to heterosexuals (p=0.040; p<0.0001, respectively. Homosexuals were over 50% more likely to have high depressive symptoms (OR=1.502, 95% CI=1.018-2.216), and bisexuals were well over 2.5 times more likely to show high depressive symptoms (OR=2.612, 95% CI=1.998-3.415). Being married or engaged was significant and over 50% less likely to have high depressive symptoms (OR=0.463, 95% CI=0.230-0.935, p=0.032). Only year 1 participants showed significant differences with those in year 4, being roughly 1.3 times more likely to have high depressive symptoms (OR=1.283, 95% CI=1.009-1.632, p=0.042).

The second block controlled for exposure to stressful life events by adding measures of exposure to potentially traumatic events and life stressors, both over the lifetime and over the past year. This substantially improved the model's fit (from R^2=0.042 to R^2=0.118) to then explain almost 12% of variance in high versus low depressive symptom scores. Of the added variables, all but trauma over the past year were found to be significant. High life stress over the past year was the most predictive, being almost twice as likely to predict high depressive symptoms than low life stress over the past year (OR=1.979, 95% CI=1.610-2.432, p<0.0001),

followed by high to low lifetime life stress (OR=1.604, 95% CI=1.1297-1.985, p<0.0001), then

high to low lifetime trauma exposure (OR=1.415, 95% CI=1.162-1.722, p=0.001).

Adding stress to the model also changed the predictability of the sociodemographic

variables in relation to depressive symptoms. Family financial status, Homosexuality, and being

married/engaged were all no longer significant predictors of depressive symptoms in Block 2.

Furthermore, being black/African American became more protective against high depressive

symptoms than whites by 1.6% (OR=0.677, 95% CI=0.538-0.853, p=0.001), and being a year 1

Table 3

Odds Ratios at 95% Confidence intervals for Predictors of High Depressive Symptoms

	High Depressive Symptoms ($N = 2915$)					
	Block 1		Block 2		Block 3	
	OR	95% CI	OR	95% CI	OR	95% CI
"Not enough to meet your needs"	1.354**	(1.095, 1.674)	1.065	(0.852, 1.332)	0.975	(0.775, 1.226)
White						
Black/African American	0.693**	(0.554, 0.866)	0.677**	(0.538, 0.853)	0.613***	(0.484, 0.777)
Asian	0.976	(0.779, 1.224)	1.153	(0.912, 1.458)	1.060	(0.833, 1.350)
Hispanic/Latino	0.720	(0.501, 1.035)	0.726	(0.499,, 1.056)	0.683	(0.466, 1.003)
More than one race	0.980	(0.695, 1.379)	0.926	(0.651, 1.318)	0.901	(0.627, 1.295)
Other	0.882	(0.446, 1.743)	0.928	(0.461, 1.869)	0.945	(0.461, 1.939)
Heterosexual						
Homosexual	1.502*	(1.018, 2.216)	1.457	(0.972, 2.183)	1.478	(0.980, 2.231)
Bisexual	2.612***	(1.998, 3.415)	2.157***	(1.630, 2.853)	2.061***	(1.544, 2.750)
Married or Engaged	0.463*	(0.230, 0.935)	0.499	(0.243, 1.025)	0.535	(0.257, 1.113)
Year 4						
Year 3	1.007	(0.770, 1.317)	1.063	(0.805, 1.403)	1.021	(0.768, 1.358)
Year 2	1.104	(0.854, 1.428)	1.216	(0.928, 1.593)	1.219	(0.925, 1.607)
Year 1	1.283*	(1.009, 1.632)	1.518**	(1.165, 1.979)	1.425*	(1.087, 1.868)
High Total Life Stress			1.604***	(1.297, 1.985)	1.600***	(1.285, 1.990)
High Life Stress, Past Year			1.979***	(1.610, 2.432)	1.879***	(1.520, 2.323)
High Total Trauma			1.415**	(1.162, 1.722)	1.390**	(1.137, 1.700)
High Trauma, Past Year			1.026	(0.850, 1.238)	1.010	(0.833, 1.224)
Low Social Support					2.882***	(2.388, 3.477)
Adjusted R^2	0.042		0.118		0.171	

Note: *$p < .05$. **$p < .01$. ***$p < .001$

student became more predictive of high depressive symptoms than year 4 students by 23.5% (OR=1.518, 95% CI=1.165-1.979, p=0.002). Bisexuality, on the other hand, became less predictive of higher depressive symptoms by almost 50% (OR=2.157, 95% CI=1.630-2.853, p<0.0001)

