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The Relation Between Social Support and College Students' Depression: Integrating Main and Stress-Buffering Effects Across Socioeconomic Statuses

Committee:

Christopher J. McCarthy, Supervisor

Keisha Bentley-Edwards

Charles J. Holahan

Keenan Pituch

Mary Steinhardt

The Relation Between Social Support and College Students' Depression: Integrating Main and Stress-Buffering Effects Across Socioeconomic Statuses

by

Elizabeth Wiginton Crowe, B.S.

Dissertation

Presented to the Faculty of the Graduate School of

The University of Texas at Austin

in Partial Fulfillment

of the Requirements

for the Degree of

Doctor of Philosophy

The University of Texas at Austin

August 2016

Acknowledgements

As I reach the end of my time as a Ph.D. student, I am struck by the fact that these six years have been the happiest of my life thus far. I attribute this to the many hilarious, insightful, kind, and encouraging people who have helped me navigate this journey. I am so fortunate to know you.

To Dr. Chris McCarthy, you have always been good-natured and supportive while also holding me accountable. Thank you for being a trustworthy mentor, hiring me as a TA more times than I ever could have dreamed, and enthusiastically quoting "The Office" almost as much as I do. I also owe thanks to Dr. Rude, Dr. Ainslie, Dr. Rochlen, and other Counseling Psychology faculty who have supported me in various ways during my time at UT.

To my beloved cohort, what would I have done without you? Thank you for being so funny and wise. I admire you and am so excited about all of your successes. To other friends - from graduate school and otherwise - thank you for your attentiveness and humor, and for truly knowing and appreciating me. Being connected to you, near or far, has benefited me immeasurably.

To Adam, thank you for being such a sweet and supportive partner. You are the most well-rounded person I know, and I appreciate you for encouraging me to work when I need to work and for distracting me when I need a distraction. I admire you immensely for your earnest approach to finding your own career path. Thank you for reassuring, supporting, and comforting me along mine.

And to my family, I cannot say thank you enough. Mandy, I have truly appreciated your professional advice, always with a funny spin, and your critical eye for research and academic writing. Pops and Gretchen, thank you for always looking for ways to ease my load (and Cooper and Rosie's). I have felt so supported by you. Mom and David, there are no words to describe how much comfort you have brought me. Getting to spend so much time with you has fed my soul.

The Relation Between Social Support and College Students' Depression: Integrating Main and Stress-Buffering Effects Across Socioeconomic Statuses

Elizabeth Wiginton Crowe, Ph.D.

The University of Texas at Austin, 2016

Supervisor: Christopher McCarthy

Research consistently shows a negative association between socioeconomic status (SES) and depression. Equally well-established is the contribution of social support to positive outcomes. Though the intersection of these constructs has been empirically examined, their interrelations remain unclear. The goal of this dissertation was to contribute to research on socioeconomic status (SES) and social support in college students. Conditional process analysis (i.e., moderated mediation) was used to explore: 1) whether perceived social support mediates the relation between network diversity and depression; and 2) whether family affluence, subjective social class, and first-generation status moderate the relation between both types of social support and depression. As hypothesized, perceived support and network diversity were negatively correlated with depressive symptoms, and SES indicators (with the exception of generation status) were positively correlated with depressive symptoms. Contrary to hypotheses, network diversity had a positive direct effect on depression. However, the results did suggest that

network diversity has a negative indirect effect on depression via perceived support. Though the SES indicators correlated with depressive symptoms, they were not found to directly affect depression in the regression models. Additionally, the SES indicators did not moderate the relation between perceived support and depression or between network diversity and depression. Based on this pattern of results, it was concluded that network diversity, a type of structural support, may not be unequivocally beneficial, as is often assumed in research. Therefore, it is suggested that future studies include measures of the quality of social relationships as mediators between measures of structural support and mental health outcomes. With regard to the nonsignificant effects of SES and lack of moderation between social support and SES, it was proposed that college students may be protected from some of the stressful aspects of being of low SES. The difficulty in designing robust, generalizable research on SES and social support is also discussed. In an effort to establish consistency in the literature on these important constructs, future researchers should be intentional about how they operationalize and measure SES and social support.

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Chapter One: Introduction

Socioeconomic inequality in the United States has received considerable media attention in recent years. The financial disparity between socioeconomic groups is frequently referenced as existing between the top one percent and the remainder of the country's citizens (Congressional Bureau Office, 2007). While the distribution of wealth disproportionately favors a very small percentage of the population, it is not the case that all but the few wealthiest are on equal footing. Instead, research suggests that the association between socioeconomic status (SES) and well-being is linear; increases in SES are associated with decreases in health at any point along the socioeconomic continuum (Adler & Snibbe, 2003; Gallo, de los Monteros, & Shivpuri, 2009; Huurre, Eerola, Rahkonen, & Aro, 2007).

Not surprisingly, the consequences of belonging to lower socioeconomic groups have also gained public attention. Researchers and journalists alike have increasingly recognized notable rates of obesity, heart disease, high blood pressure, diabetes, and other health problems in low-SES groups (e.g., Goode, 1999; Gorman & Sivaganesan, 2007). Though physical health trends tend to be at the forefront of public health conversations, there are also significant disparities in mental health (Fryers, Melzer, & Jenkins, 2003; Lahelma, Laaksonen, Martikainen, Rahkonen, Sarlio-Lahteenkorva, 2006; Lin, Ye, & Ensel, 1999; Lorant et al., 2003).

Given the repeated findings solidifying the correlation between SES and health, research has shifted from demonstrating that there is a relationship between SES and health to exploring why this relationship exists (Adler & Snibbe, 2003; Kendzor et al., 2009; Taylor & Seeman, 1999; Turner & Marino, 1994). Numerous factors contribute to the relation between social class and health, with limited education and access to healthcare being among the most cited explanatory variables (Goode, 1999). In addition to these systemic-level barriers to health equality, those in low-SES groups likely experience higher levels of both daily and chronic stress, which takes a toll on mental and physical health (Pearlin, Lieberman, Menaghan, & Mullan, 1981; Turner & Lloyd, 1999).

A recent publication in the New York Times, "Status and Stress," calls attention to the intersection between economic status, stress, and various health outcomes (Velasquez-Manoff, 2013). The article quotes neuroscientist Bruce McEwen as stating that "poverty gets under the skin;" the effects of having been reared in a low-income or otherwise economically under-resourced home have not only psychological and emotional, but also biological consequences. While researchers often treat physical health as the main outcome of interest, many have also explored the effects of social support and SES on mental health (e.g., Huurre et al., 2007; Lin et al., 1999; Miller & Taylor, 2011). Depression is often researchers' mental health outcome of choice; many people experience depressive symptoms, and it is a known to contributor to compromised physical health. One study examined a pathway in which being part of a low-SES group was found to increase stress, which decreased self-esteem and other beliefs about the self,

subsequently increasing stress-related symptoms like depression and physical problems (Turner & Lloyd, 1999).

One of the most salient factors contributing to the stress-related consequences of being of low SES is the limited access to a wide range of different types of resources, including social support. Positive correlations between SES and social support and between social support and favorable health outcomes are well-established (Hefner & Eisenberg, 2009; Stokes, 1985; Thoits, 2011; Ueno, 2005). Exploring the intersection of social support, SES, and health is complicated, however, by the complex nature of these constructs. Researchers have grappled with the study of social support for decades, resulting in a few important distinctions that serve to clarify and guide social support research.

One long-standing method of organizing social support is the distinction between structural support, or the number and characteristics of network ties, and functional support, such as received and perceived support (Kawachi & Berkman, 2001; Thoits, 1995). The mechanisms by which structural and functional support operate are predominantly described as either exhibiting main or stress-buffering effects (Cohen & Wills, 1985). Respectively, these terms reference the hypotheses that social support fosters an overall sense of well-being in life, which creates benefit regardless of one's stress level, and the possibility that social support is beneficial insofar as it is activated by stress (Barrera, 1986; Cohen & Wills, 1985). The protective nature of functional social support is often described as being contingent upon stress level, while structural forms of

support are typically assumed to operate via main effects (Cohen & Wills, 1985); however, as research continues, these traditional assumptions are being refined (Bolger & Eckenrode, 1991; Thoits, 2011).

The hypothesis that structural social support has main effects on mental and physical health has elicited attempts to clarify factors explaining this robust relation. Similar to the previously mentioned trend in SES research, social support researchers have called for a shift from demonstrating that there is a relation between social support and positive outcomes to exploring why this relation exists. Social influence and social comparison, social control, a sense of mattering (Berkman et al., 2000; Brissette, Cohen, & Seeman, 2000), and self-esteem (Turner & Lloyd, 1999), among others, have been proposed as potential explanatory factors for the relations between social ties and health outcomes.

The current study explored the possibility that perceived support, the most studied and consistently beneficial type of functional support, is one of the factors explaining the benefit of having a social network. This hypothesis rests on the notion that structural social support provides a framework upon which functional social support is contingent and for which functional social support is a conduit of benefit (Thoits, 2011). Surprisingly, however, the role of functional social support in explaining the benefits of structural support has been relatively understudied (Berkman et al., 2000; Lin et al., 1999; Thoits, 2011). Because of the presumably inherent relation between structural and

functional support, the lack of consensus regarding whether they work together to enhance well-being is compelling and worthy of further study.

Similarly, research exploring whether social support operates differently across socioeconomic standings has produced mixed findings (e.g., Gallo & Matthews, 2003; Huurre et al., 2007; Schollgen, Huxhold, Schulz, & Tesch-Romer, 2011; Vitaliano et al., 2001). Many researchers have hypothesized that an increase in social resources enhances the well-being of low-SES individuals to a greater degree than high-SES individuals; however, only some findings support the assertion that social support operates differently across SES. As mentioned above, this inconsistency may be due to variance in the operationalization and measurement of social support and SES, the inherent difficulty generalizing these complex constructs across contexts, or both.

Despite the widely documented benefits of social support and detriments of coming from a low-SES background, a limited number of studies have explicitly considered the role of these constructs in the mental health of college students (Hefner & Eisenberg, 2009). Among multiple changes marked by the transition to college is the inherent shift in one's social network, both structurally and in terms of functional quality (Hirsch, 1979), making social support a particularly relevant construct during this period in one's life. Likewise, evidence consistently points to a less fulfilling college experience for first-generation and low-income students, as manifested by higher rates of anxiety, depression, attrition, and other mental and academic consequences (Aries & Seider, 2005;

Eisenberg, Gollust, Golberstein, & Hefner, 2007; Granfield, 1991; Ostrove, 2007; Pillay & Ngcobo, 2010; Towbes & Cohen, 1996; Walpole, 2003).

In sum, the current study addressed multiple unresolved issues in current research on social support, SES, and depression in college students. First, this investigation sought to contribute to the body of literature regarding the experience of lower-SES college students, highlighting the importance of treating different aspects of SES separately (i.e., first-generation versus family affluence versus subjective social class). Second, the potential for social support to serve a protective role against depression in college students, especially those from low-SES families, merits further investigation. Finally, the degree to which structural and functional support operate in conjunction with one another is unresolved; to better elucidate the relation between these constructs is an important step in increasing the psychological well-being of college students.

Chapter Two: Literature Review

The following literature review provides support for a proposed model including relations among socioeconomic indicators, different types of social support, and depression. It will serve to summarize: 1) findings regarding the robust relation between low-SES and negative mental and physical health outcomes; 2) the state of social support literature, including the distinction between various types of social support and their relative efficacy in protecting against negative outcomes; and 3) the relevance of the two aforementioned constructs to understanding depression in college students.

Depression and Socioeconomic Status

The relation between SES and negative health outcomes is widely acknowledged, sometimes described as existing on a gradient in which each decrease in level of SES corresponds to an increase in poor health outcomes (Adler & Snibbe, 2003; Gallo et al., 2009; Huurre et al., 2007). Because of the strength of this association, the deleterious effects of SES on both physical and emotional health have been widely studied (Grzywacz, Almeida, Neupert, & Ettner, 2004; Lorant et al., 2003; Lin, et al., 1999; Turner & Lloyd, 1999). While a negative correlation undoubtedly exists between SES and severe mental disorders and mortality, this correlation also exists for more common forms of psychological distress, such as anxiety and depressive symptomatology (Fryers et al., 2003; Lahelma et al., 2006; Lin et al., 1999; Lorant et al., 2003).

When statistically controlling for demographics that typically confound the examination of SES, such as race and ethnicity, low-SES remains predictive of depressive symptomatology (Jackson & Goodman, 2011). In a study on the relation between SES and common mental disorders in middle-aged individuals, lower household income and economic difficulty in childhood were both correlated with higher levels of mental distress; even after adjusting for current SES indicators, the significant effects of childhood SES remained (Lahelma et al., 2006). Further, individuals with parents of both lower education and lower income exhibited significantly higher levels of depression, with each incremental increase in income and education corresponding to a decrease in depressive symptoms. The impact of one's SES during his or her upbringing is profound, and stands even when confounds are controlled.

One basic way of understanding the risk of mental health difficulties in low-SES populations is that these individuals are typically exposed to more stressors, both day-to-day and chronic in nature (Gallo & Matthews, 2003; Hobfoll, 1989; Pearlin et al., 1981; Turner & Lloyd, 1999). Proposed by Pearlin (1981), the stress process provides a guide for exploring how these stressful experiences are translated into stress-related outcomes (Turner & Lloyd, 1999). The stress process refers to a path in which stressful life events and chronic strain decrease one's sense of personal adequacy and his or her self-concept, which increase symptoms of stress such as depression (Pearlin et al., 1981). Turner and Lloyd suggest that this process is necessarily informed by a person's social standing, be it gender, age, or SES. In their exploration of the stress process in low-SES individuals,

these researchers identify increased powerlessness, increased hostility, lower self-esteem, and compromised mastery (i.e., self-efficacy) as consequences of low-SES individuals' limited resources and contributions to depressive symptomatology (Adler & Snibbe, 2003; Turner & Lloyd, 1999).

Social Support: Subtypes and Mechanisms

Researchers on the stress process have explored the influence of not only intrapersonal constructs, such as self-esteem and mastery (Turner & Lloyd, 1999), but also the role of psychosocial constructs, such as social support and social distrust. Nonetheless, conclusions about the role of social support in mental and physical health remain elusive. This is largely due to the expansiveness of and variation within the social support construct (Adler & Snibbe, 2003; Huurre et al., 2007). Researchers have identified many types of social support, and there is empirical inconsistency regarding the benefits of these subtypes and the mechanisms through which they operate. As a result, social support experts urge researchers to tailor the operationalization and measurement of social support closely to the research questions at hand, as opposed to treating social support as a global construct (Barrera, 1986; Cohen, Gottlieb, & Underwood, 2000). One helpful distinction used by many researchers is the classification of social support as either structural or functional (Hefner & Eisenberg, 2009; Thoits, 1995; See Table 1).

Structural social support refers most generally to the "mere existence or quantity of social relationships" (Cohen & Wills, 1985). This construct is operationalized in a

variety of ways, including not only the number of people in a person's social network, but also the characteristics of that network (e.g., how many people in the network are relatives, how interconnected the people in the network are), a person's degree of engagement in social activities, and the number and type of social roles a person fills (e.g., a person could be a mother figure, a friend, a daughter, and a manager) (Cohen et al., 2000; Hirsch, 1980; Thoits, 2011). Social integration is a widely studied indicator of structural social support that has been defined as "the extent to which an individual participates in a broad range of social relationships" (Brissette, Cohen, & Seeman, p.85). Participation in a variety of social roles has consistently shown to be beneficial to mental and physical health (e.g., Bolger & Eckenrode, 1991; Cohen & Wills, 1985; Cohen et al., 1997).

Whereas structural support refers to aspects of the social environment like the size or diversity of one's social network, functional support refers to emotional and material resources made available by relationships (Cohen & Hoberman, 1983; Cohen & Wills, 1985; See Table 1). Perceived support and received support are two types of functional social support (Cohen & Wills, 1985), and they are often categorized into specific subtypes, such as esteem/emotional, instrumental, tangible, information/appraisal, and social companionship types of support (Lin et al, 1999). Esteem support refers to feeling valued and receiving love, care, and encouragement from others; instrumental support refers to the perceived availability of tangible forms of help; information support refers to the perceived availability of help in understanding and managing stressful events; and

social companionship refers to a sense of belonging derived from being in relationships (Berkman et al., 2000; Cohen & Wills, 1985; Kawachi & Berkman, 2001; Thoits, 1995).

For example, Person A is a woman who reports having contact with 23 people in a given four to six week period, including family members, work colleagues, friends, and fellow church members. Her network size is 23. Her network diversity, or the number of different roles she fills, would be quantified as four (family member, work colleague, friend, and church member). If she believes that she could rely on any of these 23 individual to buy her a tank of gas, she could be said to perceive tangible support to be available.

Table 1

Structural Versus Functional Social Support

	Structural social support	Functional social support
Definition	Participation in social relationships, characteristics of those relationships	Tangible, emotional, and psychological provisions afforded by social relationships
Measure in current study	Network diversity	Perceived social support (composite of self-esteem, information, tangible, and belongingness)
Mechanism of operation	Main effects	Buffering effects

Perceived Support Versus Received Support

The most frequently studied type of functional social support is perceived support, or the nature and amount of support an individual believes to be accessible or available (Barrera, 1986). Another type of functional support is received support, or the degree to which an individual is a recipient of socially supportive behaviors (Tardy, 1985). Perceived support is considered to be a relatively stable construct, while received support varies across time and conditions; the former has been described as a cognitive construct and the latter as a behavioral one (Herzberg et al., 1999; Lindorff, 2000).

Studies have consistently shown a negative correlation between measures of perceived support and distress (e.g., Cohen & Wills, 1985; Gadalla, 2009; Wethington & Kessler, 1986). Researchers initially hypothesized that received support would show similar benefit; however, this has been repeatedly disconfirmed in the literature (e.g., Bolger, Zuckerman, & Kessler, 2000; Gorman & Sivaganesan, 2007; Lin et al., 1999; Lindorff, 2000).

One explanation for the lack of benefit of received support is that actions are helpful only if they address the specific needs of the situation (Bolger et al., 2000; Cohen, Gottlieb, & Underwood, 2000; Gorman & Sivaganesan, 2007; Lindorff, 2000). The mistmatch between the individual's need and the "supportive" behavior offered to them may lead to feelings of frustration instead of the relief intended by the provider of support. Other hypotheses include the possibility that being the recipient of support puts the recipient's self-efficacy into question or leads to feelings of indebtedness (Kawachi &

Berkman, 2001). The positive correlation between received support and distress may alsobe caused by a spurious factor, stressful life events, that leads to increases in both (Seidman, Shrout, & Bolger, 2006). Whatever the mechanism, the receipt of social support has been shown to correlate with strain, anxiety, and depression (Lindorff, 2000).

Some researchers initially hypothesized that an individual's perception of support is determined by whether/how frequently he or she received support in the past (Cohen et al., 2000; Wethington & Kessler, 1986). Given the discrepancy between the positive effects of perceived support and the negative consequences of received support, however, this is likely not the case. A meta-analysis conducted by Finch, Okun, Pool, and Ruehlman (1999) concluded that perceived and received support are separate constructs, citing for example differences in their effect sizes on mental health (r = .29 for perceived support, r =.12 for received support). In one study, the direct effect of perceived support on psychological distress remained significant even after the inclusion of received support in the statistical model, corroborating the possibility that perceived support operates separately from received support (Wethington & Kessler, 1986). In sum, perceived and received social support appear to be distinct entities and should, therefore, be treated as such in research (Cohen et al., 2000; Schwarzer et al., 1994; Thoits, 1995).

Based on these and other findings, perceived support can be seen as global and trait-like (Bolger & Eckenrode, 1991; Lakey et al., 2010; Schollgen et al., 2011; Schwarzer et al., 1994; Thoits, 1995). Some theoretical perspectives suggest that perceived support represents a stable, internalized cognitive framework, and "day to day

thoughts about social support are shaded to fit these preexisting beliefs" (Cohen et al., 2000, p. 37). Perceived support arguably reflects a person's beliefs about him or herself (e.g., as lovable, acceptable, and worthy of another making him or herself available) as opposed to reflecting a resource explicitly provided by other people (Lindorff, 2000).

Main Effects Versus Stress-buffering Effects

Along with the division of social support into categories such as structural and functional, social support is typically conceptualized as operating in one of two ways: through main or stress-buffering effects (Cohen & Wills, 1985; Cohen, 2004; See Table 1). The main effects hypothesis proposes that the presence of social support is beneficial regardless of an individual's level of stress. In contrast, the buffering effects model assumes that the degree to which social support is beneficial depends on a person's stress level. As noted in Table 1, research has most often suggested that structural support operates via main effects and functional support via stress-buffering effects (Cohen, 2004; Wills & Ainette, 2012).

Many researchers have found evidence substantiating the possibility that structural support directly affects well-being (e.g., Bolger & Eckenrode, 1991; Cohen, 2004; Cohen & Wills, 1985; Hefner & Eisenberg, 2009; Lin et al., 1999; Lindorff, 2000; Ueno, 2005). While the supportive resources that presumably arise from relationships may help explain the benefit of being in a social network, some argue that participating in social relationships has inherent value (e.g., Berkman et al., 2000; Cohen & Wills, 1985;

Lin et al., 1999). These researchers assert that being part of a social network provides an underlying level of stability and predictability in which self-worth is validated, positive experiences exist, and negative experiences are likely to be avoided (Cohen & Wills, 1985; Cohen, 2004; Lin, et al., 1999; Turner & Lloyd, 1999). Cohen (2004) explains that social integration exhibits main effects, independent of stress, because social integration "promotes positive psychological states (e.g., identity, purpose, self-worth, and positive affect)…provides information and is a source of motivation and social pressure to care for oneself." (p. 677). Not surprisingly, social isolation has been found to be a characteristic of many people with psychological distress (Hefner & Eisenberg, 2009; Thoits, 2011).

In terms of empirical support for the possibility that structural support has stress-buffering properties, findings are mixed. Some research has shown that the benefits of structural support are contingent upon stress level (e.g., Gorman & Sivaganesan, 2007; Schollgen et al., 2011), but many have shown no such interaction (e.g., Lin et al., 1999; Unger, McAvay, Bruce, Berkman, & Seeman, 1999). Additionally, others have shown that structural support exhibits both direct and stress-buffering properties (e.g., Bolger & Eckenrode, 1991).

Whether perceived support operates via main or stress-buffering effects is also unconfirmed. Given that perceived support appears to be a cognitive or affective-level coping resource (Lakey et al., 2010; Lindorff, 2000; Thoits, 1995), some research shows that it is beneficial regardless of an individual's exposure to stress (Lin et al., 1999;

Lindorff, 2000; Turner & Lloyd, 1999; Uchino, 1996). However, perceived support is typically viewed as exhibiting stress-buffering effects because it "eliminates or reduces effects of stressful experiences by promoting less threatening interpretations of adverse events and effective coping strategies" (Cohen, 2004, p. 677). In their extensive review of social support theory and measurement, Cohen and colleagues (2000) call upon the work of Lazarus and Folkman to support the hypothesis that functional support (i.e., perceived support) buffers the effects of stress.