The third and final block added the measure of social support, which increased the model fit such that it explained 17.1% of variance between scores of high and low depressive symptoms (from R^2=0.118 to R^2=0.171). Low social support was significantly predictive of high depressive symptoms by a factor of almost three (OR=2.882, 95% CI=2.388-3.477, p<0.0001). In this finalized model, the protective effect of being black/African American compared to whites was further increased by 6.4%, such that blacks/African Americans were also most 40% less likely to have high depressive symptoms (OR=0.613, 95% CI=0.484-0.777, p<0.0001). All other variables that were significant in Block 2 remained significant, albeit their predictability all decreased as well. Bisexuality had an additional 9.6% decrease in predicting high depressive symptoms compared to heterosexuals, though it remained over twice as likely to predict high depressive symptoms than heterosexuals (OR=2.061, 95%CI=1.544-2.750, p<0.0001). Year 1 students decreased in predictability by 9.3% (OR=1.425, 95% CI=1.087- 1.868, p=0.010). Life stress predictability decreased as well, only by 0.4% for high lifetime life stress (OR=1.600, 95% CI=1.285-1.990, p<0.0001) but 10% for high life stress over the past year (OR=1.879, 95% CI=1.520-2.323, p<0.0001). The predictability of trauma also decreased by 2.5% (OR=1.390, 95% CI=1.137-1.700).

Discussion

Results from the analysis have several implications for the understanding of depression in college students. First, that lower family financial status was significantly predictive of high

depressive symptoms in Block 1 of the regression model supports the hypothesis that lower SES is associated with increased rates of depression and that this relationship continues to exist among college students. Such findings are consistent with similar existing research that also found disparities by SES in university students (Bayram & Bilgel, 2008; Eisenberg et al., 2007, 2013). The results also have implications for Fundamental Cause Theory. As discussed in the literature review, Fundamental Cause Theory states that SES affects disease outcomes via multiple risk factors (Link & Phelan, 1995). Given that SES was no longer a significant predictor of depressive symptoms after including stress in the multivariate model, it would be reasonable to suggest that stress is one of the primary risk factors associated that leads to the disproportionate distribution of depression along socioeconomic lines. These findings could prove useful for university services like counseling and financial aid.

It should also be noted that the most predictive variable of high depressive symptoms in the final regression model was having low social support. Fundamental Cause Theory also suggests that health inequalities are perpetuated by disproportionate access to resources (Link & Phelan, 1995). Because adding social support to the model decreased the predictability of all significant variables in the model except being black/African American, this suggests that access to social support is a resource that can be mobilized to protect against depression. University counseling services should also take this information into consideration.

Additionally, social support also decreased depressive symptom predictability for first year students. This suggests that these students are at least partially more likely to have depressive symptoms because they lack social support. Though first year students should be given a degree of priority when it comes to depression interventions, since social support doesn't explain away all the significance of being a year 1 student, Universities could also take measures to promote

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social bonding among first year students with the specific purpose of forming support networks and protecting mental health.

Still, even after considering social support, high levels of stressful life events remained significantly predictive of high depressive symptoms. This is unsurprising, given that stressful life events have been found to be causal with depression (Kendler et al., 1999). Universities should therefore be encouraged to also have interventions for depression targeted at addressing such stressful events. However, the exact specificity of stressful life events in this study's model should not be overstated. Given that trauma and stressful life events were measured across the lifetime and the past 12 months, both sets of variables had high multicollinearity. Despite this, both lifetime and past 12 month measures were included for the sake of the overall model. Regardless, future research should also consider the effects of chronic stress as it too has been found to be significantly associated with depression (Hammen, Kim, Eberhart, & Brennan, 2009; Vrshek-Schallhorn et al., 2015).

The significance and protective effect of being black/African American is also interesting. One explanation could be that black participants in this sample had a strong attachment to their ethnic identity, which has been found to be protective against depression in black college students (Walker et al., 2008). Similarly, another explanation is that black Americans are forced to adapt to the increased stress they face due to racialized stressors by increasing their optimism and self-esteem, which subsequently makes them more resilient to psychological distress (Utsey et al., 2008). This would also account for the increased protectiveness of being black when controlling for both stress and social support, which might otherwise decrease the black protectiveness against depression. However, given that the measures of stress used in this study lacked information on discriminatory or racial stress, future research is still needed to better

understand the unique relationship between race and depression, particularly as it relates to blacks. If there is something exclusive to the black identity that is protective against depression in college students, it should be explored by Universities so that it might be used to better depression interventions and treatment.