Lazarus and Folkman (1984) propose a transactional model of stress, in which stress results from an individual's appraisal of both the demands of a situation and the availability of resources to manage said demand. If perceived demands outweigh perceived resources, the person will experience stress (Lazarus & Folkman, 1984). Thus, perceived support potentially exhibits stress-buffering properties because perceptions of support protect against stress by affecting the appraisal process (Cohen et al., 2000; Cohen & Wills, 1985).

Functional Support as a Mediator

Given the positive effect of structural social support on various mental health outcomes, such as depression, researchers have begun to explore the factors explaining this effect (e.g., Lin et al., 1999; Thoits, 2011). Several psychological mechanisms have been shown to significantly mediate the relation between types of structural support (e.g., network size, network diversity) and health outcomes. In one study, the association

between number of friends and depressive symptoms was significantly mediated by sense of belonging (Ueno, 2005). Another researcher hypothesized that the etiology of depression lies, in part, in self-esteem, which is determined largely by interpersonal relationships (Lin et al., 1999). Thus, it can be assumed that structural support protects against outcomes such as depression both directly and indirectly via psychological traits such as self-esteem and self-efficacy (Barnett & Gottlib, 1988; Cohen & Hoberman, 1983; Thoits, 1995).

It has also been suggested that structural support is beneficial because it makes available tangible, emotional, and other supportive resources (Cohen & Wills, 1985; Lin et al., 1999). As mentioned, however, the interrelation between structural and functional social support warrants more empirical attention. It is widely understood that structural and functional support are two distinct constructs, as research shows that they not highly correlated, but whether functional support explains the effects of structural social support operates has not been sufficiently elucidated (Lin et al., 1999; Thoits, 1995; Thoits, 2011; Ueno, 2005; Wills & Ainette, 2012). House (2001), commenting on a study confirming the correlation between social isolation and morbidity, argues that literature on social support "fails to evaluate the extent to which support or any other attribute…of relationships can account for the robust and substantial impact of social relationships on health" (p. 273).

Some researchers have taken on the task of addressing this gap, conceptualizing structural support and functional support as interlinked outer and inner layers of an

individual's social world (e.g., Berkman et al., 2000; Lin & Dean, 1984; Lin et al., 1999; Thoits, 2011). In a study including both structural and functional support measures, Turner and Marino (1994) suggest that the "basis for the higher levels of [perceived] social support…may be the higher levels of contact [participants] routinely have with both family and friends" (p. 204). Based on this logic, Lin et al. (1999) examined a model in which the direct effects of structural support were mediated by functional support. Their findings indicate that both structural and functional support have direct effects on depression, with functional support also mediating the relation between structural support and depression. Though Figure 1, adapted from Lin et al. (1999), includes constructs that are beyond the scope of the current study, it is helpful in clarifying the model proposed herein.

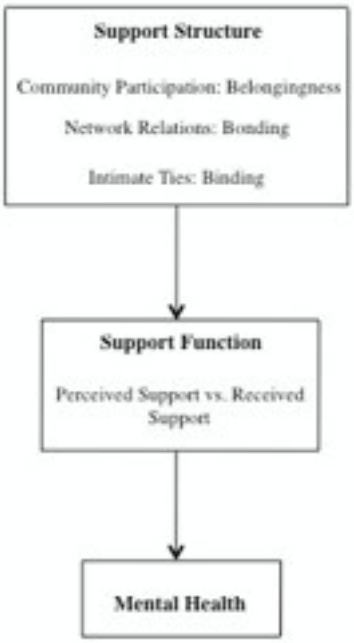


Figure 1. Support Structure, Support Function, and Mental Health

Social Support and Socioeconomic Status

Along with the evidence for a positive relation between SES and well-being is considerable evidence that low-SES individuals tend to experience less social support than do individuals from higher-status groups. Research has repeatedly shown that both structural and functional support negatively correlate with SES (e.g., Hefner & Eisenberg, 2009; Huurre et al., 2007; Ranchor et al., 1996; Rubin, 2011; Turner & Marino, 1994). Mickelson and Kubzansky (2003) acknowledge that it is sometimes assumed "that low-income individuals are more likely to have an extended kin system of support…due to cultural differences in family cohesiveness" (p. 265). However, assumptions based on these presumably tight-knit networks do not accurately reflect the limited social resources of many low-SES individuals (Mickelson & Kubzansky, 2003). Along with fewer positive aspects of social support, low-SES individuals experience more of its negative aspects, such as conflict, crowding, and crime (Adler & Snibbe, 2003; Mickelson & Kubzansky, 2003).

One model that has been set forth to clarify the relation between SES, social support, and health outcomes is Gallo and Matthews' reverse capacity model (2003). The reverse capacity model considers poor psychological health to be one step in the pathway toward morbidity and mortality (Gallo & Matthews, 2003). Much research on the deleterious effects of low-SES has focused on physical health outcomes such as cardiac failure and hypertension (e.g., Adler & Snibbe, 2003; Bosworth, Bartash, Olsen, & Steffens, 2003; Gallo & Matthews, 2003; Gorman & Sivaganesan, 2007); however, this

research often acknowledges that depression and other mental health factors are closely linked to these physical health problems. One study, for example, examined psychosocial resources, depression, and hypertension in an elderly sample, and found that controlling for depression rendered the effects of social support on hypertension nonsignificant (Bosworth et al., 2003).

The reverse capacity model posits that three components of the SES-stress relationship put people in low-SES at higher risk for depression and anxiety and subsequently compromised physical health (Gallo & Matthews, 2003). First, the lives of low-SES individuals typically contain a higher level of stress than do their higher-SES counterparts'; second, low-SES individuals tend to have fewer resources – tangible, interpersonal, and intrapersonal – with which to manage stressful events; and third, low-SES individuals are likely to react more strongly to stressors (Adler & Snibbe, 2003; Gallo & Matthews, 2003; Gallo et al., 2009; Thoits, 1995; Vitaliano et al., 2001). The increased psychological reactivity found among many low-SES individuals has been explained as an adaptive sensitivity to an environment in which one has little agency. Heightened sensitivity is an important coping mechanism for individuals with high demands and low resources. However, this reactivity becomes maladaptive when generalized to most, or all, stressful situations (Adler & Snibbe, 2003).

The theoretical underpinning of the reverse capacity model is, in part, Hobfoll's conservation of resources theory (1989), which states that the most critical determinant of an individual's stress level is the gain of, loss of, or threat to resources. These resources

range from tangible resources, such as income, to psychosocial resources, such as social support, both of which typically amount to smaller funds for low-SES individuals (Coleman, 1988; Grzywacz et al., 2004; Hobfoll, 1989; Thoits, 1995). In other words, to be a low-SES individual is detrimental in that it not only creates stress but it also limits the resource reserve for managing stress. Other frameworks for understanding the negative mental and physical health outcomes of being low-SES are quite similar to the reverse capacity model: increased exposure to "qualitatively…potent" stress (Grzywacz et al., 2004, p.2), increased vulnerability and response to stress, and fewer coping resources compromise health of low-SES individuals (Adler & Snibbe, 2003).

Social Support as a Buffer Against SES-related Stress

Gallo and Matthews (2003) propose that social support may moderate the relation between SES and health based on the fact that social support is a psychosocial resource, the addition of which increases the capacity for coping with stress. The hypothesis that the efficacy of social support depends on SES rests on the assumption that the well-being of high-SES people is likely to be less contingent upon social support as a coping resource, as these individuals have more resources overall (Kraus & Keltner, 2009; Unger et al., 1999). Thus, increases in social support may be more beneficial for lower-SES individuals. It is conceivable that the benefits of social support are stronger for low- as compared to high-SES people also because more having social support may counterbalance the lack of access to "professional services" (e.g., child care) that result

from limited financial resources (Schollgen et al., 2011, p. 327). Despite the theoretical underpinnings and empirical work pointing to differential effects of social support across SES, the variations of this construct across SES have not been widely studied (Huurre et al., 2007; Turner & Lloyd, 1999; Unger et al., 1999).

Research that has explored whether SES determines the degree to which social support affects physical and mental health has produced mixed outcomes (Schollgen et al., 2011; Thoits, 1995; Turner & Lloyd, 1999). One study showed that neither structural nor functional forms of social support accounted for the variation in depression across SES as measured by income (Lin et al., 1999). These authors acknowledge that a multidimensional measurement of social class may improve the potential to demonstrate whether structural and functional support do, in fact, interact with SES. Similarly, Huurre et al. (2007) and Turner and Marino (1994) both found that social support did not differentially affect mental health across SES when SES was operationalized as education and occupation; they found only main effects for both network size and perceived social support.

Conversely, other studies have found that increased social support translates to relatively better outcomes for low-SES individuals (e.g., Schollgen et al., 2011; Vitaliano et al., 2001). Specifically, Vitaliano and colleagues (2001) found that income interacted with perceived emotional, but not tangible, social support to predict beneficial health changes in lower-income individuals. Another study found that low-SES adolescents who perceived their relationship with the same-gender parent to be poor had increased risk of

depression compared to their high-SES counterparts with the same level of parental relationship (Huurre et al, 2007). In another study, involvement in extracurricular activities and non-course-related peer interactions were more beneficial for first-generation college students than students whose parents were more highly educated (Pascarella, Pierson, Wolniak, & Terenzini, 2004).

Depression Among College Students

The transition to college is empirically known to be a difficult one, as evidenced by the high prevalence of attrition, substance and alcohol abuse, unfulfilled academic obligations or compromised academic performance, and suicidality (American College Health Association [ACHA], 2010; Eisenberg et al., 2007; Weckwerth & Flynn, 2006). Among the stressors during this time are homesickness, separation from parents and friends, loneliness, and depression (Buote et al., 2007).

One study assessing the occurrence of mental health difficulties in college students found that 13.8% of undergraduates exhibited levels of symptomatology that warranted major or other depression diagnoses, a higher percentage than anxiety disorders (Eisenberg et al., 2007). This study also found that 18.4% of students attributed failing to fulfill academic obligations in the prior month to mental health problems, with depression accounting for a large proportion of this subset of students. In another sample, 11.7% of students reported depression as the cause of academic challenges (ACHA, 2010). The American College Health Association (2010) found that depression had a

functional impact on 30.7% of students at least once in the previous 12 months. Further, the frequency of psychological distress as manifested by moderate to severe mental health issues in college students is increasing (Hefner & Eisenberg, 2009).

Despite the apparently numerous mental health concerns of college students, risk factors for such problems in this population do not receive sufficient empirical attention (Eisenberg et al., 2007). Instead, much research on college students focuses on academically oriented outcome variables such as college choice processes, enrollment, persistence, attrition, and post-graduation career success (Walpole, 2003). In 1992, Russell and Petrie added to college-adjustment models that historically emphasized academic and social factors by acknowledging the importance of individual-level factors, such as personality and anxiety, in a student's likelihood to persist. Thus, the mental health of college students warrants further exploration not only in its own right, but also because mental health is part of the pathway toward more tangible academic outcomes (Ostrove, 2007).

Effects of Social Class on College Students

Research has increasingly examined college experiences of the particularly at-risk sample of students from low-SES and first-generation backgrounds (Eisenberg et al., 2007; Walpole, 2003). Again, however, this research has focused largely on academic outcomes, such as the educational plans, academic achievement, motivation, and persistence of these students (Pillay & Ngcobo, 2010; Walpole, 2003). For example,

college students from low-SES backgrounds are less likely to obtain a bachelor's degree or continue to graduate school (Walpole, 2003). Walpole (2003) also found that low-SES students spend more time at work and less time studying, and therefore typically obtain lower GPAs than their higher-SES counterparts. These academic concerns have received significantly more empirical attention than the psychological experiences of low-SES and first-generation college students (Pascarella et al., 2004).

Some researchers have taken on the task of identifying the ways in which low-SES and first-generation students suffer psychologically. First, Bui (2002) suggests that the transition to college itself takes a toll on the psychological well-being of low-SES and first-generation students because they are less cognitively and psychologically prepared than other students. The heightened difficulties of being a low-SES or first-generation student are not limited to the college transition period, however. Increased demands to make ends meet and the resultant struggles, such as limited free time, decreased GPA, and pressure to obtain scholarships, are psychologically demanding (Johnson, Richeson, & Finkel, 2011; Martinez, Sher, Krull, & Wood, 2009;Terenzini et al., 1994).

Adding to the potential distress related to these tangible stressors is the fact that relatively low-SES students reportedly feel aware of the discrepancy between their own SES and that of their peers, which can result in perceived inadequacy and depleted ego resources (Johnson et al., 2011). Working-class students in higher education have an elevated risk of experiencing feelings of incompetence, fear of failure, stress, anxiety, alienation, depression, and suicidality, and sometimes erroneously attribute their struggles

to internal factors or personal deficiencies (Aries & Seider, 2005; Eisenberg et al., 2007; Granfield, 1991; Towbes & Cohen, 1996).

Social Support and Social Class in College Students

Along with the aforementioned strains, compromised social support has been identified as contributing to the deleterious effects of being low-SES on the college experience. One study found that the belonging, operationalized as how well the students reported feeling like they fit into the college environment, significantly mediated the relation between social class and academic and social adjustment to college, as well as the overall quality of experience at college (Ostrove, 2007). Ostrove suggests, "social class may have some of its most critical influence through a sense of belonging" (p. 381). Lack of involvement, mentioned above as one characteristic of many low-SES students in higher education, likely contributes to the compromised sense of belonging expressed by low-SES students (Walpole, 2003). Working-class students participate in fewer activities and report feeling less integrated (Rubin, 2011). Thus, decreased contact with friends and family and decreased perceptions of quality of social support are risks for students with financial stress (Hefner & Eisenberg, 2009).

Given the likelihood that lower-SES university students lack sufficient support, it is important to explore the specifics of these students' experiences with social support and any negative outcomes. The bolstered self-worth and sense of belonging that are presumably elicited by higher social integration and perceived social support are likely to

be related to college students' levels of depression (Berkman et al., 2000). Surprisingly, however, the research on social support in college students is limited (Weckwerth & Flynn, 2006).

Elucidating the factors contributing to depression and depressive symptoms in college students is valuable in that the transition from adolescence to young adulthood represents a crucial period in an individual's life, during which patterns of depression could be modified (Garlow et al., 2008; Hefner & Eisenberg, 2009). The university environment is encompasses a variety of resources, such as health services and social networking opportunities, in the same setting as student residences, making the university setting an optimal place of intervention (Hefner & Eisenberg, 2009). One study reported that 85% of students with moderate to severe depression reported not receiving psychiatric treatment (Garlow et al., 2008); interventions aimed at increasing social support may be a more welcoming, less stigmatized avenue through which to effect change.

Measuring SES in College Students

At this point, it is important to note some methodological concerns regarding the measurement of social class in college students. In order for research on low-SES college students to be effectively translated into interventions, researchers must become more specific in operationalizing the social class construct.

Low-income Versus First-generation Students

Research on the college population tends to focus either on first-generation status or an indicator of SES (often family income) without addressing the possibility that these two variables may be qualitatively distinct. To leave this overlap unaddressed is both conceptually and methodologically problematic, especially given that much SES-focused research uses parental education as a metric. More research acknowledging this overlap is needed to refine understanding of how these students' experiences compare and for whom risk factors, such as low social support, are most salient (Aries & Seider, 2005; Bollen, Glanville, & Stecklov, 2001).

The research of Hefner and Eisenberg (2009), Walpole (2003), and Johnson, Richeson, and Finkel (2011), and represent the lack of specificity in operationalizing social class in college students. Specifically, these researchers focus on SES with no mention of confounding first-generation status; for example, some include parent education in creating an SES composite variable (e.g., Pillay & Ngcobo, 2010) and others use only one SES indicator such as income (e.g. Johnson et al., 2011). Similarly, researchers whose interest lies in first-generation status per se often speak to the effects of other elements of SES only fleetingly (e.g. Bui, 2002; Pascarella et al., 2004). It is conceivable that researchers neglect to make this distinction because of the strong correlation between education and income (Sirin, 2005); however, it is argued here that the two aspects of SES should not be treated interchangeably.

One manifestation of the differential effects of socioeconomic indicators on the college experience is the fact that first-generation students may face distinct disadvantages (Aries & Seider, 2005; Pascarella et al., 2004; Terenzini et al., 1994). First-generation students have been found to have more academic-related difficulties than continuing-generation students, even when controlling for parent income (Pascarella, 2004; Terenzini et al., 1994). Not only must first-generation students navigate a novel academic situation without situation-specific parental knowledge to guide them, but also being the first to pursue post-secondary education is psychologically and emotionally stressful (Aries & Seider, 2005; Terenzini et al., 1994). As first-generation students are "breaking family tradition," their college attendance may be met with lack of understanding or hostility from their family and friends (Terenzini et al., 1994, p. 63). Likewise, first-generation students often grapple with reconciling family culture with the new culture and resulting identity changes that come with exposure to college (Aries & Seider, 2005; Terenzini et al., 1994).

Methodologically, researchers sometimes deem composite SES variables (i.e., combining parent education, income, and/or occupation) appropriate for approximating student SES (Allen, Robbins, Casillas, & Oh, 2008). However, the experiential differences between low-income and first-generation students proposed above point to the possibility that education, income, and occupation represent qualitatively distinct aspects of social class (Adler & Snibbe, 2003; Bollen et al., 2001; Sirin, 2005). Conceptually, the idea that there are different types of capital (e.g., economic, social, human), an idea often

attributed to Bourdieu (1977), emphasizes the importance of exploring how the experiences of low-SES and first-generation students may differ (Aries & Seider, 2005; Pascarella et al., 2004).

In their discussion on assessing child and adolescent SES, Entwisle and Astone (1994) encourage the use of measures that tap into both financial capital, the ability to obtain a certain level of health and safety, and human capital, having "skills and capabilities that make [people] able to act in new ways" (Coleman, 1988, p. S100). Level of education is often associated with human capital and income with financial capital (Adler & Snibbe, 2003; Entwisle & Astone, 1994; Ranchor et al., 1996). Aries and Seider speak to the influence of these different types of capital, stating that continuing-generation students "may still be subject to class-related struggles, but their added cultural capital helps them buffer the class issues they face and lessens their internal conflicts" (p. 439).

Subjective Social Class

Objective indices do not fully capture the effects of social class, however. Subjective social class is reflective of the cognitive and affective states resulting from having had limited resources, and is also valuable in helping to explain the relatively negative health outcomes in this population (Adler & Snibbe, 2003). Some researchers argue that subjective social class not only captures one's perceptions of relative social standing, but also "encompasses the individual's family resources, opportunities, and life

chances" (Singh-Manoux et al., 2003, p. 1322). Subjective social class is arguably of particular importance in a college setting, given that relatively few post-secondary students are from backgrounds as impoverished as objectively low-SES individuals in the population. Additionally, the way people personally experience their objective SES may differ across context (Cohen et al., 2008). To account for a person's internalized experience of social status acknowledges that objective indicators may not affect each individual within that status in the same way (Goodman, Huang, Schafer-Kalkhoff, & Adler, 2007).

Social identity threat (Steele, Spencer, & Aronson, 2002) is one theoretical framework that serves as a useful guide in considering the importance of both objective and subjective class experiences (Johnson et al., 2011). Social identity threat proposes that context determines how aware people are of the parts of their identity that are vulnerable to stigmatization. For example, one could imagine that a gay-identified male participating in the San Francisco Gay Pride Parade feels less aware of the stigma associated with his sexual identity than when he travels home to attend church with socially conservative relatives. In other words, the specifics of individuals' environments may trigger the sense that their "social identities may be devalued in that environment" (Johnson et al., 2011, p. 839; Steele et al., 2002). The contextual trigger sets forth a chain of cognitive and emotional experiences that can take a toll on individuals who first perceive their identity to be stigmatized and then, often, feel socially unacceptable or as if they do not belong.

The idea that a person's internalized conceptualization of social class contributes to emotional and psychological well-being has been substantiated empirically, though only recently (Goodman et al., 2007). Findings demonstrate that objective and subjective measures of class background are closely associated, but likely represent two distinct constructs that appear to differ in their prediction of health-related outcomes (Adler, Epel, Castellazzo, & Ickovics, 2000; Goodman et al., 2007; Ostrove, 2007). One study found perceptions of SES-related stigma, a subjective class measure, to mediate the relation between SES and academic fit more fully than when objective measures were tested as mediators (Johnson et al., 2011). Another showed that the effects of objective SES on self-rated health were no longer significant after accounting for subjective SES (Goodman et al., 2007). Similarly, subjective SES has been shown to significantly predict physical and psychological outcomes (e.g., stress, active coping, passive coping, pessimism, sense of control), even after controlling for objective SES (Adler et al., 2000; Cohen et al., 2008).

Subjective social class has often been conceptualized as a cognitive or affective-level construct, meaning that an individual's other psychological and emotional characteristics may be confounded with perceived social class (Adler et al., 2000; Singh-Manoux et al., 2003). Thus, some research has sought to explore the extent to which subjective class correlates with other psychological constructs (Adler et al., 2000; Singh-Manoux et al., 2003). Singh-Manoux and colleagues, seeking to determine the combination of variables that best predicted subjective social status, found that the least

relevant were what they labeled "psychological variables" (p. 1329), including hopelessness, hostility, and optimism. Another study showed that subjective social status influenced mental and physical health outcomes after controlling for negative affect (Adler et al., 2000). Instead, indicators that relate more directly to SES, such as household income, education, and feeling financially secure, have shown to be significant in predicting subjective status (Singh-Manoux, 2003). Together, these findings suggest that subjective status operates independently from other affective and cognitive-level variables.

Statement of Purpose

The primary purpose of this study is to examine the role of structural social support, functional social support, and SES in the prediction of depression in college students. Much research has attempted to elucidate the complex relation among different types of social support, various stressors, and mental and physical outcomes. Though the literature on social support and SES is extensive, these are complex constructs whose interrelationship with each other and contributions to health outcomes have proven difficult to characterize. This study was designed in an effort to contribute to as-of-yet unresolved topics within social support and SES literature.

Researchers have repeatedly called for increased exploration of the mechanisms via which social ties are beneficial (Berkman et al., 2000; Brissette, Cohen, & Seeman, 2000; Cohen & Wills, 1985; Thoits, 1995). Though much research implicitly rests on the

assumption that structural components of social support are important because they provide functional support (i.e., perceived support) (Hirsch, 1979; Lin & Dean, 1984), this is but one of many potential pathways (Berkman et al., 2000; Thoits, 2011). Questions about whether structural and functional supports are distinct entities, as well as the degree to which functional support explains the relationship between structural support and positive outcomes, have not been resolved empirically (Brissette et al., 2000; Lin, et al., 1999; Thoits, 2011).

Whether the operation of structural and functional support varies systematically across SES also remains unresolved in the literature. Only a small portion of research has considered SES as paramount in influencing the efficacy of social support (e.g., Huurre et al., 2007; Turner & Marino, 1994; Turner & Lloyd, 1999; Unger et al., 1999). These studies have produced mixed results, with some suggesting that there is no variation across SES (e.g., Huurre et al., 2007; Lin et al., 1999; Unger et al., 1999) and others providing evidence that systematic variation is at play (e.g., Schollgen et al., 2011; Thoits, 1995; Turner & Lloyd, 1999). The reverse capacity model (Gallo & Matthews, 2003) represents one theory supporting the idea that increases in social support are more beneficial for low-SES individuals; at least one study based on this theory has shown significant interactions between social support and SES (e.g., Schollgen et al., 2011). It is conceivable that if SES and network diversity interact in their effects on depression, so might the mediating effect of perceived support differ according SES.

While the interaction between social support and SES is unresolved, it is understood that being of low-SES is typically correlated with low levels of social support (Gallo & Matthews, 2003; Ranchor et al., 1996; Rubin, 2011). For example, a recent meta-analysis showed that low-SES college students are considerably less integrated than their high-SES peers, both socially and within their institutions (Rubin, 2011). This is particularly problematic given the stressful nature of transitioning to college (Hefner & Eisenberg, 2009; Lefkowitz, 2005). Because the role of social support in the mental health of college students has not been widely studied (Hefner & Eisenberg, 2009), especially among low-SES students, the proposed study aims to fill this important gap. Also addressed is the fact that much research on first-generation and low-SES students fails to acknowledge the possibility that, while both indicators of low-SES, family affluence, parent education, and subjective social class may differently effect students' experiences.

Research Questions

Structural and functional types of support are qualitatively distinct; the former arguably represents a tangible manifestation of potential resources and the latter a cognitive schema. Despite the fact that these types of support differ in nature, the core assumption of the current study is that both types of support are coping resources. Additionally, the current study assumes that SES is multifaceted and is, thus, better

represented by separate indicators than by a composite variable (Coleman, 1988; Entwisle & Astone, 1994).

A moderated mediation model will be used to test the following hypotheses in a multivariate path. In short, moderated mediation refers to a model in which the relation between two variables (i.e., network diversity and depression) is mediated by a third variable (i.e., perceived support) and indirect and/or direct effects are moderated by a fourth variable (i.e., SES) (Edwards & Johnson, 2007; Muller, Judd, & Yzerbyt, 2005; Preacher, Rucker, & Hayes, 2007). Based on the state of literature on social support, SES, and mental health in college students, the present study will address the following research questions in a moderated mediation model:

1. Do SES, network diversity, perceived support, and depression significantly correlate with one another in a college population?
2. Does perceived support mediate the relation between network diversity and depression in a sample of college students?
3. Does the relation between network diversity and depression differ according to family affluence, generation status, subjective SES compared to one's peers, and/ or subjective SES compared to society?
4. Does the relation between perceived support and depression differ according to family affluence, generation status, subjective SES compared to one's peers, and/ or subjective SES compared to society?

Chapter Three: Methodology

Participants

Participants in the current study were full-time undergraduate students recruited from the Educational Psychology subject pool in Fall 2013, Spring 2014, and Fall 2014 (n=623). In an effort to obtain roughly equal representation of high and low-SES groups, the Longhorn Link and Gateway Scholar Programs at the University of Texas at Austin were used for participation recruitment in Fall 2013. Both programs are part of the Division of Diversity and Community Engagement at the University of Texas at Austin. The Longhorn Link Program (LLP; see http://ddce.utexas.edu/academiccenter/llp/) is a federally funded organization that provides various services to students from low-income backgrounds or neither of whose parents attended college. The Gateway Scholars program (http://ddce.utexas.edu/academiccenter/gateway-scholars/) also assists students in the transition to college.

Because course credit was not an option for participants recruited via the Longhorn Link and Gateway Scholars Programs, these students were entered into a raffle for two $25 gift cards to a well-known retailer. Entry into the raffle was explained as an incentive on the flier distributed to these students. For participants recruited from the Educational Psychology Subject Pool, participation in the study fulfilled a course requirement. Demographic information for the entire sample can be found in Table 2.

Table 2

Participant Demographics

	Variable	n	Percentage
Gender (n=613)			
	Female	392	63.9%
	Male	221	36.1%
Age (n=615)			
	17-18	22	3.6%
	19	87	14.1%
	20	115	18.7%
	21	192	31.2%
	22	124	20.2%
	23-56	75	12.2%
Race/Ethnicity (n=623)			
	Caucasian/White	249	40.0%
	Hispanic American/Latino/a	200	32.1%
	Asian American	126	20.2%
	Multiracial	25	4.0%
	African American/Black	16	2.6%
	Middle Eastern/Arab American	7	1.1%
Year at UT (n=623)			
	1st year	48	7.7%
	2nd year	103	16.5%
	3rd year	151	24.2%
	4th year	242	38.8%

Power and Sample Size

The necessary sample size needed to achieve adequate power (.80) was determined based on guidelines from Fritz and MacKinnon (2007). These researchers compiled empirical estimates of sample size in order to achieve .80 power for a number of statistical tests of mediation. For bias-corrected bootstrapping with a small effect size (0.14, according to Fritz and MacKinnon) of the independent variable (X) on the mediator (M) and the mediator on the dependent variable (Y), 462 participants were needed. If X has a small effect size on M and M has a medium effect on Y (0.26, according to Fritz and MacKinnon), at least 377 participants were needed. Given that the moderated mediation model was tested four times, with some overlap in the participants comprising each iteration, the alpha level used to calculate power and sample size was obtained using a Bonferroni correction. Thus, the conservative estimate provided by Fritz and MacKinnon (2007) was used; the study aimed for a sample of 460 students.

Measures

Participants were asked to complete a set of measures assessing basic demographics (e.g., age, sex, year at UT), socioeconomic status, social support, and depression. The full demographic questionnaire can be found in Appendix A and the other measures in Appendices B through F. Each participant completed the questionnaires in the order that follows.

Screening Measures

In order to ensure a sample comprised of students from all socioeconomic levels, potential subject pool participants responded to the following screening question in Fall 2013 and Spring 2014.

> My family has one car or fewer, I shared a bedroom, and/or we didn't typically take family vacations; and one or both of my parents did not attend college.
>
> A. Yes
>
> B. No
>
> C. None of your business.

One-third of the Fall 2013 and Spring 2014 samples were comprised of students who answered "Yes," with the remainder of the sample being subject pool participants randomly assigned to this study.

Due to the adoption of a more advanced system for recruiting and managing subject pool participation in the Department of Educational Psychology, the following screening question was used in Spring 2014:

> Please select the option that most closely describes your family of origin. Read each option before selecting your response.
>
> A. My parents own multiple cars, one or both of them attended college, and I grew up in a large house and/or took frequent vacations growing up.

B. My parents own one car or fewer, one or both of them did not attend college, and I grew up in a small house and/or didn't typically take vacations growing up.

C. The characteristics of my life growing up were somewhere between A and B.

As initially proposed, the current sample was to be limited to first-year students to increase homogeneity within the sample, and because of the significant environmental and relationship changes that occur during a student's initial transition to college (Lefkowitz, 2005; Ross, Niebling, & Heckert, 1999). Additionally, the sample was proposed to be restricted to students under the age of 21 years to ensure that parent education and wealth status were meaningful indicators of SES. Due to the composition of the subject pool, however, these exclusion criteria vastly limited the number of students eligible for the survey; thus, criteria were expanded in order to obtain a sample large enough for the proposed analyses.

Demographics Measure

The demographics questionnaire assessed age, race/ethnicity (African-American/ Black, Alaska Native/American Indian Asian American, Caucasian/White, Hispanic American/Latino/a, Middle Eastern/Arab American, and Multiracial), gender (open-ended response), marital status, and year at UT.

Socioeconomic Status - Parent Education

Some researchers argue that achieving adequate reliability and validity when measuring SES in college students is a challenging task, in part due to students' limited knowledge about household income (Donaldson et al., 2007; Jackson & Goodman, 2011). Parental education is considered to be a more reliable metric, as it is relatively immune to recall and social desirability threats (Donaldson et al., 2007; Jackson & Goodman, 2011). Additionally, education level is said to be more indicative of long-term SES (Hauser, 1994; Krieger et al., 1997).

Because education is said to more accurately reflect SES when measured in credentials than in years (Johnson & Goodman, 2011), the options for parent education on the demographic questionnaire were: (1) less than high school; (2) high school graduate or received GED; (3) business/technical graduate or received certificate; (4) some college, no degree; (5) associate's degree; (6) bachelor's degree; (7) master's degree; and (8) doctorate or professional degree (e.g., M.D., J.D.) (Allen et al., 2008). Students were categorized as first-generation if they chose option 1 or 2 for both parents, indicating that neither parent received an education beyond high school.

Socioeconomic Status - Family Affluence Scale (FAS)

The current study used the FAS (Currie et al., 2008) to assess household material conditions that are indicative of financial capital. In general, current income is a problematic way of assessing SES; income can be fleeting and, therefore, may fail to

capture the actual economic experience of a given family (Braveman et al., 2005). Further, as mentioned above, adolescents have a limited ability to accurately report more traditional SES indicators such as income and occupation (Currie et al., 2008; Johnson et al., 2011). Thus, the FAS was developed to enhance the likelihood that adolescents will provide accurate information about their household SES (Currie et al., 2008).

The FAS consists of four questions regarding the presence of material indicators of wealth in each respondent's household. The questions query as to whether the adolescent's family owns a car, van, or truck; whether the adolescent has his or her own bedroom; how frequently his or her family has traveled in the past year; and how many computers his or her family owns (Boyce, Torsheim, Currie, & Zambon, 2006; Currie et al., 2008). Response options are no/none (0), yes/one (1), two/twice (2), or more than two/twice (3), respectively, which are summed to create a total score ranging from 0 to 9. Some researchers consider the FAS to be psychometrically questionable. For example, tests of its internal construct validity have shown that some goodness of fit measures (e.g., GFI, CFI) did not support the overall fit of the model; in particular, the bedroom item does not appear to load on the latent variable (Kehoe & O'Hare, 2010). Other studies, however, have found moderate reliability and external validity (e.g., Boyce et al., 2006; Currie et al., 2008 Salonna et al., 2012). The Cronbach's Alpha for the FAS in the current sample was .52, which is not uncommon for the FAS; researchers have pointed to this measure's questionable psychometric properties and called for revisions to the measure.

Socioeconomic Status - Subjective SES

One commonly used tool for assessing subjective social class is a self-anchoring scale (Cantril, 1965), which asks participants to indicate where they fall in comparison to others in any number of domains. In the current study, participants were shown a 10-rung ladder; the bottom rung was described as representing those who have the least amount of money and education and the least lucrative jobs, with each rung representing an increase in status (Singh-Manoux et al., 2003). The strong correlation between subjective status as measured by the self-anchoring ladder and objective status (e.g., parent education, occupation, income) has been used to indicate good validity (Ostrove, 2007; Singh-Manoux et al., 2003). Further, this measure has been shown to relate to physical health and depression after accounting for objective socioeconomic indicators (Singh-Manoux et al., 2003).

Participants in the current study were asked to rate themselves on two separate ladders, one comparing his or her social class to that of his or her peers and the other to society at large. Each rung was assigned a number, with the lowest rung (i.e., lowest subjective SES) represented by "1" and the highest represented by "10." This score for this measure is simply the number of the rung at which each participant placed him or herself. Each participant received one score for the "peer ladder" and another for the "society ladder."

Functional Support - Interpersonal Support Evaluation List (ISEL)

In the current study, the ISEL was used to approximate each participant's level of functional social support. The ISEL is a measure of the perceived availability of social support in four domains (Cohen & Hoberman, 1983). They are: tangible support, or the perceived availability of assistance in material matters; belonging support, or the existence of a group of which the individual feels a part; appraisal support, or the perceived availability of having a confidant with whom one can talk about personal issues; and self-esteem, or the "perceived availability of a positive comparison when comparing one's self to others" (Cohen & Hoberman, 1983, p. 104).

The ISEL contains 48 items, 12 for each subscale. Six of each subscale's twelve items are framed positively (e.g., "I know someone who would give me some old dishes if I moved into my own apartment.") and six negatively (e.g., "I don't know anyone at school or in town who makes my problems clearer and easier to understand."). Participants rate each statement as either "probably true" or "probably false." Internal consistency for the ISEL has been reported as a Cronbach's alpha of .77 (total score) and test-retest internal consistency reliability of r =.87 (Bernardon, Babb, Hakim-Larson, & Gragg, 2011). The current study used the total score only, which produced a Cronbach's alpha of .89.

The ISEL was originally designed to elicit information about socially supportive relationship transactions as imagined to occur among college students, and has often been used to measure functional support in this population (e.g., Bates & Toro, 1999; Cohen &

Hoberman, 1983). Social support as assessed with the ISEL college version has been shown have stress buffering effects in the prediction of depressive symptomatology in college students (Bates & Toro, 1999; Cohen & Hoberman, 1983).

Structural Support - Social Network Index (SNI)

In the current study, the SNI was used to approximate each participant's level of structural social support, which is operationalized in the current study as social integration. The SNI is a measure of social integration that allows researchers to calculate various network characteristics (Cohen et al., 1997). Participants are asked to indicate the number of individuals with whom they have contact at least every two weeks across a number of different types of social relationships (i.e., domains). The original SNI included twelve domains, but researchers are encouraged to tailor the number and type of domains to the population in question (Brissette et al., 2000). The current study used a version of the Social Network Index modified for a campus population by Galatzer-Levy and colleages in 2012. The following relationship domains were used: romantic relationship; parents; siblings; relatives; church members; classmates; professors; UT staff; coworkers; roommates; RAs; close friends; other friends; fellow volunteers; and other groups.

The Social Network Index allows researchers to quantify various aspects of a person's social network, including: network size, or the total number of people in the social network; network diversity, or the number of domains in which a participant has

regular contact with at least one other person (i.e., the number of different roles they have); and embeddedness, or the number of domains in which a respondent has regular contact with at least four other people. Social integration is most often conceptualized as the extent to which an individual participates in a variety of roles, and is thought to be a more robust predictor of well-being than network size (Cohen et al., 1997; Galatzer-Levy et al., 2012). Therefore, network diversity was used as the proxy for social integration in the current study.

Each participant was assigned a network diversity score, which was quantified as the number of domains in which he or she endorsed speaking to or seeing at least one person in the past two weeks. The domains included in the network diversity total were: romantic relationship; parents; siblings; relatives; church; classmates; UT professors; UT staff; work supervisees; coworkers; roommates; RAs; neighbors; close friends at UT; close friends not at UT; fellow volunteers; and other groups.

Center for Epidemiologic Studies Depression Scale (CES-D)

The CES-D (Radloff, 1977) is a popular measure of depressive symptomatology. The measure contains 20 questions inquiring about the frequency of certain depressive symptoms in the past two weeks (e.g., "You felt that you could not shake off the blues, even with help from your family and your friends"). Responses are coded on a Likert scale, which ranges from 0, rarely/none of the time, to 3, most/all of the time; four items are reverse coded. Scores are totaled and therefore range from 0 to 60, with higher scores

signifying more symptoms of depression (Lin et al., 1999). The maximum score on the CES-D is 60, and a score greater than 16 is typically considered to signify clinically significant depression. However, research using the CES-D in nonclinical, adolescent samples suggests that using 16 as the cutoff score inaccurately inflates the number of individuals considered depressed (Santor, Zuroff, Ramsay, Cervantes, & Palacios, 1995).

The CES-D was originally developed to assess depressive symptomatology in a community as opposed to a clinical population, and has thus been used in samples with various socioeconomic statuses and with college students (Santor et al., 1995). Research suggests that the when sampling from college students, the CES-D is particularly well suited for research assessing the severity of depressive symptoms as opposed to identifying cases of clinical depression (Santor et al., 2005). The CES-D has demonstrated high internal reliability in samples of college students; in one study, for example, the CES-D had a Cronbach's alpha of .89 (Cohen & Hoberman, 1983). In the current study, Cronbach's alpha for the CES-D at time one and time two were .91 and .92, respectively.

Open-ended Questions

Given the complexity of the current constructs of interest, a qualitative component was included to supplement the quantitative findings. Participants were asked to respond to a few open-ended questions at the end of the survey. The principal investigator first drafted the questions and then solicited feedback on content and clarity from Dr.

Christopher McCarthy and five Counseling Psychology graduate students who were fellow members of Dr. McCarthy's research lab. The questions were:

1. Have you felt aware of your social class during your time in college? If so, please explain how that awareness has affected your mood, outlook on your college career, and other experiences.
2. How might your time in college have been different if you belonged to a different social class?
3. Have you have felt an adequate amount of social support? If so, what circumstances, people, and/or other factors have allowed you to feel that way?
4. If you haven't felt an adequate amount of social support, what changes would allow you to feel more supported?
5. Think about the number of people to whom you feel close (Is it a lot of people? A few?). Does the number of people you know affect how supported you feel in college?
6. Please think about how your experiences with social support might be different if you belonged to a different social class. Would you feel more or less supported than you do now? Would social support affect your well-being (stress, mood, anxiety, etc.) differently than it does now?

Over 150 pages of responses were generated. The primary researcher, Dr. McCarthy, and the formerly mentioned graduate students systematically reviewed most of the responses to Question #1 and came to consensus on a few themes. The remainder

of the questions were informally analyzed by the primary researcher. To analyze Questions #2 through #6, the primary researcher selected 25 participants at random and examined those participants' responses to each question. The researcher read the responses once, noted possible themes, read the responses a second time to refine the themes, and read the responses a third time to tally the number of times each theme was mentioned (i.e., the number of participants whose responses could be categorized in each theme). The themes with the most responses are included in Chapter 4 of this document.

Procedure

Ethical Considerations

The proposed study was in full compliance with the published guidelines established by the Institutional Review Board for the Protection of Human Subjects at The University of Texas at Austin. The study also complied with the Ethical Principles set forth by the American Psychological Association. Confidentiality, anonymity, and informed consent standards complied with The University of Texas Institutional Review Board; the participation of each student was voluntary and informed consent was obtained when students elected to begin the survey after being instructed to read the informed consent page. At the end of the survey, each participant who completed all of the questionnaires was directed to a debriefing document, which included contact information for both the principal investigator and the UT Counseling and Mental Health Center.

Data Collection

As mentioned above, participants were recruited through the subject pool of The Fall 2014. In Fall 2013, the Director of the Longhorn Link Program posted a flier on the Gateway and LLP Facebook pages and distributed the flier to students via email. Four students responded to Time 1 and two responded to Time 2, with and all four students were included in data analyses. Given this small response rate, the financial cost of incentivizing these students, and the ability to recruit low-SES participants using the EDP subject pool, no effort was made to recruit through these programs in Spring 2014 or Fall 2014.

Once participants were assigned or elected to participant in the study, they received an email with instructions for completing the study and a link to Part One of the study. The instructions detailed the timeline of the study; namely, participants were asked to complete Time 1 of the study in a timely manner in order for a period of weeks to pass before they completed Time 2 of the study. Participants were informed that completion of both parts of the study was required to receive course credit. Approximately five weeks after the distribution of the Time 1 survey, participants were emailed with a link to the Time 2 survey, which included the demographics questionnaire, the CES-D, and a number of open-ended questions. The number of Time 1 and Time 2 responses from each semester can be found in Table 3.

Table 3

Number of T1 and T2 Responses

	Fall 2013	Spring 2014	Fall 2014	Total
T1 Responses (n)	225	321	77	623
T2 Responses (n and percentage of T1 responses)	69 30.7%	290 90.3%	67 87.0%	426 68.4%

Note: In Fall 2013, an error was made in data collection. The investigator failed to include a method for identifying participants' responses (e.g., assigning ID numbers to each participant), meaning that Time 1 and Time 2 responses were not easily paired. Realizing this error before the distribution of the Time 2 survey, the examiner included the demographics questionnaire in the Time 2 survey. It was reasoned that because the demographics questionnaire included questions about age, gender, race, year at UT, marital status, father education, and mother education, it would provide ample information with which to confirm pairs initially identified by IP addresses. This method—identifying matching IP addresses and confirming that the demographics responses were the same—yielded 69 matched responses from Fall 2013.

The number of days between Time 1 and Time 2 responses ranged from 0 to 54, and the mean number of days between Time 1 and Time 2 responses was 29.83 (SE = 12.55). As is shown in Table 4 below, there was no association between number of days elapsed and key variables in the study. The only exception to this was a significant negative correlation between subjective SES compared to society and the number of days between T1 and T2 responses; low subjective SES was associated with a longer amount of time between T1 and T2.

Table 4

Correlations Between Number of Days Between Responses and Main Variables

	Gen. Status	Subj. SES (Peer)	Subj. SES (Society)	Family Affluence	Perceived Support	Network Div.	T1 Dep.	T2 Dep.
No. of days between T1 & T2	-0.010	-0.066	-.141*	-0.067	-0.085	-0.026	-0.024	-0.007

Note. *p<.01

Hypotheses

The following hypotheses explore the relation between indicators of socioeconomic status, structural social support (i.e., network diversity), functional social support (i.e., perceived support), and depression in a sample of college students. Research question 1 was addressed using correlational analyses. Research questions 2 and 3 were addressed using a type of conditional process analysis called moderated mediation. Specifically, the analyses examined the paths comprising a mediation model (i.e., that network diversity influences depression via its effect on perceived support) and whether these indirect effects were conditional based on SES. Moderated mediation is explained in detail below.

1. A significant negative correlation is expected between each socioeconomic indicator and depression, such that lower family affluence, first-generation status, and subjective social status will be significantly correlated with higher levels

of depression.

2. A significant negative correlation is expected between each measure of social support and depression, such that lower levels of network diversity and perceived support will be significantly correlated with higher levels of depression.

3. Perceived support will mediate the relation between network diversity and level of depression. Individuals with fewer social roles (i.e., less diverse social networks) will perceive less support to be available, leading to higher levels of depression.

4. Family affluence, generation status, and subjective SES will each moderate the relation between network diversity and depression, such that the negative relation between network diversity and depression becomes stronger with each decrease in level of socioeconomic indicator.

5. Family affluence, generation status, and subjective SES will each moderate the relation between perceived support and depression, such that the negative relation between perceived support and depression becomes stronger with each decrease in level of socioeconomic indicator.

6. The indirect effect of network diversity on depression via perceived support will differ according to socioeconomic status, such that the indirect effect becomes stronger with each decrease in level of socioeconomic indicator.