Likewise, significant differences within the multivariate model existed for rates of depressive symptoms between heterosexuals and bisexuals (and to a lesser extent homosexuals). Though the relationship was partially explained by stress and social support, it was still highly significant in the final model. Existing literature suggests this might be due to identity confusion related to their sexual orientation (Balsam & Mohr, 2007). Similarly, the lack of discrimination measures in the present study presents an opportunity for future research as it corresponds to the relationship between bisexuality and depression in college students. Regardless, university counseling services should also note this distinct differences that exists between bisexuals and homosexuals.

Also, while being married/engaged was significantly protective against high depressive symptoms in Block 1, it seems unreasonable to suggest that Universities should promote marriage as a method to prevent depression, especially since married/engaged participants made up only 2% of the sample. Still, it might be worthwhile for universities to explore the mechanisms that make such a commitment protective against depressive symptoms.

In conclusion, this study adds to a growing body of literature in identifying key pathways to understanding the distribution of depression among college students. The interaction of stress and social support with sociodemographic characteristics clearly plays an important role in identifying which groups might be at higher risk of depression and how. However, the relatively low model fit of 17.1% suggests that this this interaction only plays a partial role in identifying

the risk factors of depression. Further research should considering exploring other known associates of depression such as personality and genetics in conjunction with stress, social support, and demographics in order to capture and more complete picture of the distribution of depression in college students.

In addition to the limitations discussed above, it should also be noted that this study was done using secondary data. While the dataset used was fairly robust, this study was limited in its analysis by the scope of the preexisting questions. Similarly, this study only examined responses from the 2015 spring semester rather than the full longitudinal data, making it impossible to make any claims about causality. Furthermore, participants were recruited from a large, urban University with a diverse student body. As such, any inferences made from this study about the general population or even other university populations should be made within the context of other similar research.

References:

Alegría, M., Chatterji, P., Wells, K., Cao, Z., Chen, C., Takeuchi, D., … Meng, X.-L. (2008). Disparity in Depression Treatment Among Racial and Ethnic Minority Populations in the United States. *Psychiatric Services*, *59*(11), 1264–1272. https://doi.org/10.1176/ps.2008.59.11.1264

Ameera Karimshah. (2013). Overcoming adversity among low SES students: A study of strategies for retention. *Australian Universities Review*, *55*(2), 5–14.

Balsam, K. F., & Mohr, J. J. (2007). Adaptation to sexual orientation stigma: A comparison of bisexual and lesbian/gay adults. *Journal of Counseling Psychology*, *54*(3), 306–319. https://doi.org/10.1037/0022-0167.54.3.306

Barnes, D. M., Keyes, K. M., & Bates, L. M. (2013). Racial differences in depression in the United States: How do subgroup analyses inform a paradox? *Social Psychiatry and Psychiatric Epidemiology*, *48*(12), 1941–1949. https://doi.org/10.1007/s00127-013-0718-7

Bayram, N., & Bilgel, N. (2008). The prevalence and socio-demographic correlations of depression, anxiety and stress among a group of university students. *Social Psychiatry and Psychiatric Epidemiology*, *43*(8), 667–672. https://doi.org/10.1007/s00127-008-0345-x

Bhui, K., Abdi, A., Abdi, M., Pereira, S., Dualeh, M., Robertson, D., … Ismail, H. (2003). Traumatic events, migration characteristics and psychiatric symptoms among Somali refugees - Preliminary communication. *Social Psychiatry and Psychiatric Epidemiology*, *38*(1), 35–43. https://doi.org/10.1007/s00127-003-0596-5

Cochran, S. D., Mays, V. M., & Sullivan, J. G. (2003). Prevalence of mental disorders, psychological distress, and mental health services use among lesbian, gay, and bisexual adults in the United States. *Journal of Consulting and Clinical Psychology*, *71*(1), 53–61. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/12602425

Cohen, S., & Janicki-Deverts, D. (2006). Who's Stressed? Distributions of Psychological Stress in the United States in Probability Samples from. https://doi.org/10.1111/j.1559-1816.2012.00900.x

Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin*, *98*(2), 310–357. https://doi.org/10.1037/0033-2909.98.2.310

Constantine, M., Wilton, L., & Caldwell, L. D. (2003). The role of social support in moderating the relationship between psychological distress and willingness to seek psychological help among Black and Latino college students. *… of College Counseling*, *6*(2), 155–165. https://doi.org/10.1002/j.2161-1882.2003.tb00236.x

Dalgard, S., Dowrick, C., Lehtinen, V., Luis, J., Patricia, V.-B., Ae, C., … Dunn, G. (2006). Negative life events, social support and gender difference in depression A multinational community survey with data from the ODIN study. https://doi.org/10.1007/s00127-006-0051-5

Derogatis, L. R., Lipman, R. S., & Covi, L. (1973). SCL-90: an outpatient psychiatric rating scale--preliminary report. *Psychopharmacology Bulletin*, *9*(1), 13–28. Retrieved from

http://www.ncbi.nlm.nih.gov/pubmed/4682398

Dick, D. M., Nasim, A., Edwards, A. C., Salvatore, J. E., Cho, S. B., Adkins, A., … Kendler, K. S. (2014). Spit for Science: Launching a longitudinal study of genetic and environmental influences on substance use and emotional health at a large US university. *Frontiers in Genetics*, *5*(MAR). https://doi.org/10.3389/fgene.2014.00047

Dixon, S. K., Kurpius, S. E. R., Abouserie, R., Abramson, L., Metalsky, G., Alloy, L., … Zuckerman, D. M. (2008). Depression and College Stress Among University Undergraduates: Do Mattering and Self-Esteem Make a Difference? *Journal of College Student Development*, *49*(5), 412–424. https://doi.org/10.1353/csd.0.0024

Eisenberg, D., Gollust, S. E., Golberstein, E., & Hefner, J. L. (2007). Prevalence and correlates of depression, anxiety, and suicidality among university students. *The American Journal of Orthopsychiatry*, *77*(4), 534–542. https://doi.org/10.1037/0002-9432.77.4.534

Eisenberg, D., Hunt, J., & Speer, N. (2013). Mental health in American colleges and universities: variation across student subgroups and across campuses. *The Journal of Nervous and Mental Disease*, *201*(1), 60–7. https://doi.org/10.1097/NMD.0b013e31827ab077

Falconnier, L. (2009). Socioeconomic status in the treatment of depression. *The American Journal of Orthopsychiatry*, *79*(2), 148–158. https://doi.org/10.1037/a0015469

Gilman, S. E., Kawachi, I., Fitzmaurice, G. M., & Buka, S. L. (2002). Socioeconomic status in childhood and the lifetime risk of major depression. *International Journal of Epidemiology*, *31*(2), 359–67. https://doi.org/10.1093/IJE/31.2.359

Gray, M. J., Litz, B. T., Hsu, J. L., & Lombardo, T. W. (2004). Psychometric Properties of the Life Events Checklist. *Assessment*, *11*(4), 330–341. https://doi.org/10.1177/1073191104269954

Haberstick, B. C., Boardman, J. D., Wagner, B., Smolen, A., Hewitt, J. K., Killeya-Jones, L. A., … Harris, K. M. (2016). Depression, stressful life events, and the impact of variation in the serotonin transporter: Findings from the national longitudinal study of adolescent to adult health (Add Health). *PLoS ONE*, *11*(3), e0148373. https://doi.org/10.1371/journal.pone.0148373

Hammen, C., Kim, E. Y., Eberhart, N. K., & Brennan, P. A. (2009). Chronic and acute stress and the prediction of major depression in women. *Depression and Anxiety*, *26*(8), 718–723. https://doi.org/10.1002/da.20571

Hatch, S. L., & Dohrenwend, B. P. (2007). Distribution of Traumatic and Other Stressful Life Events by Race/Ethnicity, Gender, SES and Age: A Review of the Research. *American Journal of Community Psychology*, *40*(3–4), 313–332. https://doi.org/10.1007/s10464-007-9134-z

Hatzenbuehler, M. L., Phelan, J. C., & Link, B. G. (2013). Stigma as a fundamental cause of population health inequalities. *American Journal of Public Health*, *103*(5), 813–21. https://doi.org/10.2105/AJPH.2012.301069

Hays, R. D., Sherbourne, C. D., & Mazel, R. M. (1995). User's Manual for the Medical Outcomes Study (MOS) Core Measures of Health-Related Quality of Life. RAND

Corporation. Retrieved from https://www.rand.org/pubs/monograph_reports/MR162.html

Hefner, J., & Eisenberg, D. (2009). Social support and mental health among college students. *The American Journal of Orthopsychiatry*, *79*(4), 491–499. https://doi.org/10.1037/a0016918