Data Analysis Strategy

Moderation and Mediation

In quantitative data analysis, a mediation model refers to one in which the effect of an independent on a dependent variable is explained, either partially or fully, by a third variable (Baron & Kenny, 1986). Mediation analyses can be seen as exploring "how" a relation comes to be; for example, network diversity may lead to fewer symptoms of depression through its positive effect on perceived support (Baron & Kenny, 1986). Mediation models are comprised of direct (e.g., from network diversity to depression, from perceived support to depression) and indirect (e.g., from network size to depression via perceived support) pathways (Baron & Kenny, 1986; Edwards & Lambert, 2007). Hayes (2013) describes an indirect effect as such:

> The indirect effect of X [independent variable] on Y [dependent variable] through M [mediator] contains two components that, when multiplied together, yield an estimate of how much two cases that differ by one unit on X are estimated to differ on Y through the effect of X on M, which in turn affect Y. (p. 325)

Moderation analyses, on the other hand, explore "when" a certain relation exists or how that relation changes depending on a contextual factor (Baron & Kenny, 1986). Moderation analyses are used to examine the way in which a relation between two variables differs according to a third, moderating, variable (Baron & Kenny, 1986). For

example, the effects of social support on depression may be different for low- and high-SES individuals.

Moderated Mediation

Given that questions about "how" and "when" are not mutually exclusive, some models aim to unite moderation and mediation. A moderated mediation model is an integrated way of assessing whether the relationships between an independent variable, a mediator, and an dependent variable differ according to levels of a moderating variable (Edwards & Lambert, 2007; Hayes, 2013a; Muller, Judd, & Yzerbyt, 2005; Preacher et al., 2007). Because moderated mediation explores the conditions under which one variable exerts its effect on another, it is referred to as a conditional process model (Hayes, 2013a; Preacher et al., 2007). Described in terms of Hayes' quote above, a moderated mediation analysis explores situations in which one or more of the pathways in a mediation model are contingent upon a moderator.

The current study sought to explore whether the indirect effect of network diversity on depression through perceived support was significant to the same degree and in the same direction for relatively low-SES students as it was for relatively high-SES students. In the current analyses, the indirect effect of network diversity on depression through perceived support was the product of the unconditional effect of network size on perceived support and the conditional effect of perceived support on depression (Hayes,

2013a). The direct effect of network diversity on depression was also hypothesized to be contingent upon SES. Figure 2 depicts the model from this study, which can be classified as a "second stage and direct effect moderation model" (Edwards & Lambert, 2007, p. 10). In other words, network diversity was hypothesized to effect perceived support similarly across SES (path a), and perceived support and network diversity were hypothesized to have a stronger effect on depression for low-SES students (paths b and c, respectively).

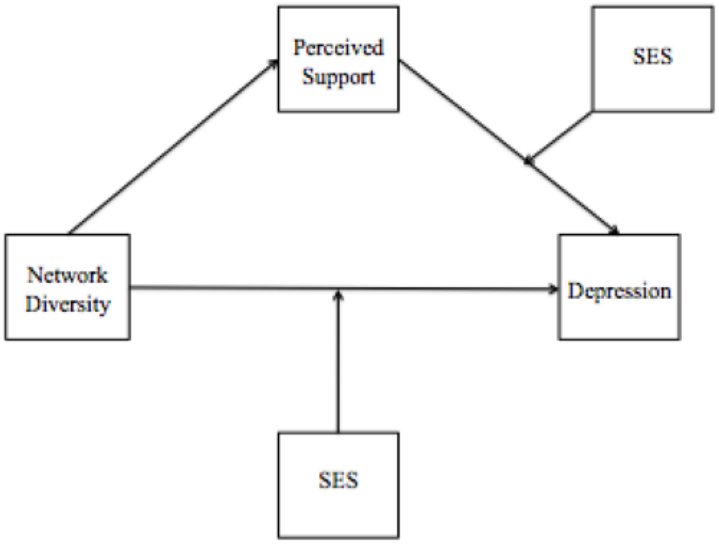


Figure 2. Conceptual Diagram of the Conditional Process Model

Researchers have used a number of statistical approaches to explore moderated mediation hypotheses (e.g., Edwards & Lambert, 2007; Muller et al., 2005; Preacher et al., 2007). Some investigations use a piecemeal approach (e.g., Rees & Freeman, 2009), analyzing moderation and mediation separately and interpreting the findings as one.

While it may appear logical to perform the analyses separately, treating the moderation (i.e., between SES and network diversity) as independent from the mediation model (i.e., network diversity perceived support depression) limits information that can be gleaned regarding whether one or both of the indirect paths or the total path carry the moderation (Edwards & Lambert, 2007; Hayes, 2013a). Additionally, moderation of one or both of the pathways comprising the mediation does not necessarily mean that the mechanism (i.e., indirect effect) is moderated (Hayes, 2015).

In an effort to address the limitations of the piecemeal and other approaches, some researchers have presented analytical frameworks that more effectively assess which of the paths vary according to the moderator and at which levels of the moderator these variations occur (Edwards & Lambert, 2007; Hayes, 2013a). These frameworks allow for the possibility that any of the three pathways comprising a mediation model (i.e., network diversity —> perceived support, perceived support —> depression, network diversity —> depression) depend on the level of the moderator (Edwards & Lambert, 2007; Hayes, 2013a). This allowance is particularly relevant to the current study because whether structural support (i.e., network diversity) and/or functional support (i.e., perceived support) buffers against stress is not well established, and a moderated mediation model allows for the simultaneous exploration of these interactions. Additionally, examining mediation (i.e., the indirect effects of network diversity on depression via perceived

support) concurrently addresses the unresolved role of perceived social support in the relation between network diversity and depression.

Chapter Four: Statistical Analyses and Results

Preliminary Analyses

Before data were analyzed, they were screened for missing data, duplicate responses, outliers, and statistical assumptions. As shown in Table 3, there were 623 complete responses to Time 1 and 426 to Time 2 (68.4% response rate). As mentioned, an error in data collection Fall 2013 limited the number of T1 and T2 responses that could be paired; 157 (out of 225) responded to T2 in Fall 2013, but only 69 data points were used in T2 analyses from Fall 2013. Data were visually scanned to identify cases with insufficient completion; a number of responses were removed upon identifying that the participant had completed only the demographic questionnaire, for example. Duplicate cases, identified by EID (or IP address and demographic responses in Fall 2013), were also removed. If a participant responded to Time 1 two times or more, his or her first response was saved and the others discarded in order to maximize the time between T1 and T2 responses. Likewise, if a participant responded to Time 2 two times or more, his or her last (i.e., most recent) response was saved and the others discarded.

Total scale scores were manually computed for cases in which one or two items had not been answered. The mean of all nonmissing items was multiplied by the total number of items in the scale or subscale, and the resulting number was added to the sum of the nonmissing items. One participant, for example, answered 19 of 20 items on the CES-D measure. The sum of his or her nonmissing responses was 4, which was divided

by 19 to arrive at a mean of 0.21. This was then added to the original sum to arrive at a total scale score of 4.21.

Univariate outliers were detected by visual examination of histograms of the scores for each variable and by using the criterion of the absolute value of z being no greater than 3.29. Four potential outliers were identified, two of which were removed due to have a Cook's Distance value greater than 1.0. After removing cases with minimal completion, duplicates, and outliers, the total number of Time 1 and Time 2 participants was 623 and 426, respectively.

The proposed method for estimating moderated mediation is based on ordinary least squares regression (OLS); thus, violations of the assumptions of this statistical procedure were assessed. According to Hayes (2013), the assumptions are: linearity in the relationship between independent and dependent variables; normal distribution of estimation errors; homoscedasticity; and independence of observations.

In order to confirm linearity and normality of distribution, two separate linear regression analyses were conducted to produce standardized residuals. Namely, perceived support was regressed on network diversity (path a), and in a separate regression depression was regressed on perceived support, network diversity, all socioeconomic variables, and all two-way interaction terms that included the moderator (paths b and c). Scatterplots of the standardized residuals by predicted residuals revealed no violations of linearity or homoscedasticity.

Histograms of the standardized residuals revealed approximately normal distribution. In order to further assess this assumption, skewness and kurtosis were calculated for each variable. These analyses revealed that the CES-D T2 scores skewed right (z=7.01), suggesting that respondents in the current sample tended toward lower CES-D scores than in the population. Additionally, the ISEL scores were found to skew left (z=-9.38), suggesting that respondents in the current sample tended toward higher ISEL scores than in the population. However, the actual estimates of skewness and kurtosis had absolute values less than 2.0, suggesting that these scores did not substantially depart from normality. All variables included in the interaction terms were centered to avoid multicollinearity, which is often recommended when the model includes interaction terms involving predictor variable(s) and when the scales do not contain a meaningful value of 0 (e.g., perceived support, SES).

Descriptive Statistics

Table 5 contains descriptive statistics for the entire sample, including means and standard deviations for the main variables in the current study.

Table 5

Means and Standard Deviations for Main Variables

		Range	Mean	SD	N
Depression					
	CES-D (Time 1)	0-52	16.71	10.59	619
	CES-D (Time 2)	0-51	15.57	10.59	425
Social Support					
	ISEL Perceived Support Score	8-48	35.53	8.18	619
	SNI Network Diversity Score	2-14	8.70	2.21	623
Socioeconomic Status					
	Family Affluence Score	1-9	5.86	1.98	623
	Subjective SES Score - Society	1-10	5.77	1.69	618
	Subjective SES Score - Peer	1-10	5.82	1.90	618

The means and standard deviations were within expected ranges for all variables. CES-D means of 16.71 and 15.57 indicate some depressive symptomatology in this sample, but are normative scores for an adolescent population (e.g., Santor et al., 1995). An ISEL mean of 35.53 is also comparable to mean ISEL scores in other samples of college students (e.g., Brookings & Bolton, 1988; Coffman & Gilligan, 2002). The mean SNI Network Diversity score indicates that on average, students in the current sample are integrated into 8.70 different social domains (e.g., family, classmates, friends, coworkers). Finally, the SES means suggest that on average, students in this sample fall in the mid-range of family affluence and subjective SES.

Primary Analyses

The following section delineates the hypotheses of the current study and provides information about conditional process modeling and the PROCESS Macro, an SPSS add-on that was used to execute the analyses (Hayes, 2013a).

A detailed explanation of each hypothesis can be found at the end of the previous chapter. Hypotheses 1 and 2 explore the relationships between the variables in the study, Hypothesis 3 is a question of mediation, and Hypotheses 4 through 6 comprise the moderated mediation model. In sum, these hypotheses explore whether there is an indirect effect of network diversity on depressive symptoms through perceived support and how this effect differs according to socioeconomic status.

Given that one main goal of the study was to differentiate between distinct indicators of SES (i.e., family affluence, generation status, subjective SES as compared to peers, and subjective SES as compared to society), the moderated mediation path was tested four separate times: once using family affluence; once using generation status; and once using subjective SES compared to peers; and once using subjective SES compared to society. Race, gender, and the Time 1 depression score were entered as covariates into each model. The Time 2 depression score was the outcome variable in each model.

Moderated Mediation and PROCESS

The equations comprising the current conditional process model are most easily executed using Hayes' (2013b) PROCESS macro in SPSS. Figure 3 shows a statistical diagram of the conceptual model in the current study.

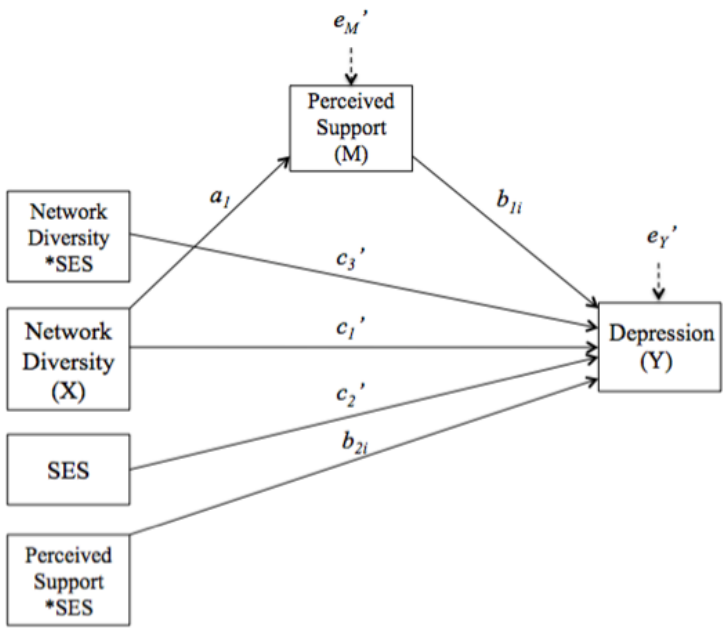


Figure 3. Statistical Diagram of the Conditional Process Model in the Current Study

The equations corresponding to the model are:

$$M = i_1 + a_X + e_M$$

$$Y = i_2 + c_1'X + c_2'V + c_3'XV + b_1M + b_2MV + e_Y$$

Grouping terms involving X and factoring out X, the conditional direct effect of network diversity (X) on depression (Y) is $c_1' + c_3'V$ (where V represents SES).

Grouping terms involving M and factoring out M, the effect of perceived support (M) on depression (Y) is $b_{1i} + b_{2i}V$. Because the conditional indirect effect of network diversity (X) on depression (Y) through perceived support (M) is the product of path *a* and conditional path *b*, the conditional indirect effect is defined as $a(b_{1i} + b_{2i}V)$.

Because Hayes' method for assessing moderated mediation is based on OLS regression techniques, the results provide unstandardized regression coefficients, standard errors, degrees of freedom, changes in R2, and F values (Hayes, 2013a). P-values are provided to infer significance of the direct and indirect pathways and interaction terms (i.e., SES by perceived support and SES by network diversity). In order to infer significance of the conditional direct and indirect effects, bootstrap confidence intervals are produced for different levels of the moderator (Edwards & Lambert, 2007; Hayes, 2013a; Preacher et al., 2007). In the current study, the significance of direct and indirect effects were tested at the 10th, 25th, 50th, 75th, and 90th percentiles of family affluence, the society ladder, and the peer ladder, and at two levels of generation status (i.e., first vs. continuing generation).

Finally, the PROCESS output provides what Hayes refers to as an Index of Moderated Mediation (Hayes, 2013a; Hayes, 2015). Moderated mediation occurs when the indirect effect of X on Y through M is a function of a moderating variable. Hayes states, "a mediation process can be said to be moderated if the proposed moderator variable has a nonzero weight in the function linking the indirect effect of X on Y through M to the moderator" (Hayes, 2015, p.3). The Index of Moderated Mediation, therefore,

quantifies the effect of the moderator on the indirect effect (Hayes, 2015). The numerical value of the Index of Moderated Mediation represents the slope of the line relating the indirect effect to the moderator.

As mentioned above, the conditional indirect effect in the current model is defined as $a(b_{1i} + b_{2i}V)$, or $ab_{1i} + ab_{2i}V$. This equation represents a line with intercept ab_{1i} and slope ab_{2i}; thus, the indirect effect of network diversity on depression through perceived support is a linear function of SES. The slope of this line, ab_{2i}, is the weight in the function linking the indirect effect to the moderator, or the Index of Moderated Mediation (Hayes, 2015).

Bias-corrected bootstrap confidence intervals are calculated to infer the significance of the Index value. Hayes (2015) explains that a statistically significant Index value should be interpreted to mean that any two conditional indirect effects (i.e., the indirect effect at any two different levels of the moderator) are significantly different from each other. Moreover, an Index of Moderated Mediation that is not statistically significant signifies that no two conditional indirect effects are statistically different from one another (Hayes, 2015). Of note, moderated mediation can exist regardless of whether a significant interaction exists between the moderator and the X or M variable (Hayes, 2015).

Results: Hypotheses 1 through 3

Hypothesis 1

A significant negative correlation is expected between each socioeconomic indicator and depression, such that lower family affluence, first-generation status, and subjective social status will be significantly correlated with higher levels of depression.

Pearson Product Moment Correlations were calculated to assess the relation between each SES indicator, Time 1 depression score, and Time 2 depression score. These correlations were all in the expected direction, where higher SES was associated with fewer depressive symptoms. As seen in Table 6 below, significant correlations were found between family affluence and depression (r=-.139, p<.01 for Time 2 depression), subjective SES-peer and depression (r=-.127; p<.01 for Time 2 depression), and subjective SES-society and depression (r=-.193; p<.01 for Time 2 depression). The correlation between generation status and Time 2 depression was not significant (r=.051, p=.337); however generation status and Time 1 depression were significantly correlated (r=.098, p<.01), likely due to the larger number of Time 1 depression scores (N=618 vs. 424 Time 2 depression scores). Of note, the strength of association between all of these variables was low; each SES indicator accounted for a very small percent of the variance in both Time 1 and Time 2 depression scores.

Hypothesis 2

A significant negative correlation is expected between each measure of social support and depression, such that lower levels of network diversity and perceived support will be significantly correlated with higher levels of depression.

Table 6 also includes correlations between each measure of social support, Time 1 depression score, and Time 2 depression score. As predicted, significant correlations were found between perceived support and depression (r=-.519; p<.01 for Time 2 depression) and network diversity and depression (r=-.124; p<.01 for Time 2 depression). Both correlations were in the expected direction, where higher social support was associated with fewer depressive symptoms. Of note, perceived support accounted for much more of the variance in depression (e.g., 26.9% of the variance in Time 2 depression) than network diversity did (e.g., 1.5% of the variance in Time 2 depression).

Table 6

Intercorrelations Between Main Variables

	1	2	3	4	5	6	7	8
1: Family Affluence	1	.231**	.390**	-.398**	.130**	.333**	-.105**	-.151**
2: Subjective SES (Peer)		1	.505**	-.138**	.157**	.244**	-.132**	-.132**
3: Subjective SES (Society)			1	-.311**	.163**	.393**	-.246**	-.193**
4: Gen. Status[a]				1	.029 (p=.475)	-.162**	.098*	.062 (p=.201)
5: Network Diversity					1	.424**	-.140**	-.124*
6: Perceived Support						1	-.539**	-.519**
7: T1 Depression							1	.705**
8: T2 Depression								1

Note. *p=.01; **p<.01; [a]Please note that first-generation college students were coded "1" and continuing generation students were coded "0"

Though not a hypothesis in the current study, it is worth noting that each SES indicator was significantly correlated with perceived support and network diversity (with the exception of generation status not correlating significantly with network diversity). These correlations were in the expected direction, where increased SES indicators were

associated with increased social support and vice versa, lending further empirical support to the positive correlation between SES and social support.

Hypothesis 3

Perceived support will mediate the relation between network diversity and level of depression. Individuals with fewer social roles (i.e., less diverse social networks) will perceive less support to be available, leading to higher levels of depression.

The output for the model assessing Hypotheses 4 through 6 provides only conditional indirect effects (i.e., mediation at various levels of each moderator). Thus, a separate mediation model not including conditional direct and indirect effects was run to more clearly address the question of mediation in Hypothesis 3.

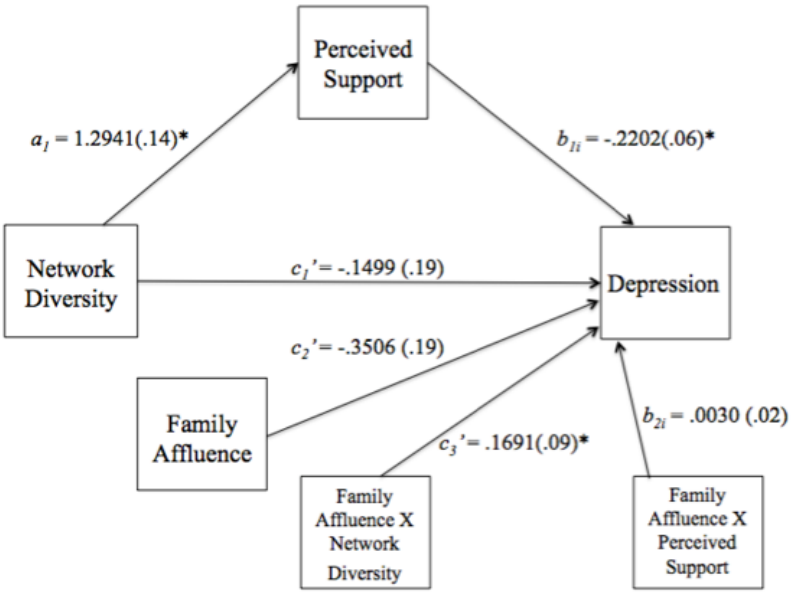
The bootstrap confidence interval for the indirect effect of network diversity on depression via perceived support did not span zero (95% CI [-.5243, -.1432]), indicating that perceived support significantly mediated the association between network diversity and depressive symptoms. Results of the Sobel test also suggested significant mediation (z=-3.7536, p<.0001).

Results: Hypotheses 4 through 6

The results for Hypotheses 4 through 6 are organized below according to SES indicator. Results for each hypothesis are provided separately for each version of the

model (i.e., with family affluence as the moderator, with subjective SES – peer as the moderator, etc.).

Model 1: Family Affluence (n=421)



Note. *p≤.05. Covariates (race, gender, T1 depression) not pictured.

R^2 = .5418
F (12, 408) = 40.21
p < .0001

Figure 4. Path Coefficients and Standard Errors for Conditional Process Model (Family Affluence)

Figure 4 includes the regression coefficients and standard errors for each path in the conditional process model. Some of these paths do not directly relate to any of the hypotheses (e.g., the effect of family affluence on depression); nonetheless, an examination of the entire conditional process model is important to understanding the

hypotheses below. Paths c_3' and b_{2i} relate to Hypotheses 4 and 5, which are discussed below.

The effect of network diversity on perceived support (path a_1) was positive and statistically significant (B=1.2941, p<.0001), suggesting that more network diversity contributes to higher levels of perceived support. Path b_1 estimates the effect of perceived support on depression in individuals with a mean level of family affluence and equal in network diversity. This effect was negative and statistically significant (B=-.2202, p<. *001*), suggesting that an increase in perceived support contributes to a decrease in depressive symptoms. The effect of network diversity on depression is represented by c_1, which was in the expected negative direction but not at a statistically significant level (B=-.1499, p=.4193). In sum, Figure 4 shows that network diversity did not directly affect depression, but did affect depression indirectly via its effect on perceived support.

Table 7.

Conditional Direct Effects of Network Diversity on Depression (Family Affluence)

Family Affluence Percentile Values	Effect	SE	t	p	LLCI	ULCI
-2.9976	-0.6568	0.3271	-2.0079	**0.0453**	**-1.2999**	**-0.0138**
-0.9976	-0.3186	0.2081	-1.5308	0.1266	-0.7278	0.0905
0.0024	-0.1495	0.1854	-0.8063	0.4206	-0.5140	0.2150
1.0024	0.0196	0.2018	0.0972	0.9227	-0.3771	0.4163
3.0024	0.3578	0.3150	1.1361	0.2566	-0.2613	0.9770

Note: 95% bias-corrected bootstrap confidence intervals were produced for the 10th, 25th, 50th, 75th, and 90th percentiles of family affluence. Bias-corrected bootstrap confidence intervals are based on 1,000 bootstrap resamples. Statistically significant effects are bolded. Perceived support, network diversity, and family affluence were mean centered prior to analysis. The conditional direct effect of network diversity on depression at various levels of family affluence, when perceived support scores are held constant, is $c_1' + c_3'V$.