Herman, S., Archambeau, O. G., Deliramich, A. N., Kim, B. S. K., Chiu, P. H., & Frueh, B. C. (2011). Depressive Symptoms and Mental Health Treatment in an Ethnoracially Diverse College Student Sample. *Journal of American College Health*, *59*(8), 715–720. https://doi.org/10.1080/07448481.2010.529625

Hinton, L., Zweifach, M., Tang, L., Unützer, J., & Oishi, S. (2006). Gender Disparities in the Treatment of Late-Life Depression: Qualitative and Quantitative Findings From the IMPACT Trial. *The American Journal of Geriatric Psychiatry*, *14*(10), 884–892. https://doi.org/10.1097/01.JGP.0000219282.32915.a4

Hunt, J., & Eisenberg, D. (2010). Mental Health Problems and Help-Seeking Behavior Among College Students. *Journal of Adolescent Health*. https://doi.org/10.1016/j.jadohealth.2009.08.008

Hurst, C. S., Baranik, L. E., & Daniel, F. (2012). College Student Stressors: A Review of the Qualitative Research. *Stress and Health*, *29*(4), n/a-n/a. https://doi.org/10.1002/smi.2465

Huurre, T., Eerola, M., Rahkonen, O., & Aro, H. (2007). Does social support affect the relationship between socioeconomic status and depression? A longitudinal study from adolescence to adulthood. *Journal of Affective Disorders*, *100*(1–3), 55–64. https://doi.org/10.1016/j.jad.2006.09.019

Ibrahim, A. K., Kelly, S. J., Adams, C. E., & Glazebrook, C. (2013). A systematic review of studies of depression prevalence in university students. *Journal of Psychiatric Research*, *47*(3), 391–400. https://doi.org/10.1016/j.jpsychires.2012.11.015

Jenkins, S. R., Belanger, A., Connally, M. L., Boals, A., & Durõn, K. M. (2013). First-generation undergraduate students' social support, depression, and life satisfaction. *Journal of College Counseling*, *16*(2), 129–142. https://doi.org/10.1002/j.2161-1882.2013.00032.x

John, D. A., de Castro, A. B., Martin, D. P., Duran, B., & Takeuchi, D. T. (2012). Does an immigrant health paradox exist among Asian Americans? Associations of nativity and occupational class with self-rated health and mental disorders. *Social Science and Medicine*, *75*(12), 2085–2098. https://doi.org/10.1016/j.socscimed.2012.01.035

Jorm, A. F., Korten, A. E., Rodgers, B., Jacomb, P. A., & Christensen, H. (2002). Sexual orientation and mental health: results from a community survey of young and middle-aged adults. *The British Journal of Psychiatry*, *180*(5), 423–427. https://doi.org/10.1192/bjp.180.5.423

Kendler, K. S., & Gardner, C. O. (2016). Depressive vulnerability, stressful life events and episode onset of major depression: a longitudinal model. *Psychological Medicine*, 1–10. https://doi.org/10.1017/S0033291716000349

Kendler, K. S., Karkowski, L. M., & Prescott, C. A. (1999). Causal Relationship Between Stressful Life Events and the Onset of Major Depression. *Psychiatry Interpersonal and*

Biological Processes, *156*(June), 837–841. https://doi.org/10.1176/ajp.156.6.837

Kessler, R. C., Berglund, P., Demler, O., Jin, R., Koretz, D., Merikangas, K. R., … National
   Comorbidity Survey Replication. (2003). The Epidemiology of Major Depressive Disorder.
   JAMA, *289*(23), 3095. https://doi.org/10.1001/jama.289.23.3095

Kessler, R. C., & Essex, M. (1982). Marital status and depression: The role of coping resources.
   Social Forces, *11*(61), 484–507. Retrieved from
   http://web.b.ebscohost.com.proxy.library.vcu.edu/ehost/detail/detail?vid=0&sid=f8a08d23-
   c84f-4428-8cb8-
   45b02eb10147%40sessionmgr102&bdata=JkF1dGhUeXBlPWlwLHVybCxjb29raWUsdWl
   kJnNpdGU9ZWhvc3QtbGl2ZSZzY29wZT1zaXRl#AN=5291327&db=mth

Kessler, R. C., McGonagle, K. A., Swartz, M., Blazer, D. G., & Nelson, C. B. (1993). Sex and
   depression in the National Comorbidity Survey I: Lifetime prevalence, chronicity and
   recurrence. *Journal of Affective Disorders*, *29*(2–3), 85–96. https://doi.org/10.1016/0165-
   0327(93)90026-G

Keyes, C. L. M. (2009). The black-white paradox in health: Flourishing in the face of social
   inequality and discrimination. *Journal of Personality*, *77*(6), 1677–1706.
   https://doi.org/10.1111/j.1467-6494.2009.00597.x

King, M., Semlyen, J., Tai, S. S., Killaspy, H., Osborn, D., Popelyuk, D., & Nazareth, I. (2008).
   A systematic review of mental disorder, suicide, and deliberate self harm in lesbian, gay and
   bisexual people. *BMC Psychiatry*, *8*, 70. https://doi.org/10.1186/1471-244X-8-70

Lewis, R. J., Derlega, V. J., Brown, D., Rose, S., & Henson, J. M. (2009). Sexual Minority
   Stress, Depressive Symptoms, and Sexual Orientation Conflict: Focus on the Experiences of
   Bisexuals. *Journal of Social and Clinical Psychology*, *28*(8), 971–992.
   https://doi.org/10.1521/jscp.2009.28.8.971

Lincoln, K. D., Abdou, C. M., & Lloyd, D. (2014). Race and Socioeconomic Differences in
   Obesity and Depression among Black and Non-Hispanic White Americans. *Journal of
   Health Care for the Poor and Underserved*, *25*(1), 257–275.
   https://doi.org/10.1353/hpu.2014.0038

Link, B. G., & Phelan, J. (1995). Social Conditions As Fundamental Causes of Disease. *Journal
   of Health and Social Behavior*, *35*, 80. https://doi.org/10.2307/2626958

Lorant, V., Croux, C., Weich, S., Deliège, D., Ansseau, M., Weich, S. T., … Delie, D. (2007).
   Depression and socio-economic risk factors : 7-year longitudinal population study. *The
   British Journal of Psychiatry*, *190*(4), 293–298. https://doi.org/10.1192/bjp.bp.105.020040

Lorant, V., Deliège, D., Eaton, W., Robert, A., Philippot, P., & Ansseau, M. (2003).
   Socioeconomic inequalities in depression: a meta-analysis. *American Journal of
   Epidemiology*, *157*(2), 98–112. https://doi.org/10.1093/AJE/KWF182

Markides, K. S., & Coreil, J. (1986). The health of Hispanics in the southwestern United States:
   an epidemiologic paradox. *Public Health Reports*, *101*(3), 253–265.
   https://doi.org/10.1016/j.annepidem.2007.09.002

Martin, L. A., Neighbors, H. W., & Griffith, D. M. (2013). The Experience of Symptoms of

Depression in Men vs Women. *JAMA Psychiatry*, *70*(10), 1100. https://doi.org/10.1001/jamapsychiatry.2013.1985

Mays, V. M., & Cochran, S. D. (2001). Mental health correlates of perceived discrimination among lesbian, gay, and bisexual adults in the United States. *American Journal of Public Health*, *91*(11), 1869–76. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/11684618

McClain, S., Beasley, S. T., Jones, B., Awosogba, O., Jackson, S., & Cokley, K. (2016). An Examination of the Impact of Racial and Ethnic Identity, Impostor Feelings, and Minority Status Stress on the Mental Health of Black College Students. *Journal of Multicultural Counseling and Development*, *44*(2), 101–117. https://doi.org/10.1002/jmcd.12040

Menselson, T., Rehkopf, D. H., & Kubzansky, L. D. (2008). Depression among Latinos in the United States: a meta-analytic review. *Journal of Consulting and Clinical Psychology*, *76*(3), 355–366. https://doi.org/10.1037/0022-006X.76.3.355

Meyer, I. H. (2003). Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: Conceptual issues and research evidence. *Psychological Bulletin*, *129*(5), 674–697. https://doi.org/10.1037/0033-2909.129.5.674

Miech, R. A., & Hauser, R. M. (2001). Socioeconomic status and health at midlife: A comparison of educational attainment with occupation-based Indicators. *Annals of Epidemiology*, *11*(2), 75–84. https://doi.org/10.1016/S1047-2797(00)00079-X

Mojtabai, R. (2009). Unmet Need for Treatment of Major Depression in the United States. *Psychiatric Services*, *60*(3), 297–305. https://doi.org/10.1176/ps.2009.60.3.297

Mouzon, D. M. (2013). Can family relationships explain the race paradox in mental health? *Journal of Marriage and Family*, *75*(2), 470–485. https://doi.org/10.1111/jomf.12006

Mouzon, D. M. (2014). Relationships of choice: Can friendships or fictive kinships explain the race paradox in mental health? *Social Science Research*, *44*, 32–43. https://doi.org/10.1016/j.ssresearch.2013.10.007