Hypothesis 4 - Family Affluence

Family affluence will moderate the relation between network diversity and depression, such that the negative relation between network diversity and depression will become stronger with each decrease in level of family affluence (Moderation of the Direct Effect: Family Affluence X Network Diversity).

As shown in Figure 4 (c_3'), family affluence moderated the direct effect of network diversity on depression (B=.1691, p=.0536). The regression coefficient for this

interaction was .1691, suggesting that the effect of network diversity on depression became increasingly positive as family affluence increased. Because four conditional process models were tested in total, the Bonferroni correction could arguably be used to adjust the p-value used to assess the significance of results. In that case, family affluence would not be said to significantly moderate effect of network diversity on depression.

Table 7 shows the direct effect of network diversity on depression for individuals in each percentile of family affluence. The direct effect was negative for those in the 10th, 25th, and 50th percentiles, indicating that relatively more network diversity was associated with relatively fewer symptoms of depression for these individuals. This association was statistically significant only among individuals in the 10th percentile of family affluence (95% CI [-1.2999, -.0138]). This confidence interval is entirely below zero, suggesting that network diversity directly affected depression only for those at the lowest level of family affluence.

The direct effect of network diversity on depression was positive for individuals in the 75th and 90th percentiles of family affluence, indicating that relatively more network diversity was associated with relatively more symptoms of depression for these individuals. However, the direct effect for these individuals was not significant as evidenced by confidence intervals that spanned zero.

Hypothesis 5 - Family Affluence

Family affluence will moderate the relation between perceived support and depression, such that the negative relation between perceived support and depression will become stronger with each decrease in level of family affluence (Moderation of Path B: Family Affluence X Perceived Support).

As shown in Figure 4 (path b_{2i}), an individual's family affluence did not influence the effect of perceived support on depression (*B*= .0030, *p*=.8982).

Table 8.

Index of Moderated Mediation (Family Affluence)

Index	Bootstrap SE	Bootstrap LLCI	Bootstrap ULCI
0.0039	0.0306	-0.0583	0.0626

Table 9.

Conditional Indirect Effects of Network Diversity on Depression (Family Affluence)

Family Affluence Percentile Values	Effect	Bootstrap SE	LLCI	ULCI
-2.9976	-0.2966	0.1168	**-0.5522**	**-0.0892**
-0.9976	-0.2888	0.0964	**-0.4910**	**-0.1101**
0.0024	-0.2850	0.0997	**-0.4944**	**-0.0963**
1.0024	-0.2811	0.1115	**-0.5147**	**-0.0692**
3.0024	-0.2733	0.1518	-0.6065	0.0173

Note: 95% bias-corrected bootstrap confidence intervals were produced for the 10th, 25th, 50th, 75th, and 90th percentiles of family affluence. Bias-corrected bootstrap confidence intervals are based on 1,000 bootstrap resamples. Statistically significant effects are bolded. Perceived support, network diversity, and family affluence were mean centered prior to analysis. The conditional indirect effect of network diversity on depression through perceived support at various levels of family affluence is $Y=a(b_{1i} + b_{2i}V)$, where V is family affluence percentile.

Hypothesis 6 - Family Affluence

The indirect effect of network diversity on depression via perceived support will differ according to family affluence, such that the indirect effect will become stronger as family affluence decreases (Moderated Mediation).

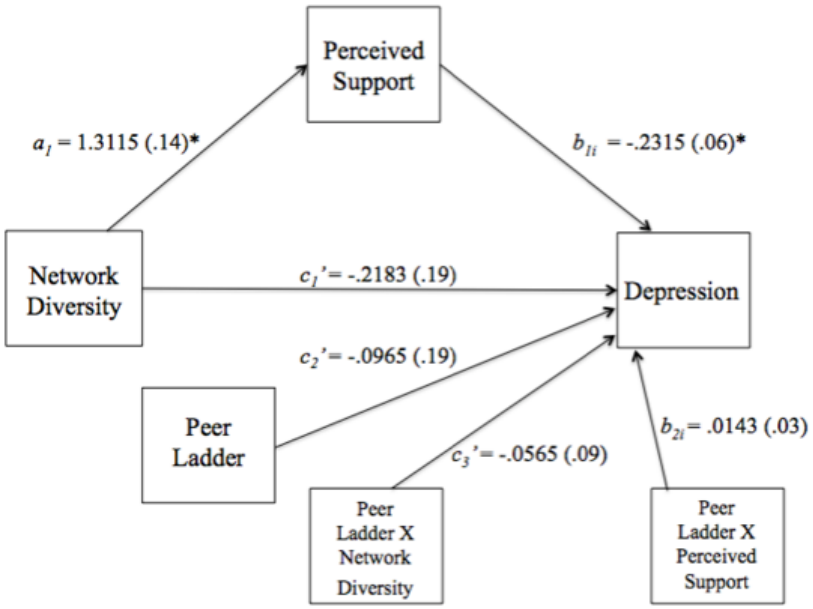
Table 9 shows that the confidence interval for the Index of Moderated Mediation spanned zero (95% CI [-.0583, .0626]). This means that the strength of the indirect effect of network diversity on depression via perceived support did not depend on level of family affluence. As shown in Table 9, the indirect effect was strongest for individuals at

the 10th percentile of family affluence (a one-unit increase in network diversity was associated with a .2966 unit decrease in depression via the positive affect of network diversity on perceived support) and did not exist for those in the 90th percentile (95% CI [-.6065, .0173]). However, the Index of Moderated Mediation shows that the indirect effect at one level of family affluence was not statistically different from the indirect effect at any other level of family affluence.

Summary of Family Affluence Model

There was some evidence that family affluence moderated the direct effect of network diversity on depression (Hypothesis 4); this interaction term was statistically significant (see Figure 4, path c_3') and the effect of network diversity on depression was significant only for those in the 10th percentile of family affluence (see Table 6). However, family affluence did not moderate the effect of perceived support on depression (Hypothesis 5; see Figure 4, path b_{2i}). Finally, the mediation process itself was not moderated by family affluence in this sample. In other words, the indirect effect of network diversity on depression via perceived support existed to the same extent for individuals at all levels of family affluence (Hypothesis 6).

Model 2: Subjective SES - Peer Ladder (n=416)



Note. *p<.05. Covariates (race, gender, T1 depression) not pictured.

R^2 = .5430
F (12, 403) = 39.9099
p < .0001

Figure 5. Path Coefficients and Standard Errors for Conditional Process Model (Subjective SES - Peer Ladder)

Figure 5 includes the regression coefficients and standard errors for each path in the conditional process model. Some of these paths do not directly relate to any of the hypotheses (e.g., the effect of subjective SES-peer on depression); nonetheless, an examination of the entire conditional process model is important to understanding the hypotheses below. Paths c_3' and b_{2i} relate to Hypotheses 4 and 5, which are discussed

below. The a_1, b_{1i}, and c_1' path coefficients and p-values are not explicated here, as they are similar to those from the family affluence model (See Figure 4). As in Figure 4, shows that network diversity did not directly affect depression, but did affect depression indirectly via its effect on perceived support.

Table 10.

Conditional Direct Effects of Network Diversity on Depression (Subjective SES-Peer Ladder)

Family Affluence Percentile Values	Effect	Bootstrap SE	LLCI	ULCI
-2.9976	-0.2966	0.1168	**-0.5522**	**-0.0892**
-0.9976	-0.2888	0.0964	**-0.4910**	**-0.1101**
0.0024	-0.2850	0.0997	**-0.4944**	**-0.0963**
1.0024	-0.2811	0.1115	**-0.5147**	**-0.0692**
3.0024	-0.2733	0.1518	-0.6065	0.0173

Note: 95% bias-corrected bootstrap confidence intervals were produced for the 10th, 25th, 50th, 75th, and 90th percentiles of family affluence. Bias-corrected bootstrap confidence intervals are based on 1,000 bootstrap resamples. Statistically significant effects are bolded. Perceived support, network diversity, and family affluence were mean centered prior to analysis. The conditional indirect effect of network diversity on depression through perceived support at various levels of family affluence is $Y=a(b_{1i} + b_{2i}V)$, where V is family affluence percentile.

Hypothesis 4 - Subjective SES (Peer Ladder)

Subjective SES compared to peers will moderate the relation between network diversity and depression, such that the negative relation between network diversity and depression will become stronger with each decrease in subjective SES

(Moderation of the Direct Effect: Subjective SES – Peer Ladder X Network Diversity).

As shown in Figure 5 (path c_3'), an individual's position on the peer ladder did not moderate the direct effect of network diversity on depression (*B*=-.0565, *p*=.5419). Table 10 shows the direct effect of network diversity on depression for individuals in each percentile of the peer ladder. As expected given that the peer ladder did not moderate the relation between network diversity and depression, the bootstrap confidence intervals spanned zero for each peer ladder percentile (i.e., the direct effect of network diversity on depression was not significant at any percentile of the peer ladder).

Hypothesis 5 - Subjective SES (Peer Ladder)

Subjective SES compared to peers will moderate the relation between perceived support and depression, such that the negative relation between perceived support and depression will become stronger with each decrease in subjective SES (Moderation of Path B: Subjective SES – Peer Ladder X Perceived Support).

As shown in Figure 5 (path b_{2i}), an individual's position on the peer ladder did not moderate the affect of perceived support on depression (*B*=.0143, *p*=.5703).

Table 11.

Index of Moderated Mediation (Subjective SES - Peer Ladder)

Index	Bootstrap SE	Bootstrap LLCI	Bootstrap ULCI
0.0187	0.0335	-0.0437	0.0884

Table 12.

Conditional Indirect Effects of Network Diversity on Depression (Subjective SES-Peer Ladder)

Peer Ladder Percentile Values	Effect	Bootstrap SE	LLCI	ULCI
-2.8558	-0.3571	0.1244	**-0.6346**	**-0.1422**
-0.8558	-0.3197	0.0977	**-0.5241**	**-0.1472**
0.1442	-0.3010	0.0996	**-0.5065**	**-0.1095**
1.1442	-0.2823	0.1120	**-0.5083**	**-0.0744**
2.1442	-0.2635	0.1320	**-0.5377**	**-0.0215**

Note: 95% bias-corrected bootstrap confidence intervals were produced for the 10th, 25th, 50th, 75th, and 90th percentiles of the peer ladder. Bias-corrected bootstrap confidence intervals are based on 1,000 bootstrap resamples. Statistically significant effects are bolded. Perceived support, network diversity, and peer ladder scores were mean centered prior to analysis. The conditional indirect effect of network diversity on depression through perceived support at various levels of the peer ladder is $Y=a(b_{1i} + b_{2i}V)$, where V is peer ladder percentile.

Hypothesis 6 - Subjective SES (Peer Ladder)

The indirect effect of network diversity on depression via perceived support will differ according to subjective SES compared to peers, such that the indirect effect will become stronger as subjective SES decreases (Moderated Mediation).

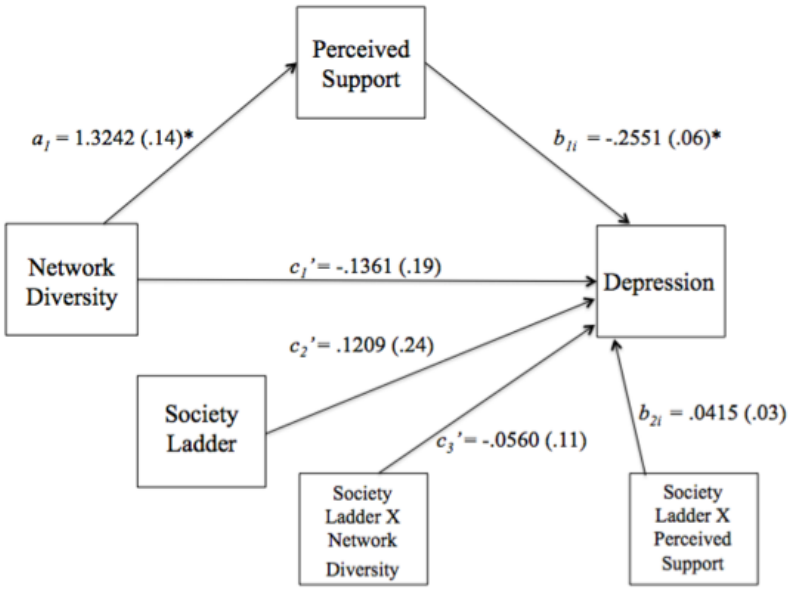
Table 11 shows that the confidence interval for the Index of Moderated Mediation spanned zero (95% CI [-.0437, .0884]). This means that the strength of the indirect effect of network diversity on depression via perceived support did not depend an individual's

subjective SES compared to peers. As shown in Table 12, the indirect effect was strongest for individuals in the 10th percentile of the peer ladder (a one-unit increase in network diversity was associated with a .3571 unit decrease in depression via the positive effect of network diversity on perceived support). However, the Index of Moderated Mediation shows that the indirect effect at one level of the peer ladder was not statistically different from the indirect effect at any other level of the peer ladder.

Summary of Subjective SES (Peer Ladder) Model

Subjective SES compared to peers moderated neither the direct effect of network diversity (Hypothesis 4) nor the effect of perceived support on depression (Hypothesis 5). Finally, the mediation process itself was not moderated by subjective SES compared to peers in this sample. In other words, the indirect effect of network diversity on depression via perceived support existed to the same extent for individuals at all levels of the peer ladder (Hypothesis 6).

Model 3: Subjective SES - Society Ladder (n=418)



Note. *p<.05 . Covariates (race, gender, T1 depression) not pictured.

R^2 = .4650
F (8, 409) = 44.4446
p < .0001

Figure 6. Path Coefficients and Standard Errors for Conditional Process Model (Moderator: Subjective SES – Society Ladder)

Figure 6 includes the regression coefficients and standard errors for each path in the conditional process model. Some of these paths do not directly relate to any of the hypotheses (e.g., the effect of subjective SES-society on depression); nonetheless, an examination of the entire conditional process model is important to understanding the hypotheses below. Paths c_3' and b_{2i} relate to Hypotheses 4 and 5, which are discussed below. The a_1, b_{1i}, and c_1' path coefficients and p-values are not explicated here, as they

are similar to those from the Model 1 and Model 2 (see Figures 4 and 5). As in Figures 4and 5, Figure 6 shows that network diversity did not directly affect depression, but did affect depression indirectly via its effect on perceived support.

Table 13.

Conditional Direct Effects of Network Diversity on Depression (Subjective SES-Society Ladder)

Society Ladder Percentile Values	Effect	SE	t	p	LLCI	ULCI
-1.8329	-0.0332	0.2729	-0.1218	0.9031	-0.5696	0.5032
-0.8349	-0.0893	0.2073	-0.4307	0.6670	-0.4958	0.3182
0.1651	-0.1453	0.1891	-0.7684	0.4427	-0.5171	0.2265
1.1651	-0.2014	0.2299	-0.8759	0.3816	-0.6533	0.2506
2.1651	-0.2574	0.3069	-8386	0.4022	-0.8608	0.3460

Note. 95% bias-corrected bootstrap confidence intervals were produced for the 10th, 25th, 50th, 75th, and 90th percentiles of the society ladder. Bias-corrected bootstrap confidence intervals are based on 1,000 bootstrap resamples. Statistically significant effects are bolded. Perceived support, network diversity, and society ladder scores were mean centered prior to the analysis. The conditional direct effect of network diversity on depression at various levels of the society ladder, when perceived support scores are held constant, is c1' + c3'V.

Hypothesis 4 - Subjective SES (Society Ladder)

Subjective SES compared to society will moderate the relation between network diversity and depression, such that the negative relation between network diversity and depression will become stronger with each decrease in subjective SES (Moderation of the

Direct Effect: Subjective SES – Society Ladder X Network Diversity).

As shown in Figure 6 (path c_3'), an individual's position on the society ladder did not moderate the direct effect of network diversity on depression (*B*=-.0560, *p*=.6113). Table 13 shows the direct effect of network diversity on depression in each percentile of the peer ladder. As expected given that the society ladder did not moderate the relation between network diversity and depression, the bootstrap confidence intervals spanned zero for each society ladder percentile (i.e., the direct effect of network diversity on depression was not significant at any percentile of the society ladder).

Hypothesis 5 - Subjective SES (Society Ladder)

Subjective SES compared to society will moderate the relation between perceived support and depression, such that the negative relation between perceived support and depression will become stronger with each decrease in subjective SES (Moderation of Path B: Subjective SES – Society Ladder X Perceived Support).

As shown in Figure 6 (path b_{2i}), an individual's position on the society ladder did not moderate the direct effect of perceived support on depression (*B*=.0415, *p*=.1652).

Table 14.

Index of Moderated Mediation (Subjective SES-Society Ladder)

Index	Bootstrap SE	Bootstrap LLCI	Bootstrap ULCI
0.0549	0.0404	-0.0222	0.1396

Table 15.

Conditional Indirect Effects of Network Diversity on Depression (Subjective SES-Society Ladder)

Society Ladder Percentile Values	Effect	Bootstrap SE	LLCI	ULCI
-1.8349	-0.4386	0.1134	**-0.6809**	**-0.2318**
-0.8349	-0.3837	0.0989	**-0.5852**	**-0.2053**
0.1651	-0.3287	0.0999	**-0.5458**	**-0.1475**
1.1442	-0.2823	0.1120	**-0.5083**	**-0.0744**
2.1651	-0.2188	0.1420	-0.5059	0.0331

Note: 95% bias-corrected bootstrap confidence intervals were produced for the 10th, 25th, 50th, 75th, and 90th percentiles of the society ladder. Bias-corrected bootstrap confidence intervals are based on 1,000 bootstrap resamples. Statistically significant effects are bolded. Perceived support, network diversity, and society ladder scores were mean centered prior to analysis. The conditional indirect effect of network diversity on depression through perceived support at various levels of the society ladder is $Y=a(b_{1i} + b_{2i}V)$, where V is society ladder percentile.

Hypothesis 6 - Subjective SES (Society Ladder)

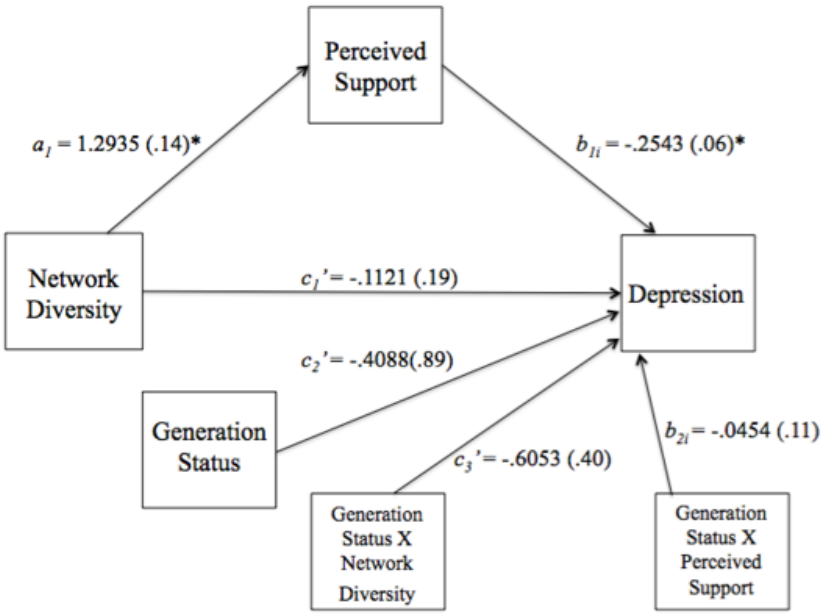
The indirect effect of network diversity on depression via perceived support will differ according to subjective SES compared to society, such that the indirect effect will become stronger as subjective SES decreases (Moderated Mediation).

Table 14 shows that the confidence interval for the Index of Moderated Mediation spanned zero (95% CI [-.0222, .1396]). This means that the strength of the indirect effect of network diversity on depression via perceived support did not depend an individual's subjective SES compared to society. As shown in Table 15, the indirect effect was strongest for individuals in the 10th percentile of the society ladder (a one-unit increase in network diversity was associated with a .4386 unit decrease in depression via the positive effect of network diversity on perceived support) and did not exist for those in the 90th percentile (95% CI [-.6065, .0173]). However, the Index of Moderated Mediation shows that the indirect effect at one level of the society ladder was not statistically different from the indirect effect at any other level of the society ladder.

Summary of Subjective SES (Society Ladder) Model

Subjective SES compared to society moderated neither the direct effect of network diversity (Hypothesis 4) nor the effect of perceived support on depression(Hypothesis 5). Finally, the mediation process itself was not moderated by subjective SES-society in this sample; in other words, the indirect effect of network diversity on depression via perceived support existed to the same extent for individuals at all levels of the society ladder (Hypothesis 6).

Model 4: Generation Status (n=420)



Note. *p<.05. Covariates (race, gender, T1 depression) not pictured.

R2 = .4590
F (8, 411) = 43.5876
p < .0001

Figure 7. Path Coefficients and Standard Errors for Conditional Process Model (Generation Status)

Figure 7 includes the regression coefficients and standard errors for each path in the conditional process model. Some of these paths do not directly relate to any of the hypotheses (e.g., the effect of generation status on depression); nonetheless, an examination of the entire conditional process model is important to understanding the hypotheses below. Paths c_3' and b_{2i} relate to Hypotheses 4 and 5, which are discussed below. The a_1, b_{1i}, and c_1' path coefficients and p-values are not explicated here, as they

are similar to those from Models 1 through 3 above (see Figures 4, 5, and 6). As in Figures 4 through 6, Figure 7 shows that network diversity did not directly affect depression, but did affect depression indirectly via its effect on perceived support.

Table 16.

Conditional Direct Effects of Network Diversity on Depression (Generation Status)

Generation Status	Effect	SE	t	p	LLCI	ULCI
First Gen.	0.0479	0.2177	0.2201	0.8259	-0.3800	0.4758
Continuing Gen.	-0.5574	0.3426	-1.6271	0.1045	-1.2308	0.1160

Note. 95% bias-corrected bootstrap confidence intervals were produced for first-generation and continuing-generation students. Bias-corrected bootstrap confidence intervals are based on 1,000 bootstrap resamples. Perceived support and network diversity scores were mean centered prior to the analysis. The conditional direct effect of network diversity on depression for first vs. continuing generation students, when perceived support scores are held constant, is c1' + c3'V.