Müller, J. M., Postert, C., Beyer, T., Furniss, T., & Achtergarde, S. (2010). Comparison of eleven short versions of the symptom checklist 90-Revised (SCL-90-R) for use in the assessment of general psychopathology. *Journal of Psychopathology and Behavioral Assessment*, *32*(2), 246–254. https://doi.org/10.1007/s10862-009-9141-5

Okazaki, S., & Sumie. (1997). Sources of ethnic differences between Asian American and White American college students on measures of depression and social anxiety. *Journal of Abnormal Psychology*, *106*(1), 52–60. https://doi.org/10.1037/0021-843X.106.1.52

Padgett, R. D., Johnson, M. P., & Pascarella, E. T. (2012). First-Generation Undergraduate Students and the Impacts of the First Year of College: Additional Evidence. *Journal of College Student Development*, *53*(2), 243–266. https://doi.org/10.1353/csd.2012.0032

Pearlin, L. I., Schieman, S., Fazio, E. M., & Meersman, S. C. (2005). Stress, Health, and the Life Course: Some Conceptual Perspectives*. *Journal of Health and Social Behavior*, *46*, 205–219.

Perreira, K. M., & Sloan, F. A. (2001). Life events and alcohol consumption among mature adults: a longitudinal analysis. *Journal of Studies on Alcohol*, *62*(4), 501–508. https://doi.org/10.15288/jsa.2001.62.501

Phelan, J. C., & Link, B. G. (2005). Controlling Disease and Creating Disparities: A Fundamental Cause Perspective. *The Journals of Gerontology: Series B*, *60*(Special_Issue_2), S27–S33. https://doi.org/10.1093/geronb/60.Special_Issue_2.S27

Phelan, J. C., Link, B. G., & Tehranifar, P. (2010). Social conditions as fundamental causes of health inequalities: theory, evidence, and policy implications. *Journal of Health and Social Behavior*, *51 Suppl*(1 suppl), S28-40. https://doi.org/10.1177/0022146510383498

Plant, E. A., & Sachs-Ericsson, N. (2004). Racial and ethnic differences in depression: the roles of social support and meeting basic needs. *Journal of Consulting and Clinical Psychology*, *72*(1), 41–52. https://doi.org/10.1037/0022-006X.72.1.41

Post, R. M. (1992, August). Transduction of psychosocial stress into the neurobiology of recurrent affective disorder. *American Journal of Psychiatry*. American Psychiatric Publishing. https://doi.org/10.1176/ajp.149.8.999

Prince, M., Patel, V., Saxena, S., Maj, M., Maselko, J., Phillips, M. R., & Rahman, A. (2007). No health without mental health. *The Lancet*, *370*. https://doi.org/10.1016/S0140

Proctor, B. D., Semega, J. L., & Kollar, M. A. (2016). *Income and Poverty in the United States : 2015 Current Population Reports*. *Current Population Reports* (Vol. P60–256(RV). Washington DC

Rosenfield, S., & Smith, D. (2010). Gender and mental health: Do men and women have different amounts or types of problems. *A handbook for the study of mental health: Social contexts, theories, and systems*, 256-267.

Ryan, C., Russell, S. T., Huebner, D., Diaz, R., & Sanchez, J. (2010). Family acceptance in adolescence and the health of LGBT young adults. *Journal of Child and Adolescent Psychiatric Nursing*, *23*(4), 205–213. https://doi.org/10.1111/j.1744-6171.2010.00246.x

Sarenmalm, E. K., Browall, M., Persson, L.-O., Fall-Dickson, J., & Gaston-Johansson, F. (2013). Relationship of sense of coherence to stressful events, coping strategies, health status, and quality of life in women with breast cancer. *Psycho-Oncology*, *22*(1), 20–27. https://doi.org/10.1002/pon.2053

Shapero, B. G., Black, S. K., Liu, R. T., Klugman, J., Bender, R. E., Abramson, L. Y., & Alloy, L. B. (2014). Stressful life events and depression symptoms: the effect of childhood emotional abuse on stress reactivity. *Journal of clinical psychology*, *70*(3), 209-223.