Hypothesis 4 - Generation Status

Generation status will moderate the relation between network diversity and depression, such that the negative relation between network diversity and depression will be stronger for first-generation students (Moderation of the Direct Effect: Generation Status X Network Diversity).

As shown in Figure 7 (path c_3'), an individual's generation status did not moderate the direct effect of network diversity on depression (B=-.6035, p=.1321). Table 16 shows the direct effect of network diversity on depression for first and continuing

generation college students. As expected given that generation status did not moderate the relation between network diversity and depression, the bootstrap confidence intervals spanned zero for both first and continuing generation students (i.e., the direct effect of network diversity on depression was not significant for either group).

Hypothesis 5 - Generation Status

Generation status will moderate the relation between perceived support and depression, such that the negative relation between perceived support and depression will be stronger for first-generation students (Moderation of Path B: Generation Status X Perceived Support).

As shown in Figure 7 (path b_{2i}), an individual's generation status did not moderate the direct effect of perceived support on depression (*B*=-.0454, *p*=.6830).

Table 17.

Index of Moderated Mediation (*Generation Status*)

Index	Bootstrap SE	Bootstrap LLCI	Bootstrap ULCI
-0.0588	0.1391	-0.3427	0.1960

Table 18.

Conditional Indirect Effects of Network Diversity on Depression for First and Continuing Generation Students

Generation Status	Effect	Bootstrap SE	LLCI	ULCI
First Gen.	-0.3134	0.1051	**-0.5131**	**-0.1028**
Continuing Gen.	-0.3722	0.1360	**-0.6966**	**-0.1471**

Note. Bias-corrected bootstrap confidence intervals are based on 1,000 bootstrap resamples. The conditional indirect effect of network diversity on depression through perceived support for first vs. continuing generation college students is is $Y=a(b_{1i} + b_{2i}V)$, where V is generation status.

Hypothesis 6 - Generation Status

The indirect effect of network diversity on depression via perceived support will differ according to generation status, such that the indirect effect will be stronger for first-generation students (Moderated Mediation).

Table 17 shows that the confidence interval for the Index of Moderated Mediation spanned zero (95% CI [-.3427, .1960]). This means that the strength of the indirect effect of network diversity on depression via perceived support did not depend on an individual's generation status. As shown in Table 18, the indirect effect was stronger for continuing generation students. However, the Index of Moderated Mediation shows that the indirect effects for first-generation and continuing-generation students were not statistically different.

Summary of Generation Status Model

Generation status moderated neither the direct effect of network diversity

(Hypothesis 4) nor the effect of perceived support on depression (Hypothesis 5). Additionally, the mediation process itself was not moderated by generation status in this sample; in other words, the indirect effect of network diversity on depression via perceived support existed to the same extent for first and continuing generation students (Hypothesis 6).

Supplemental Analyses

As mentioned above, there was some variability in the number of days between participants' Time 1 and Time 2 responses (Range = 0 to 54; Mean = 29.83; SD = 12.55). For this reason and because of the larger sample size when Time 1 was used as the outcome measure, an exploration of results using Time 1 depression score as the outcome was deemed potentially useful. Results from analyses using Time 1 depression as the outcome variable are presented below; one for each SES indicator, as organized above. To simplify the comparison of results with Time 1 and Time 2 depression scores as the outcome, only results that differed are noted below. Additional results using Time 1 as the outcome variable are included in Appendix I.

Network diversity had a significant direct effect on depression in each of the four models when Time 1 depression was the outcome measure. This differed from results when Time 2 depression was the outcome measure, where network diversity did not directly effect depression in any model. Additionally, the regression coefficients for the significant direct effects of network diversity on depression were positive when Time 1 depression was the outcome measure. This differed from the direct effect when Time 1 depression was the outcome measure, which—although nonsignificant—was in the

negative direction for all four models.

With regard to Hypothesis 3 (mediation), perceived support significantly mediated the association between network diversity and T1 depressive symptoms. The bootstrap confidence interval for the indirect effect of network diversity on T1 depression via perceived support did not span zero (95% CI [.1679, .8882]). Results of the Sobel test also suggested significant mediation (z=-9.1834, p<.0001).

With regard to Hypotheses 4 through 6, none of the SES indicators moderated the relation between network diversity or perceived support and T1 depression. There were some differences in the conditional direct and indirect effects when T1 depression was the outcome measure, which are delineated in Table 19 below. As with the conditional direct and indirect effects in the four models above, the results in Table 19 should be interpreted with the knowledge that SES did not moderate the direct or indirect effect for any model.

In order to rule out the possibility that these differences were attributable to a change in the make-up of the sample when Time 1 was used as the outcome, the models below (i.e., using Time 1 depression as the outcome) were also examined using only cases with complete data. No notable differences were found, suggesting that the differences in results with Time 1 and Time 2 depression were due to some factor other than systematic differences in the sample.

Table 19.

Comparison of Significant Findings with Time 1 vs. Time 2 Depression Score

	Family Affluence		Subjective SES - Peer Ladder		Subjective SES - Society Ladder		Generation Status	
	T1	T2	T1	T2	T1	T2	T1	T2
Conditional direct effects	25th, 50th, 75th	10th	25th, 50th, 75th, 90th	None	10th, 25th, 50th	None	First Gen.	None
Conditional indirect effects	All	10th, 25th, 50th, 75th	All	All	All	10th, 25th, 50th, 75th	All	All

Note. Each cell contains the percentiles for which the conditional effects were significant.

Qualitative Analyses

Participants were asked to respond to a number of open-ended questions related to the main constructs of interest as part of the Time 2 survey. As mentioned in Chapter 3, the number of responses provided to the open-ended questions was more than could be analyzed with formal qualitative methodology given the scope and purpose of the current research study. Question #1 was reviewed and themes generated systematically by Dr. McCarthy's research team. To analyze Questions #2 through #6, the primary researcher selected 25 participants at random and examined those participants' responses to each question. The researcher read the responses once, noted possible things, read the responses a second time to refine the themes, and read the responses a third time to tally

the number of times each theme was mentioned (i.e., the number of participants whose responses could be categorized in each theme). Some responses below are noted as coming from high or low-SES students. This was determined by examining participants' responses to Question 1; the open-ended responses were not linked to the quantitative data (e.g., demographic questionnaire, Family Affluence Scale).

Question 1. *Have you felt aware of your social class during your time in college? If so, please explain how that awareness has affected your mood, outlook on your college career, and other experiences.*

The responses to this question fell into four main categories: no awareness of social class; awareness of social class, but not affected by this awareness; awareness with a positive effect; and awareness with a negative effect. A number of students indicated that they have not felt aware of their social class and others reported that they have, but that this has not affected their mood or outlook. However, the majority of responses fell into the latter two categories.

For some, awareness of social class was described in positive terms; for example, many students reported feeling motivated to work hard and achieve their goals because of their socioeconomic status. On the other hand, some expressed that this pressure to work harder did was not without consequences, such as anger about systemic imbalances and the effects of these imbalances on their lives. Many students also endorsed stress and limited social integration due to financial limitations. A number of students spoke about the consequences of spending non-class time at work, explaining that they have less time

and money for informal social activities (e.g., going out to eat and drink) and formal social activities (e.g., belonging social organizations). With regard to higher-SES students' responses, some described feeling grateful and humbled by their social class, some referenced feelings of guilt related to their privilege, and others described feeling isolated because of others' assumptions about their privilege.

Question 2. *How might your time in college have been different if you belonged to a different social class?*

Students most frequently responded to this question by noting that their socioeconomic background has determined the degree to which they were able to participate in extracurricular activities. Many students, both high and low SES, recognized limited opportunities as a consequence of having to work in addition to going to school. Missed opportunities included formal social clubs (e.g., Greek life), informal socializing (e.g., going out to eat and drink), taking trips, studying abroad, and pursuing academic and professional opportunities (e.g., job shadowing, joining organizations). Relatedly, multiple students mentioned that SES influenced how close they were able to live to campus which, in turn, influenced their degree of social integration.

While many students noted the lifestyle changes that coming from a different SES would entail, some spoke about the possible psychological and emotional implications of being in a different SES. The words most frequently used to describe the impact of being lower SES were "stressed" and "worried." This was typically related to real or

hypothetical (depending on the student's SES) difficulties balancing work and school, limited free time, and having to closely monitor spending.

Question 3. *Have you have felt an adequate amount of social support? If so, what circumstances, people, and/or other factors have allowed you to feel that way?*

The majority of students indicated that they have felt an adequate amount of social support during their time at UT. A pattern emerged in which those who described a lack of social support were relatively low-SES (as concluded by students' responses to the other open-ended questions). Reasons for these students' lack of perceived support included a sense of not fitting in and limited time to foster relationships due to school and work demands. However, some low-SES students wrote about finding support through close bonds with other students from similar backgrounds.

Those who did endorse adequate social support most often named close friends and family members, particularly parents, as their most important sources of support. Many students indicated that their fellow fraternity or sorority members were also important contributors to their sense of social support. However, student often made a distinction made between the larger circle of fraternity/sorority friends and a smaller, more intimate circle of friends ("I have a small group of really great friends that I always know will be there, and I have a larger social support system through the sorority that I am a part of"). Other sources of support included institutional support (e.g., the Gateway program, the Counseling and Mental Health Center, students organizations), sports teammates, and fellow members of religious organizations.

Question 4. *If you haven't felt an adequate amount of social support, what changes would allow you to feel more supported?*

Students' ideas about what would enhance their sense of support fell into three main categories: changes in oneself; the addition of new people to one's social network; and improvement in already existing relationships. A large of number of students who responded to this question expressed the perception that their own behaviors or attitudes limit the amount of support they feel. Students hypothesized that they would feel more socially supported if they were more "open," less fearful of judgment and rejection, and more proactive in making connections, asking for support, and supporting others.

Another subset of students wrote about their desire to increase the size of their support network. Some indicated that joining more organizations on campus would allow them to make connections with like-minded peers, thereby increasing their sense of support. Others seemed to indicate that the addition of certain types of relationships would increase their sense of support, such as romantic relationships, helpful professors, and close friends. Finally, some students voiced that improvements to already existing relationships would allow them to feel more supported. These students tended to note that certain people in their lives—romantic partners, parents, friends—do not provide them with genuine understanding, support, and authenticity.

Question 5. *Think about the number of people to whom you feel close (Is it a lot of people? Only a few?). Does the number of people you know affect how supported you feel in college?*

Most students very clearly indicated that quality is far more important than quantity in terms of feeling supported. This was true for students with relatively small and relatively large networks alike. Students consistently attributed their sense of support to authentic, trustworthy connections, and most stated that having even a few—sometimes even one—relationships of this nature is sufficient. The close relationships students referenced were most often with friends, though family was occasionally mentioned as the crucial core of their support network.

Some students alluded to some potential consequences of having a large number of relationships, including "spreading yourself too thin" and being the recipient of well-intentioned, but minimally effective "supportive" behaviors. On the other hand, some students did indicate that the quantity of their relationships is important to their sense of support. These students reportedly find benefit in having multiple people upon whom they can rely for emotional, academic, and financial support; for example, a larger number of options is more likely to preclude a sense of loneliness or fear of burdening others.

Question 6. *Please think about how your experiences with social support might be different if you belonged to a different social class. Would you feel more or less supported than you do now? Would social support affect your well-being (stress, mood, anxiety, etc.) differently than it does now?*

A number of students clearly indicated that being in a different social class would not affect their experiences with social support. These students explained that having

close relationships of high quality is not dependent on social class ("All the support I have received is priceless and it's not something money can improve or buy"). Some also reiterated the belief that quality is more important than quantity with regard to perceptions of support and well-being.

Other students indicated that being in a relatively high social class would afford them more tangible resources, particularly financial support, which might affect their mood (e.g., "might feel less stressed or anxious because you'd have more resources"). However, these students tended to make a distinction between tangible support and emotional support, concluding that their sense of social support would ultimately be unchanged. Additionally, a number of students who similarly expressed that being in a higher SES would lead to more social connections noted that the type of support afforded by higher social class would likely be "superficial" or detrimental to well-being (e.g., would lead to "partying more" or a sense of "competition").

Some students did hypothesize that being relatively low-SES would decrease their sense of social support. However, many of these students seemed to attribute this to the financial limitations that would arise from being in a lower social class as opposed to a change in social support per se. Nonetheless, a number of students explained that being in a relatively low social class would lead to less social support, which would lead to "more stress," "a generally better mood," "loneliness," "sadness," "less motivation," and "higher anxiety."

Summary of Qualitative Findings. In sum, students seemed to acknowledge a connection between socioeconomic status and social support. Students from low- and high-SES backgrounds both noted that being relatively low-SES limits social involvement, as formal and informal socializing requires financial resources and free time. Even still, the majority of respondents indicated that they feel an adequate sense of social support. This seemed to be because, according to most students, quality of support is more influential in enhancing their well-being than quantity; some even alluded to the potential consequences of having a large social network. Of note, these findings are congruent with the direct effect and mediation results from the qualitative analyses. Finally, there seemed to be a clear theme in which students expressed that a decrease in their sense of support would lead to negative mental health outcomes.

Chapter Five: Discussion

Overview of Findings

The current study had two main goals: first, to examine the relationships between structural social support (network diversity), functional social support (perceived support), and depressive symptoms; and second, to examine whether these relationships vary as a function of socioeconomic status (SES). Specifically, the current study sought to examine the hypothesis that students with more diverse social network have fewer depressive symptoms in part because of the boost in perceived support that network diversity provides. The study also explored the possibility that this indirect effect is stronger among low-SES students, based on the hypothesis that two of its component pathways (network diversity —> depression and perceived support —> depression) become stronger as SES decreases. An additional goal was to provide support for conceptualizing SES as a set of qualitatively distinct markers and treating them as such in research. Researchers often use only income, education, or occupation to represent socioeconomic status, or combine these into a composite variable. The current study was based on the notion that these markers are not interchangeable, and symbolize different types of resources (e.g., financial capital, social capital). A conditional process model (i.e., moderated mediation) was used to address these research goals in a sample of college students.

A review of the literature revealed no prior studies in which these specific hypotheses were tested; however, they were based on theory and past research exploring similar questions about SES and social support. The mediation hypothesis was grounded in research suggesting that structural and functional support are distinct constructs, and that functional support may help explain the relation between structural support and mental health (Lin et al., 1999; Thoits, 2011; Turner & Marino, 1994; Wills & Ainette, 2012). The moderation hypothesis was based primarily on the reverse capacity model, which reasons that low-SES individuals are more vulnerable to stress due to a relative lack of resources, and therefore experience more benefit than their high-SES counterparts from an increase in resources, such as social support (Gallo & Matthews, 2003).

The current findings support the mediation hypothesis, suggesting that the relation between network diversity increases perceived support, which decreases depression. However, the results failed to support the hypothesis that SES and social support interact in their effects on depression in this college sample. Neither perceived support nor network diversity interacted with family affluence, subjective SES (compared to peers and society), or generation status, bringing into question the generalizability of the reverse capacity model and the stress-buffering hypothesis. These theoretical frameworks predict that social support and SES will interact in their effects on depressive symptoms, such that low-SES students will benefit more from increases in social support than their high-SES peers because they are presumably more stressed and have fewer resources. It is possible that the reverse capacity model and stress-buffering hypothesis are less

applicable to a college student population than they appear to be to other adult populations. This and other potential explanations for the nonsignificant moderation are discussed further below.

SES and Depression

Before discussing the results of the mediation and moderation hypotheses in detail, it should be noted that the hypothesized correlations between the foundational constructs of interest were confirmed. Generally speaking, higher levels of SES and social support were associated with lower levels of depression, and vice versa. However, the strength of association between SES indicators and depression scores was low. Of the SES indicators, subjective SES compared to society accounted for the largest amount of variance in depression, which itself was only a small amount (6% of Time 1 depression and 3% of Time 2 depression).

Not only did the SES indicators account for a low amount of variance in depression, but also none of them significantly impacted depression in the regression analyses. When comparing the results of the current study to previous studies that suggest an association between SES and mental illness, it is important to note that many past studies made these conclusions based on odds ratios as opposed to analyses that model causal relationships. Additionally, the association between SES and depression has not been entirely consistent across studies. Some researchers have found a relatively weak link between SES and depression (e.g., Kohn et al., 1998; Ueno, 2005), and others

conclude that SES and depression may have little influence over each other prior to adulthood (e.g., Miech et al., 1999). They reason that SES contributes to depression due to stressors specific to the adult population, such as difficulty finding employment or inability to financially support one's children (Miech et al., 1999). Another study found that family poverty predicted a decrease in depressive symptoms among individuals in emerging adulthood (Frye & Liem, 2011). Frye and Liem (2011), and reasoned that emerging adulthood is a time of novel environments and increased opportunities.

Social Support and Depression

Significant inverse correlations were found between both types of social support and depression, which were consistent with current hypotheses and past research findings. Twenty-seven percent (26.9%) of the variance in Time 2 depression was explained by variations in perceived support, much more than the 1.5% explained by network diversity (please note that henceforth, findings from analyses using Time 1 and Time 2 depression score as outcome score will be referred to as T1 and T2, respectively). Many researchers conceptualize perceived support as a cognitive or affective-level coping resource that is shaped by personality factors, psychological factors, and internalized beliefs from myriad life experiences (e.g., Lakey et al., 2010; Lin et al., 1999; Lindorff, 2000; Thoits, 1995; Thoits, 2011). The results of this study are congruent with this hypothesis; perceived support showed a relatively robust association with

depression perhaps because it is a psychological, trait-level variable and, as such, is more strongly linked to depression than an external factor such as network diversity. This pattern was seen in the qualitative responses as well. Students consistently noted that perceptions of support (and the quality of that support) were more strongly related to their emotional well-being than the number of people they knew. A number of students who described having small social networks explained that even one or two close friends/family members provided them with an adequate sense of social support due to the "authentic" nature of those relationships.

Network Diversity and Depression: Direct Effects

In the current study, perceived support and network diversity were not explicitly hypothesized to directly affect depression. Hayes (2015) and other contemporary statisticians argue that a direct relationship between X (network diversity) and Y (depression) is not necessary for mediation to exist. Nonetheless, it is worth noting a few surprising outcomes regarding the effect of network diversity on depression. First, network diversity had significant direct effects on depression only in T1 analyses, possibly because T2 had 180 fewer data points. The sensitivity of this direct effect to sample size was surprising given repeated findings that structural support directly affects well-being (e.g., Cohen, 2004; Hefner & Eisenberg, 2009; Lin et al., 1999; Lindorff, 2000; Ueno, 2005).

More surprisingly, however, was the fact the regression coefficients for the direct

effects that were significant (i.e., those from T1) were in a positive direction; an increase in network diversity contributed to an increase in depression. As discussed in Chapter 2, the majority of social support literature suggests that social integration is a protective factor against stress. However, many of these results have been based on participants' involvement in intimate relationships, such as those with a spouse, close friend, or child (Fiorillo & Sabatini, 2011; Seeman, 1996). Perhaps these more intimate ties are beneficial not because they represent social integration per se, but because they represent interconnectedness with trusted others (Fiorillo & Sabatini, 2011).

A number of studies have found positive associations between certain types of social support and negative outcomes (e.g., Lin et al., 1986; Ueno, 2005). For example, Lin, Dean, and Insel (1986) found that having a greater number of social roles did not alleviate depression, explaining that "dependence on weaker ties (i.e., not a spouse or lover) for multiple types of problems is associated with higher levels of CES-D" (p. 160). Others have noted that a greater number of social contacts increases the potential for problematic interactions, including demands and criticism (e.g., Edwards et al., 2001; Lindorff, 2000; Rook, 1984). Some researchers suggest that for those already experiencing stress, relationship demands are especially problematic (e.g., Lindorff, 2000). This is made worse by the fact that problematic interactions have been shown to be more strongly linked to well-being more than are supportive interactions (Edwards et al., 2001; Finch et al., 1999; Lincoln, 2002; Rook, 1984). For those who are already vulnerable to relationship demands (i.e., who are already stressed), relationship demands may take a toll beyond what supportive interactions are able to counteract.

The quality of one's relationships is often said to be a stronger predictor of well-being than relationship quantity (e.g., Cohen, 2004; Hefner & Eisenberg, 2009; Fiorillo & Sabatini, 2011). The counterintuitive positive effect of network diversity on depression in this study could be due, in part, to the fact that the current measure of social integration queried about a number of domains in which a person might not feel a great deal of intimacy, trust, or satisfaction (e.g., classmates, coworkers, professors, or even fellow fraternity or sorority members). The Social Network Index assessed participation in a number of domains in which social ties are likely "weak" and in which interactions with others are likely to be neutral or even problematic. This theme was expressed by a large number of students in the open-ended responses as well; many students clearly indicated that the quality of relationships is far more important than quantity, and noted potential consequences of having a large number of relationships (e.g., "spreading yourself too thin," "superficial" lack of authentic connection).

The surprising finding in the current study—that network diversity was positively related to depressive symptoms—highlights the importance of examining factors that mediate the relation between structural support and outcomes, particularly satisfaction with relationships. As stated by a student responding to the open-ended question regarding quantity of relationships and amount of support, "I think there is a correlation between the number of people that you feel close to and that you trust and how supported you feel in college. But not everyone you know will make you feel supported."

The positive effect of network diversity on depression was unexpected also

because the correlation between network diversity and depression was negative (r=-.140). Perceived support was also negatively correlated with depression (r=-.539), and perceived support and network diversity were positively correlated with each other (r=. 424). When both types of support were included in the regression analysis (T1), however, network diversity had a positive effect on depression. Thus, it is possible that the negative correlation between network diversity and depression was caused by perceived support, which was acting as a confounding variable.

Network Diversity and Depression: Indirect Effects via Perceived Support

Findings from the current study lend credence to the theory that mediation can exist in the absence of a significant direct effect, as perceived support consistently mediated the relationship between network diversity and depression despite the nonsignificance of this relationship. When T1 depression was used as the outcome measure, network diversity consistently exhibited significant positive effects on perceived support (path *a*), and perceived support consistently exhibited significant negative effects on depression (path *b*); thus, the indirect effect (*ab*) was negative and statistically significant.

It is important to note that the Index of Moderation Mediation, which quantifies the association between the moderator and the indirect effect itself (as opposed to one of its constituent pathways), was not significant in any of the models. This means that the effect of network diversity on depression is explained by perceived support to the same extent across SES. As described below, the mediation was not significant in the 90th

percentile of certain SES indicators; however, the proposed explanation for this pattern is minimally meaningful, as the Index of Moderated Mediation indicates that the indirect effects at different levels of SES were statistically equivalent.

There were two exceptions to the significant indirect effect. Namely, the mediation was not significant for students in the 90th percentiles of family affluence and subjective SES compared to society (T2). Given that indirect effects were found in the 90th percentiles for all SES indicators in T1 analyses, it is likely that this nonsignificant finding is due to the relative lack of power in T2 vs. T1 (i.e., in T2, the sample size was smaller and more variance was accounted for by the T1 depression covariate). However, this change in significance could be an indication that the indirect effect of network diversity on depression via perceived support is less robust among high-SES students. This would be congruent with the reverse capacity model; network diversity and perceived support may be less influential in the well-being of students in the highest percentiles of family affluence and subjective SES compared to society.

SES and Social Support: Moderating Effects

The hypotheses that SES moderates the effects of network diversity and perceived support on depression (Hypotheses 4 and 5, respectively) were not supported in the current study. The interaction terms for each SES indicator and perceived support and network diversity were nonsignificant. Though this hypothesis was not supported, the lack of moderation is a valuable finding itself because it reiterates the robustness of the mediating effect of perceived support. In the open-ended responses students seemed to

indicate that a loss of perceived social support would lead to "sadness," "anxiety," and other negative outcomes regardless of SES.

Of note, family affluence and network diversity interacted in predicting depression, but this result (p=. 0536) was rendered nonsignificant after applying a Bonferroni correction. Though this interaction was not ultimately determined to be significant, it more closely approached significance than any other interaction, including those between SES and perceived support. This is surprising—social support literature often asserts that functional support (e.g., perceived support) exhibits stress-buffering (i.e., moderating) effects, while structural support (e.g., network diversity) does not.

Given that there was ultimately no evidence that the effect of network diversity depends on SES, an examination of the conditional direct effects at each level of SES is arguably unnecessary. However, in an effort to thoroughly explore the data and because PROCESS provides results for conditional direct effects regardless of the interaction between the independent variable and the moderator, the direct effect of network diversity on depression at each level of SES was examined. Table 19 in Chapter 4 shows that the direct effect of network diversity on depression was significant for students in some percentiles of each SES indicator (T1).

There does not appear to be a clear pattern with regard to the percentiles in which network diversity directly effected depression, but this effect occurred most commonly for students in the 25th and 50th percentiles; the direct effect was significant in these percentiles of family affluence and subjective SES (compared to both peers and society). Finally, an interesting pattern was noted in which network diversity more strongly

influenced depression for higher SES students, with the exception of subjective SES compared to society (T1). Instead, network diversity was less influential in predicting depression for students with relatively high subjective SES.

Limitations

As outlined above, the results from the current study provide valuable information with both clinical and theoretical utility. Nonetheless, a number of limitations should be noted.

First, confidence in the proposed direction of causality between variables is crucial to avoiding Type I and Type II Error in mediation analysis. This is particularly challenging in studies of social support and depression, as it is difficult to definitively determine whether a lack of social support leads to depression or vice versa. Nonetheless, many social support researchers examine models in which mental health, particularly depression, is an outcome variable determined by social support (e.g., Bosworth et al., 2003; Lin et al., 1999; Lindorff, 2000; Thoits, 2011).

In order to increase the validity of claiming unidirectional causality and establish temporal precedence of social support, the current study assessed depression at two time points. However, an experimental study involving the random assignment of participants to different network diversity conditions and the longitudinal measurement of perceived support (and possibly other mediators) and depression (and possibly other outcome variables) would be the only way to claim causality between the constructs.

In terms of the non-significant findings for the moderation hypotheses, several

limitations may have limited the ability to detect these relationships. First, a power analysis was done prior to data collection; however, this was based on effect size estimates that were difficult to generalize given the variability within studies on social support and SES. Given the number of measures, models, and research questions in the current study, a larger sample size would have increased power and perhaps illuminated more significant findings. Alternatively, the research questions from the current study could have been simplified and deconstructed into multiple, more parsimonious studies (e.g., an examination of the relation between network diversity and functional support in first vs. continuing generation students only, or of the relation between each of the SES indicators and depression without the social support component). Simpler studies would provide more statistical power, and if designed well (i.e., intentional selection of variables and measurements) would be a valuable contribution to a strong foundation of literature on social support, SES, and college students mental health.

Second, as mentioned in Chapter 3, the original intent was to limit the sample to first year students; however, this was not possible given the required sample size for moderated mediation analysis. The resulting heterogeneity with regard to students' class (freshman, sophomore, etc.) may have limited the significance of findings. Research on college students consistently acknowledges that the transition to the university setting is a time of heightened vulnerability to stress, depression, and other difficulties (e.g., Eisenberg et al., 2007; Hefner & Eisenberg, 2009; Ostrove, 2007; Weckwerth & Flynn, 2006). Fifty-two percent of the current sample was comprised of students in their 4th year and higher, meaning that over half of the respondents were presumably no longer in the

transition period. Additionally, students who have completed at least four years are likely to be among the more well-adjusted students (i.e., any negative effect of low-SES, lack of social support, or depression was not distressing enough to preclude their progression through college).

Finally, the external validity of the current study is limited. The choice to use college students to explore the current research questions was intentional, as social support and SES have a unique role in the experience of college students. Researchers have called for increased focus on the mental health of college students (e.g., Hefner & Eisenberg, 2009; Walpole, 2003), and literature suggests that SES and social support may have important implications for students' mental well-being. However, as discussed above, being in a college environment likely protects low-SES students from some of the negative consequences consistently found studies on low-SES adults. Additionally, enrollment in college suggests a certain level of access to resources. Thus, findings from the current study may not be generalizable to low-SES adults in other contexts. Additional research exploring SES, network diversity, perceived support, and the interactions among them would likely reveal valuable nuances depending on the life circumstances the low-SES individuals in each sample.

Implications

The results of this study have a number of implications for enhancing college students' well-being. Within social support literature, the benefits of structural social support are generally considered to be unequivocal. Thus, increasing the size and diversity of one's social network is often the goal of social support interventions in

university settings. In a study examining social support in college students, Galatzer-Levy (2012) notes that universities often utilize “from above” approaches to build community. However, he explains that students benefit more from the feedback, nondirective support, and positive interactions provided by their informal social networks, which do not appear to be facilitated by the university’s community building efforts. Similarly, other social support researchers suggest that being able to choose the individuals in one’s network is a crucial determinant of how beneficial that network will be (e.g., Rook, 1984).

The current results echo these findings, suggesting that social support interventions should be designed with a goal of enhancing the quality of relationships over and above increasing the quantity of them. In many studies with various samples, structural support has been shown to be a protective factor. However, network diversity led to an increase in depression in the current study, suggesting that college students may be more vulnerable to the negative aspects of social integration. Thus, effective interventions should prioritize curricula related to increasing the quality of social ties. This could include enhancing communication skills, conflict resolution skills, and self-esteem, and/ or empowering students to identify relationship values and assert their boundaries accordingly. Focusing on issues of this nature (as opposed to focusing on increasing network size or diversity) would likely contribute to students’ ability to form stronger, more supportive social ties while also decreasing the likelihood that they will participate in stressful, demanding, or otherwise negative relationships that contribute to adverse outcomes. In other words, current findings suggest that focusing on the cognitive, affective, and psychological components of social support would most effectively lead to

positive outcomes.

The results of this study also have implications for the conceptualization and study of SES, as well as the role of SES in intervening with college students. First, the correlations between the SES indicators suggest that they are distinct; among the four SES indicators, family affluence and generation status (r=-.398, with first generation coded as 1) were most strongly associated with each other. Likewise, there was variation in the regression coefficients produced for the pathways in which SES was involved (see Figures 3 through 6 above and Figures 7 through 10 in Appendix I). For example, the effect of subjective SES compared to peers on depression (b=-.0635 for T1; b=.0965 for T2) was smaller than the other indicators' effects on depression. This variable pattern of results across SES indicators suggests that family affluence, subjective SES, and generation status are, in fact, qualitatively distinct constructs.

Not only did the objective and subjective SES indicators appear distinct, but there was also a distinction between subjective SES compared to peers and society. First, only 26 percent of the variation in subjective SES compared to peers and compared to society were explained by the other. Also, some evidence suggested that subjective SES was more influential in the prediction of depression. When working with college students, administrators and clinicians should be aware that a student's internalized beliefs about how he or she compares to society at large may be highly influential, perhaps even more so than his or her self-comparison to other students.

Future Directions

The current study aimed to contribute to literature on social support and SES, two constructs often included as covariates and less often examined as main constructs of interest. The suggestions for future research that follow are based not only on the results and limitations of this study, but also on the process of reviewing the literature and attempting to design a reliable and valid study.

The variation in the operationalization and measurement of social support and SES cannot be overstated, both in studies in which SES and social support are covariates and in those in which these constructs are a primary focus. Additionally, there is considerable variation in the statistical approaches that have been used to examine research questions about social support and SES. Because of this lack of consistency, there is not a solid empirical foundation on which to add increasingly specific, yet meaningful and relevant new information. Researchers are tasked with a difficult challenge in identifying social support and SES indicators, the method for measuring them, outcome variables of interest, and potential mediators and moderators that would most valuably contribute to the literature.

Future social support research should aim for increased specificity and consistency with regard to terminology; there are a plethora of social support subtypes and proposed mechanisms via which they operate, and precise definitions will facilitate investigation and integration of disparate findings. In order for this to occur, researchers

should critically contemplate the type of social support most suited to their research question (e.g., network size/diversity, perceived emotional/tangible/etc. support, received support, social isolation). It seems that some research is not designed based on foundational knowledge that does exist. Many studies vaguely operationalize social support and rely too heavily on one or two markers of only one aspect of a person's social experience (e.g., marriage, simple measures of network size). Not only should researchers be increasingly thoughtful in their operationalizations of social support, but they should also make every effort to employ psychometrically sound, widely utilized measures of social support, such as the Interpersonal Support Evaluation List and Social Network Index.

There is perhaps even less consistency in SES research than in the social support research. In an attempt to systemically review the evidence for an association between SES and depression, Fryers and colleagues (2005) note that the aforementioned variations precluded them from combining data for a proper meta-analysis. This is partially because SES is inherently difficult to measure in a meaningful way. Nonetheless, efforts similar to those recommended for the future study of social support will contribute to a more cohesive research base. Perhaps most importantly, researchers should avoiding making claims about SES per se based on only one measure (e.g., income, education, occupation). Though results from the current study seemed contrary to patterns identified in previous SES research, the comparison between this study and past studies has limited value, largely because of the variability in SES indicator used in previous studies. Thus, it is recommended that future studies replicate existing studies as closely as possible in

different populations; this will allow for a more accurate comparison between studies.

With regard to future directions based more specifically on current findings, a number of possible mediating factors studies be studied further. The positive relation between network and diversity highlights the importance of considering relationship satisfaction and/or quality and negative interactions in studies on social support and well-being. Exploring the possibility that network diversity may increase depression because of the negative side of social integration would be an invaluable contribution to social support literature.

Another valuable contribution to the literature would be an examination of the current constructs with the addition of a stress measure. Some of the current hypotheses were informed by the stress- buffering hypothesis, which posits that the effects of stress are buffered by social support. In order to more directly test this hypothesis, future research should consider replicating the current study but exploring SES as a moderator in the relation between stress level and depression. Additionally, the current study operationalized stress as being of low SES, as research suggests that being a relatively low-SES student is inherently stressful. The lack of significance for the interactions between SES and social support, however, indicates that parsing out SES and stress in future studies might lead to more informative results. Furthermore, the qualitative analyses revealed that students often referenced “stress” and “worry” with regard to their SES, as opposed to depression per se.

Relatedly, 63% of the current sample was 3rd and 4th year students, meaning that

the findings of this study were based primarily on students who have successfully navigated the transition to college. Future studies comparing these constructs in lower- versus upperclassmen or examining them longitudinally would likely reveal valuable information about how SES and social class influence students at different points in the progression through college.

Finally, more studies examining social support and SES should consider the inclusion of a qualitative component. A proper qualitative analysis was outside the scope of the current study, but the large amount and richness of the open-ended responses suggest that qualitative analyses of these constructs are a promising avenue for future research. Based on the sheer number of responses alone, it is clear that social support and SES are relevant to college students' experiences. Whether in college student or other populations, qualitative studies would likely serve as a valuable guide for refining social support and SES constructs, developing reliable and valid measures, and specifying statistical models.

Conclusion

The current study explored questions about how and for whom structural and functional social support decreases depression. It examined not only the effects of structural support (i.e., network diversity) and functional support (i.e., perceived support) on depression in college students, but also the extent to which these effects are influenced by family affluence, subjective SES (compared to peers and compared to society), and first-generation status. The results of this study reiterated past findings that perceived

support is an important contributor to the psychological well-being of college students. As predicted, perceived support contributed directly to decreases in depression and mediated the relation between network diversity and depression. Contrary to the current hypotheses and many previous findings, network diversity contributed to an increase in depressive symptoms. The hypothesis that SES moderates the impact of social support on depression was also not supported. These results raise important questions about social support and SES that merit additional inquiry. Further examination of potentially negative mediators of the effect of network diversity in college students is needed, as is additional research on the roles of various types of SES in the college experience. Despite the lack of significance for some findings, this study provided useful information for the development of interventions aimed at bolstering college students' mental health.

Appendices

Appendix A: Demographic Questionnaire

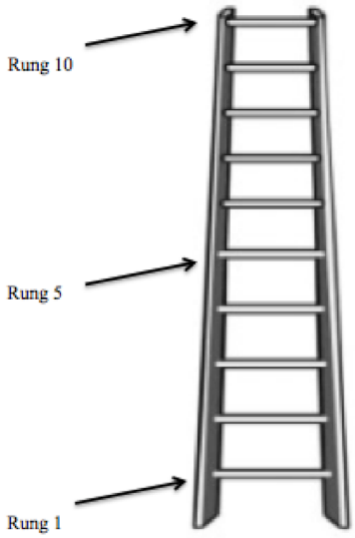
1. What is your age? _____
2. What is your gender? _____
3. What is your race/ethnicity?
   ___ African American/Black
   ___ Alaska Native/American Indian
   ___ Asian American
   ___ Caucasian/White
   ___ Hispanic American/Latino/a
   ___ Middle Eastern/Arab American
   ___ Multiracial
4. Are you currently married?____Yes____No
5. Please indicate the highest level of education completed by your father or father-figure (if applicable).
   ___ Less than high school
   ___ High school graduate or received GED
   ___ Business/technical graduate or received certificate
   ___ Some college, no degree
   ___ Associate's degree (e.g., from community college)
   ___ Bachelor's degree
   ___ Master's degree
   ___ Doctorate or professional degree (e.g., MD, JD)
   ___ N/A
6. Please indicate the highest level of education completed by your mother or mother-figure (if applicable).
   ___ Less than high school
   ___ High school graduate or received GED
   ___ Business/technical graduate or received certificate
   ___ Some college, no degree
   ___ Associate's degree (e.g., from community college or technical school)
   ___ Bachelor's degree
   ___ Master's degree
   ___ Doctorate or professional degree (e.g., MD, JD)
   ___ N/A

Appendix B: Family Affluence Scale (Currie et al., 2008)

1. Does your family own a car, van, or truck?
   ___ No (0)
   ___ Yes, one (1)
   ___ Yes, two or more (2)
2. Do you have your own bedroom for yourself at home?
   ___ No (0)
   ___ Yes (1)
3. During the past 12 months, how many times did you travel away on holiday with your family?
   ___ Not at all (0)
   ___ Once (1)
   ___ Twice (2)
   ___ More than twice (3)
4. How many computers does your family own?
   ___ None (0)
   ___ One (1)
   ___ Two (2)
   ___ More than two (3)

Appendix C: Subjective Social Status (Cantril, 1965; Singh-Manoux et al., 2003)

Think of this ladder as representing where people stand in society. At the top of the ladder are the people who are best off – those who have the most money, most education and the best jobs. At the bottom are the people who are worst off – who have the least money, least education, and the worst jobs or no job. The higher up you are on this ladder, the closer you are to people at the very top and the lower you are, the closer you are to the bottom. Where would you put yourself on the ladder? Please indicate the number of the rung (any number between 1 and 10) where you think you stand.*



*Modified for web-based survey format.

Appendix D: Interpersonal Support Evaluation List (Cohen & Hoberman, 1983)

This scale is made up of a list of statements each of which may or may not be true about you. For each statement we would like you to circle probably TRUE (PT) if the statement is true about you or probably false (PF) if the statement if not true about you.

You may find that many of the statements are neither clearly true nor clearly false. In these cases, try to decide quickly whether probably true or probably false is most descriptive of you. Although some questions will be difficult to answer, it is important that you pick one alternative or the other. Remember to circle only one of the alternatives for each statement.

Please read each item quickly but carefully before responding. Remember that this is not a test and there are no right or wrong answers.

Tangible scale

1. I know someone who would loan me $50 so I could go away for the weekend.
2. I know someone who would give me some old dishes if I moved into my own apartment.
3. I know someone who would loan me $100 to help pay my tuition.
4. If I needed it, my family would provide me with an allowance and spending money.
5. If I wanted a date for a party next weekend, I know someone at school or in town who would fix me up.
6. I know someone at school or in town who would bring my meals to my room or apartment if I were sick.
7. I don't know anyone who would loan me several hundred dollars to pay a doctor bill or dental bill.
8. I don't know anyone who would give me some old furniture if I moved into my own apartment.
9. Even if I needed it m family would (or could) not give me money for tuition and books.
10. I don't know anyone at school or in town who would help me study for an exam by spending several hours reading me questions.
11. I don't know anyone at school or in town who would loan me their car for a couple of hours.
12. I don't know anyone at school or in town who would get assignments for me from my teachers if I was sick.

Belonging scale

1. There are people at school or in town who I regularly run with, exercise with, or play sports with.
2. I hang out in a friend's room or apartment quite a lot.
3. I can get a date who I enjoy spending time with whenever I want.
4. If I decided at dinner time to take a study break this evening and go to a movie, I could easily find someone to go with me.
5. People hang out in my room or apartment during the day or in the evening.
6. I belong to a group at school or in town that meets regularly or does things together regularly.
7. I am not a member of any social groups (such as church groups, clubs, teams, etc.)
8. Lately, I often feel lonely, like I don't have anyone to reach out to.
9. I don't have friends at school or in town who would comfort me by showing some physical affection.
10. I don't often get invited to do things with other people.
11. I don't talk to a member of my family at least once a week.
12. I don't usually spend two evenings on the weekend doing something with others.

Appraisal Scale

1. I know someone who I see or talk to often with whom I would feel perfectly comfortable talking about problems I might have budgeting my time between school and my social life.
2. I know someone who I see or talk to often with whom I would feel perfectly comfortable talking about any problems I might have adjusting to college life.
3. I know someone who I see or talk to often with whom I would feel perfectly comfortable talking about sexually transmitted diseases.
4. I know someone who I see or talk to often with whom I would feel perfectly comfortable talking about any problems I might have meeting people.
5. I know someone who I see or talk to often with whom I would feel perfectly comfortable discussing any sexual problems I might have.
6. I know someone who I see or talk to often with whom I would feel perfectly comfortable talking about any problems I might have with drugs.
7. There isn't anyone at school or in town with whom I would feel perfectly comfortable talking about any problems I might have with making friends.
8. There isn't anyone at school or in town with whom I would feel perfectly comfortable talking about any problems I might have getting along with my parents.
9. There isn't anyone at school or in town with whom I would feel perfectly comfortable talking about difficulties with my social life.

10. There isn't anyone at school or in town with whom I would feel perfectly comfortable talking about my feelings of loneliness and depression.
11. I don't know anyone at school or in town who makes my problems clearer and easier to understand.
12. Lately, when I've been troubled, I keep things to myself.

Self Esteem Scale

1. Most people who know me well think highly of me.
2. Most of my friends think that I'm smart.
3. Most of my friends don't do as well as I do in school.
4. I will have a better future than most other people will.
5. Most of my friends have not adjusted to college as easily as I have.
6. Most people think I have a good sense of humor.
7. I don't feel friendly with any teaching assistants, professors, campus or student officials.
8. Most of my friends are more satisfied or happier with themselves than I am.
9. Most of my friend are more popular than I am.
10. Most of my friends are more interesting than I am.
11. Most of my friends have more control over what happens to them than I.
12. Most people are more attractive than I am.

Appendix E: Social Network Index* (Cohen et al., 1997)

Instructions: This questionnaire is concerned with how many people you see or talk to on a regular basis including family, friends, workmates, neighbors, etc. Please read and answer each question carefully. Answer follow-up questions where appropriate.

1. Which of the following best describes your relationship status?
   ____ (1) I am not currently dating or in a relationship
   ____ (2) I am dating, but no one in particular
   ____ (3) I have a boyfriend/girlfriend
   ____ (4) I am living with someone in marital-like relationship
   ____ (5) I am currently married & living with my spouse

2. Which of the following best describes your situation?
   ____(0) my parents are no longer living (if you answer '0' please skip to question 3.)
   ____(1) one of my parents is alive
   ____(2) two parents are alive
   ____(3) including step-parents, biological, and adoptive parents, at least three parents are alive.

2a. Do you speak in-person or on the phone with your parents at least once every 2 weeks?
   ____(0) none
   ____(1) one parent
   ____(2) two parents
   ____(3) including step-parents, biological, and adoptive parents, at least three parents

2b. Do you email your parents at least once every 2 weeks?
   ____(0) none
   ____(1) one parent
   ____(2) two parents
   ____(3) including step-parents, biological, and adoptive parents, at least three parents

3. Do you have any siblings? (If not, check "no" and skip to question 4.)
   _____ no_____yes How many siblings do you have? _____

3a. How many of your siblings do you speak with in-person or on the phone at least once every 2 weeks?

____0____1____2____3____4____5____6____7 or more

3b. How many of your siblings do you email at least once every 2 weeks?
____0____1____2____3____4____5____6____7 or more

4. How many other relatives (other than your parents & siblings) do you feel close to? (If '0', check that space and skip to question 5.)
____0____1____2____3____4____5____6____7 or more

4a. How many of these relatives do you see speak with in-person or on the phone at least once every 2 weeks?
____0____1____2____3____4____5____6____7 or more

4b. How many of these relatives do you email at least once every 2 weeks?
____0____1____2____3____4____5____6____7 or more

5. Do you belong to a church, temple, or other religious group? (If not, check 'no' and skip to question 8.)
_____ no_____yes

5a. How many members of your church or religious group do you speak with in-person or on the phone at least once every 2 weeks? (This includes at group meetings and services.)
____0____1____2____3____4____5____6____7 or more

5b. How many members of your church or religious group do you email at least once every 2 weeks? (This includes at group meetings and services.)
____0____1____2____3____4____5____6____7 or more

6. Are you a full-time or part-time student?
_____ (1) part-time_____(2) full-time

6a. How many classmates do you speak with in person or on the phone at least once every 2 weeks? (This includes class meetings.)
____0____1____2____3____4____5____6____7 or more

6b. How many classmates do you email at least once every 2 weeks? (This includes class meetings.)
____0____1____2____3____4____5____6____7 or more

6c. How many professors do you speak with in person or over the phone at least once every 2 weeks? (This includes at class meetings.)