Shavers, V. L. (2007). Measurement of socioeconomic status in health disparities research. *Journal of the National Medical Association*, *99*(9), 1013–23. https://doi.org/10.1037/e518882014-001

Sirin, S. R. (2005). Socioeconomic status and academic achievement: A meta-analytic review of research. *Review of Educational Research*, *75*(3), 417–453. https://doi.org/http://dx.doi.org/10.3102/00346543075003417

Smolderen, K. G., Spertus, J. A., Reid, K. J., Buchanan, D. M., Krumholz, H. M., Denollet, J., … Chan, P. S. (2009). The association of cognitive and somatic depressive symptoms with depression recognition and outcomes after myocardial infarction. *Circulation: Cardiovascular Quality and Outcomes*, *2*(4), 328–337. https://doi.org/10.1161/CIRCOUTCOMES.109.868588

Snapp, S. D., Watson, R. J., Russell, S. T., Diaz, R. M., & Ryan, C. (2015). Social Support Networks for LGBT Young Adults: Low Cost Strategies for Positive Adjustment. *Family Relations*, *64*(3), 420–430. https://doi.org/10.1111/fare.12124

Stroud, C. B., Davila, J., & Moyer, A. (2008). The Relationship Between Stress and Depression in First Onsets Versus Recurrences: A Meta-Analytic Review. *Journal of Abnormal Psychology*, *117*(1), 206–213. https://doi.org/10.1037/0021-843X.117.1.206

Taylor, J., & Turner, R. J. (2002). Perceived Discrimination, Social Stress, and Depression in the Transition to Adulthood: Racial Contrasts. *Social Psychology Quarterly*, *65*(3), 213. https://doi.org/10.2307/3090120

Utsey, S. O., Giesbrecht, N., Hook, J., & Stanard, P. M. (2008). Cultural, sociofamilial, and psychological resources that inhibit psychological distress in African Americans exposed to stressful life events and race-related stress. *Journal of Counseling Psychology*, *55*(1), 49–62. https://doi.org/10.1037/0022-0167.55.1.49

Vinkers, C. H., Joels, M., Milaneschi, Y., Kahn, R. S., Penninx, B. W. J. H., & Boks, M. P. M. (2014). Stress exposure across the life span cumulatively increases depression risk and is moderated by neuroticism. *Depression and Anxiety*, *31*(9), 737–745. https://doi.org/10.1002/da.22262

Vrshek-Schallhorn, S., Stroud, C., College, W., Mineka, S., Hammen, C., Zinbarg, R., … Craske, M. (2015). Chronic and Episodic Interpersonal Stress as Statistically Unique Predictors of Depression in Two Samples of Emerging Adults. *Abnormal Psychology*, *124*(4), 918–932. https://doi.org/10.1037/abn0000088

Walker, R. L., Wingate, L. R., Obasi, E. M., & Joiner, T. E. (2008). An empirical investigation of acculturative stress and ethnic identity as moderators for depression and suicidal ideation in college students. *Cultural Diversity and Ethnic Minority Psychology*, *14*(1), 75–82. https://doi.org/10.1037/1099-9809.14.1.75

Wang, J. L., Schmitz, N., & Dewa, C. S. (2010). Socioeconomic status and the risk of major depression: the Canadian National Population. *Source Journal of Epidemiology and Community Health*, *64*(5), 447–452. Retrieved from http://www.jstor.org/stable/20721221

Wang, X., Cai, L., Qian, J., & Peng, J. (2014). Social support moderates stress effects on depression. *Internationa Journal of Mental Health Systems*, *8*(1), 1–5. https://doi.org/10.1186/1752-4458-8-41

Westefeld, J. S., Maples, M. R., Buford, B., & Taylor, S. (2001). Gay, Lesbian, and Bisexual College Students. *Journal of College Student Psychotherapy*, *15*(3), 71–82. https://doi.org/10.1300/J035v15n03_06

Williams, D. R., González, H. M., Neighbors, H., Nesse, R., Abelson, J. M., Sweetman, J., & Jackson, J. S. (2007). Prevalence and distribution of major depressive disorder in African Americans, Caribbean blacks, and non-Hispanic whites: results from the National Survey of American Life. *Archives of General Psychiatry*, *64*(3), 305–15. https://doi.org/10.1001/archpsyc.64.3.305

Williams, D. R., Takeuchi, D. T., & Adair, R. K. (1992). Socioeconomic status and psychiatric disorder among Blacks and Whites. *Social Forces*, *71*(1), 179–194. https://doi.org/10.1093/sf/71.1.179

Zimmerman, F. J., & Katon, W. (2005). Socioeconomic status, depression disparities, and financial strain: What lies behind the income-depression relationship? *Health Economics*, *14*(12), 1197–1215. https://doi.org/10.1002/hec.1011