____0____1____2____3____4____5____6____7 or more

6d. How many professors do you email at least once every 2 weeks? (This includes at class meetings.)

____0____1____2____3____4____5____6____7 or more

7a. How many other UT staff do you speak with in-person or over the phone at least once every 2 weeks?

____0____1____2____3____4____5____6____7 or more

7b. How many other UT staff do you email at least once every 2 weeks?

____0____1____2____3____4____5____6____7 or more

8. Are you currently employed either full or part-time? (If not, check 'no' and skip to question 9.)

_____ (0) no_____(1) yes, part-time, off-campus
_____ (2) yes, part-time, on-campus_____(3) yes, full-time, off-campus
_____ (4) yes, full-time, on-campus

8a. How many people do you supervise?

____0____1____2____3____4____5____6____7 or more

8b. How many people at work (other than those you supervise) do you talk to at least once every 2 weeks?

____0____1____2____3____4____5____6____7 or more

8c. How many people at work (other than those you supervise) do you email at least once every 2 weeks?

____0____1____2____3____4____5____6____7 or more

9. Where do you live?

____ (1) at home____(2) in own apartment
____(3) in UT housing____(4) in a fraternity or sorority

9a. How many roommates/suitemates do you have?

_____0____1____2____3____4____5____6____7 or more

9b. How many of your roommates/suitemates do you visit or talk to at least once every 2 weeks?

_____0____1____2____3____4____5____6____7 or more

9c. How many of your roommates/suitemates do you email to at least once every 2 weeks?

_____0_____1_____2_____3_____4_____5_____6_____7 or more

9d. If you live in UT housing, how many of your resident assistants/housing staff do you visit or talk to at least once every 2 weeks?

_____0_____1_____2_____3_____4_____5_____6_____7 or more

9e. If you live in UT housing, how many of your resident assistants/housing staff do you email at least once every 2 weeks?

_____0_____1_____2_____3_____4_____5_____6_____7 or more

10. In addition to the people you counted above, how many close friends do you have at UT? (i.e., people who you consider close friends that you haven't already counted in a previous category)

____0_____1_____2_____3_____4_____5_____6_____7 or more

10a. How many of these friends do you speak with in-person or over the phone at least once every 2 weeks?

____0_____1_____2_____3_____4_____5_____6_____7 or more

10b. How many of these friends do you email at least once every 2 weeks?

____0_____1_____2_____3_____4_____5_____6_____7 or more

11. In addition to the people you counted above, how many close friends do you have that are NOT associated with UT?

____0_____1_____2_____3_____4_____5_____6_____7 or more

11a. How many of these friends do you speak with in person or over the phone at least once every 2 weeks?

____0_____1_____2_____3_____4_____5_____6_____7 or more

11b. How many of these friends do you email at least once every 2 weeks?

____0_____1_____2_____3_____4_____5_____6_____7 or more

12. Are you currently involved in regular volunteer work? (If not, check 'no' and skip to question 13.)

_____ no_____yes

12a. How many people involved in this volunteer work do you talk to about volunteering-related issues at least once every 2 weeks?

____0____1____2____3____4____5____6____7 or more

12b. How many people involved in this volunteer work do you email about volunteering-related issues at least once every 2 weeks?

____0____1____2____3____4____5____6____7 or more

13. Do you belong to any groups in which you talk to one or more members of the group about group-related issues at least once every 2 weeks? Examples include social clubs, recreational groups, extra-mural or intercollegiate sports, professional organizations, groups concerned with community service, etc. (If you don't belong to any such groups, check 'no' and skip the section below.)

_____ no_____yes

13a. Consider those groups in which you talk to a fellow group member at least once every 2 weeks. Please provide the following information for each such group: the name or type of group and the total number of members in that group that you talk to at least once every 2 weeks.

Group name/description	Total number of group members that you talk to
1.	
2.	
3.	
4.	
5.	
6.	

13c. How many of the group members you listed above do you email about group-related issues at least once every 2 weeks?

____0____1____2____3____4____5____6____7 or more

*Modified for campus population (Galatzer-Levy et al., 2012)

Appendix F: Center for Epidemiological Studies Depression Scale (Radloff, 1977)

Below is a list of the ways you might have felt or behaved. Please tell me how often you have felt this way during the past week.

0 = Rarely or none of the time (less than 1 day)
1 = Some or a little of the time (1-2 days)
2 = Occasionally or a moderate amount of time (3-4 days)
3 = Most of all of the time (5-7 days)

1. I was bothered by things that usually don't bother me.
2. I did not feel like eating; my appetite was poor.
3. I felt that I could not shake off the blues even with help from my family and friends.
4. I felt that I was just as good as other people.*
5. 1 had trouble keeping my mind on what I was doing.
6. I felt depressed.
7. 1 felt that everything I did was an effort.
8. I felt hopeful about the future.*
9. I thought my life had been a failure.
10. I felt fearful.
11. My sleep was restless.
12. I was happy.*
13. I talked less than usual.
14. I felt lonely.
15. People were unfriendly.
16. I enjoyed life.*
17. I had crying spells.
18. I felt sad.
19. I felt that people disliked me.
20. I could not get "going."

*Asterisked items are reverse-coded. All items are rescaled to a range of 0-3, producing a range of 0-60 for the summed index.

Appendix G: Informed Consent Document

The purpose of this study is to examine how different types of social support affect college freshmen, and how this effect might be depending on a student's background. As a participant in this study, you will be asked to answer questions about yourself, your relationships, and your mood. The information will help researchers better understand factors that influence depression. You may perceive that some of the questions are personal in nature; please note that our goal is simply to assess how their social support and the environments in which they were reared shape people's experiences. Completing this questionnaire will take approximately 25 minutes to complete.

The information you provide will be collected anonymously, as your name will not be requested, and your responses will be kept confidential. Your actual responses will only be available to the researchers, and they will be stored for three years. Any presentation or publication of this data will be in group form only. If you are using a public computer to complete the survey, it is recommended that you clear the internet browser history and remove any individual internet cookies so that a different user will not access your responses. Your participation is strictly voluntary and you can withdraw from the study at any time without consequence. At the bottom of this page, you will be asked to provide your UT ID to ensure that you are credited for your participation.

This study has been reviewed and approved by The University of Texas at Austin Institutional Review Board. If you have questions about your rights as a study participant, or are dissatisfied at any time with any aspect of this study, you may contact - anonymously, if you wish - the Institutional Review Board by phone at (512) 471-8871 or email at orsc@uts.cc.utexas.edu.

Completion of the survey indicates you have read the information above, any questions that you asked have been answered to your satisfaction, and you are consenting to participation in the study. If you have remaining questions, please email the primary researcher at betsy685@gmail.com.

If you agree to participate, please press the arrow button at the bottom of the screen. If you choose not to participate, just exit the study. Your participation in this study is greatly appreciated. Thank you for your time!

For further information, please contact:

Betsy Crowe, B.S., Ph.D. Candidate (betsy685@gmail.com)
The University of Texas at Austin
Department of Educational Psychology, Counseling Psychology Program
1 University Station D5800, Austin, TX, 78712

Appendix H: Debriefing Document

Thank you for participating in this study! In psychology, it is sometimes necessary to conceal our hypotheses because when people know what is being studied they often alter their responses. However, I do not want you to leave misinformed, so I will now tell you more specifically what I was studying.

The purpose of this study is to examine how social support affects depression in college students differently depending on socioeconomic status (SES). I treated whether you are a first-generation student, how wealthy your family is, and where you believe your social class to fall relative to your peers' and society as separate indicators of SES. I am also interested in the relationship between how many people a person interacts with regularly and how much support a student perceives to be available. I am hoping to identify a combination of these factors that helps clarify whether students from low-SES backgrounds benefit more or less from social support than their high-SES peers. Some past research has indicated that students from low-SES backgrounds are less socially integrated and perceive less support to be available, but researchers are uncertain as to whether they would benefit more from increases in support. Understanding factors that shape depression in college freshmen might help counselors, therapists, and programs geared toward helping students enhance the ways they approach college students.

I apologize that I could not reveal the entire nature of the study to you up front, but hope you can see why it was necessary to keep this information from you. When people know exactly what the researcher is studying, they often change their behavior, thus making their responses unusable for drawing conclusions about human nature and experiences. For this reason, I ask that you please not discuss this study with others who might participate anytime in the next year. Thank you for your cooperation.

If you have experienced distress as a result of your participation in this study, please feel free to contact me at betsy685@gmail.com at your earliest convenience. We can discuss whether or not it might be necessary to contact a counselor to assist with any problems.

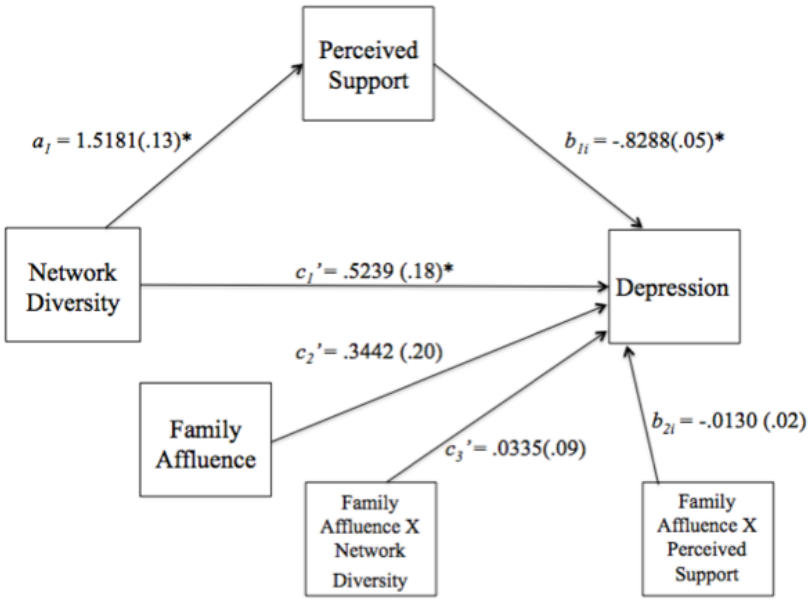
If you have questions about your rights as a research participant, you may contact the University of Texas at Austin Institutional Review Board (512) 471-8871, orsc@uts.cc.utexas.edu.

If you are interested in the results of the study and would like a summary of the results when the study is concluded please send an email to me at betsy685@gmail.com. Please type "Results Summary Request" in the title of your email. I will save these emails and send you a summary of the findings upon the conclusion of the study.

Please again accept my appreciation for your participation in this study. Thank you for your help today!

Appendix I: Moderated Mediation Results with Time 1 Depression Score as Outcome Measure

Model 1a: Family Affluence (n=605)



Note. *p≤.05. Covariates (race, gender, T1 depression) not pictured.

R^2 = .3260
F (11, 593) = 26.0771
p < .0001

Figure 8. Path Coefficients and Standard Errors for Conditional Process Model (Family Affluence; T1)

Table 20.

Index of Moderated Mediation (Family Affluence; T1)

Index	Bootstrap SE	Bootstrap LLCI	Bootstrap ULCI
-0.0198	0.0401	-0.0943	0.0642

Table 21.

Conditional Direct Effects of Network Diversity on Depression (Family Affluence; T1)

Family Affluence Percentile Values	Effect	SE	t	p	LLCI	ULCI
-2.8926	0.4269	0.3421	1.3174	0.1882	-0.2095	1.0634
-0.8926	0.4940	0.2018	2.4482	**0.0146**	**0.0977**	**0.8903**
0.1074	0.5275	0.1835	2.8745	**0.0042**	**0.1671**	**0.8879**
1.1074	0.5610	0.2083	2.693	**0.0073**	**0.1520**	**0.9701**
3.1074	0.6281	0.3362	1.8681	0.0622	-0.0322	1.2884

Note: 95% bias-corrected bootstrap confidence intervals were produced for the 10th, 25th, 50th, 75th, and 90th percentiles of family affluence. Bias-corrected bootstrap confidence intervals are based on 1,000 bootstrap resamples. Statistically significant effects are bolded. Perceived support, network diversity, and family affluence were mean centered prior to analysis. The conditional direct effect of network diversity on depression at various levels of family affluence, when perceived support scores are held constant, is $c_1' + c_3'V$.

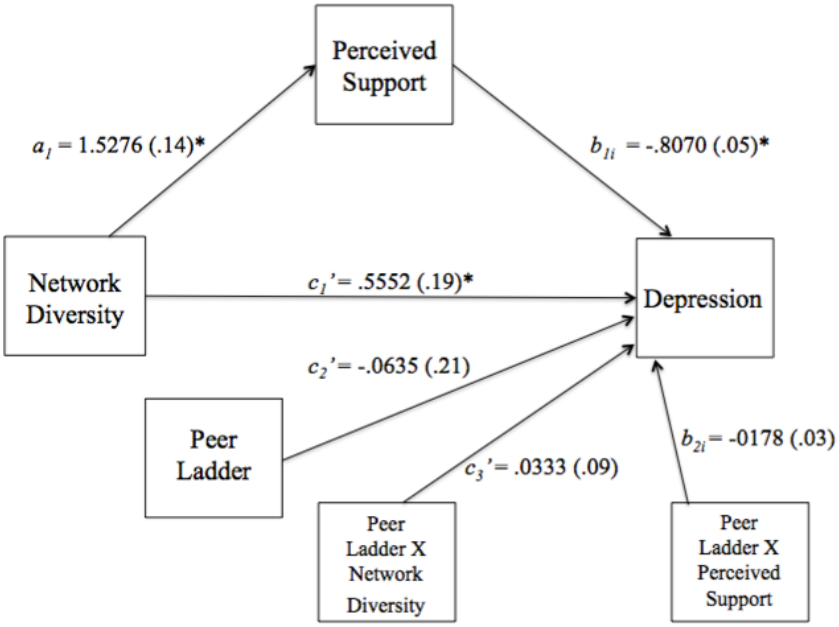
Table 22.

Conditional Indirect Effects of Network Diversity on Depression (Family Affluence; T1)

Family Affluence Percentile Values	Effect	Bootstrap SE	LLCI	ULCI
-2.8926	-1.2010	0.1822	**-1.6038**	**-0.8798**
-0.8926	-1.2405	0.1456	**-1.5348**	**-0.9677**
0.1074	-1.2603	0.1416	**-1.5557**	**-1.0073**
1.1074	-1.2801	0.1486	**-1.6204**	**-1.0240**
3.1074	-1.3196	0.1893	**-1.7263**	**-0.9808**

Note: 95% bias-corrected bootstrap confidence intervals were produced for the 10th, 25th, 50th, 75th, and 90th percentiles of family affluence. Bias-corrected bootstrap confidence intervals are based on 1,000 bootstrap resamples. Statistically significant effects are bolded. Perceived support, network diversity, and family affluence were mean centered prior to analysis. The conditional indirect effect of network diversity on depression through perceived support at various levels of family affluence is $Y=a(b_{1i} + b_{2i}V)$, where V is family affluence percentile.

Model 2a: Subjective SES - Peer Ladder (n=600)



Note. *p≤.05. Covariates (race, gender, T1 depression) not pictured.

R^2 = .5699
F (11.588) = 25.7159

p < .0001

Figure 9. Path Coefficients and Standard Errors for Conditional Process Model (Subjective SES-Peer Ladder; T1)

Table 23.

Index of Moderated Mediation (Subjective SES - Peer Ladder; T1)

Index	Bootstrap SE	Bootstrap LLCI	Bootstrap ULCI
-0.0272	0.0386	-0.1102	0.0438

Table 24.

Conditional Direct Effects of Network Diversity on Depression (Subjective SES - Peer Ladder; T1)

Peer Ladder Percentile Values	Effect	SE	t	p	LLCI	ULCI
-2.8567	0.4601	0.3200	1.4377	0.1511	-0.1684	1.0887
-0.8567	0.5267	0.1999	2.6341	**0.0087**	**0.1340**	**0.9193**
0.1433	0.5599	0.1873	2.9897	**0.0029**	**0.1921**	**0.9278**
1.1433	0.5932	0.2185	2.7152	**0.0068**	**0.1641**	**1.0223**
2.1433	0.6265	0.2792	2.2440	**0.0252**	**0.0782**	**1.1748**

Note: 95% bias-corrected bootstrap confidence intervals were produced for the 10th, 25th, 50th, 75th, and 90th percentiles of the peer ladder. Bias-corrected bootstrap confidence intervals are based on 1,000 bootstrap resamples. Statistically significant effects are bolded. Perceived support, network diversity, and peer ladder scores were mean centered prior to analysis. The conditional direct effect of network diversity on depression at various levels of the peer ladder, when perceived support scores are held constant, is $c_1' + c_3'V$.

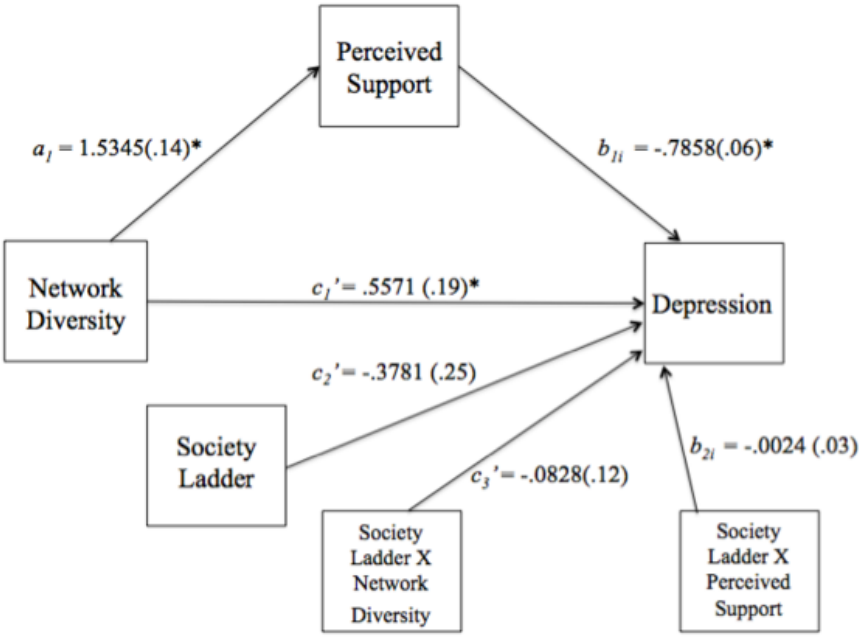
Table 25.

Conditional Indirect Effects of Network Diversity on Depression (Subjective SES - Peer Ladder; T1)

Peer Ladder Percentile Values	Effect	Bootstrap SE	LLCI	ULCI
-2.8567	-1.1550	0.1783	**-1.5570**	**-0.8180**
-0.8567	-1.2094	0.1419	**-1.5197**	**-0.9531**
0.1433	-1.2366	0.1371	**-1.5278**	**-0.9911**
1.1433	-1.2639	0.1429	**-1.5890**	**-1.0213**
2.1433	-1.2911	0.1583	**-1.6599**	**-1.0209**

Note: 95% bias-corrected bootstrap confidence intervals were produced for the 10th, 25th, 50th, 75th, and 90th percentiles of the peer ladder. Bias-corrected bootstrap confidence intervals are based on 1,000 bootstrap resamples. Statistically significant effects are bolded. Perceived support, network diversity, and peer ladder scores were mean centered prior to analysis. The conditional indirect effect of network diversity on depression through perceived support at various levels of the peer ladder is $Y=a(b_{1i} + b_{2i}V)$, where V is peer ladder percentile.

Model 3a: Subjective SES - Society Ladder (n=601)



Note. *p<.01. Covariates (race, gender, T1, depression) not pictured.

R^2 = .5724
F (11, 589) = 26.0927
p < .0001

Figure 10. Path Coefficients and Standard Errors for Conditional Process Model (Subjective SES-Society Ladder; T1)

Table 26.

Index of Moderated Mediation (Subjective SES - Society Ladder; T1)

Index	Bootstrap SE	Bootstrap LLCI	Bootstrap ULCI
-0.0037	0.0457	-0.0909	0.0870

Table 27.

Conditional Direct Effects of Network Diversity on Depression (Subjective SES - Society Ladder; T1)

Society Ladder Percentile Values	Effect	SE	t	p	LLCI	ULCI
-1.7887	0.7052	0.2783	2.5342	**0.0115**	**0.1587**	**1.2517**
-0.7887	0.6224	0.2066	3.0132	**0.0027**	**0.2167**	**1.2081**
0.2113	0.5397	0.1874	2.8796	**0.0041**	**0.1716**	**0.9077**
1.2113	0.4569	0.2341	1.9518	0.0512	-0.0029	0.9166
2.2113	0.3741	0.3189	1.1732	0.2412	-0.2522	1.0004

Note. 95% bias-corrected bootstrap confidence intervals were produced for the 10th, 25th, 50th, 75th, and 90th percentiles of the society ladder. Bias-corrected bootstrap confidence intervals are based on 1,000 bootstrap resamples. Statistically significant effects are bolded. Perceived support, network diversity, and society ladder scores were mean centered prior to the analysis. The conditional direct effect of network diversity on depression at various levels of the society ladder, when perceived support scores are held constant, is c1' + c3'V.

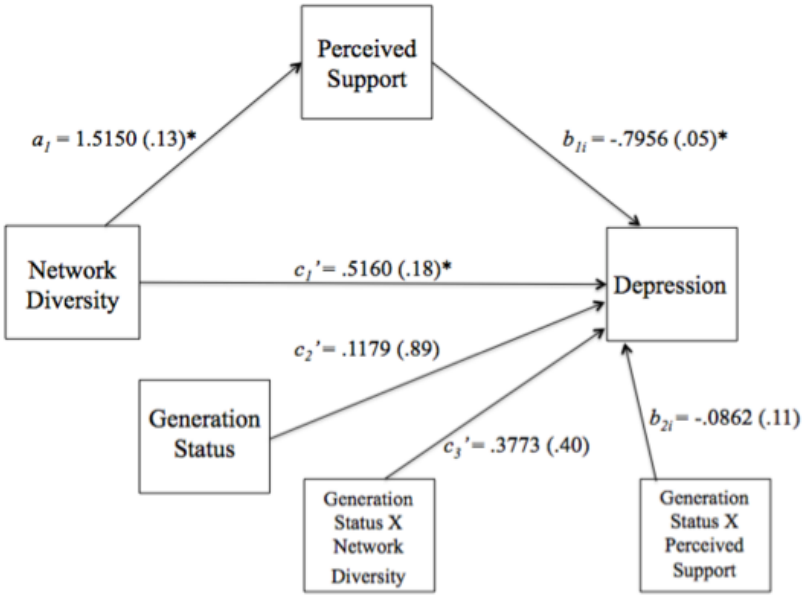
Table 28.

Conditional Indirect Effects of Network Diversity On Depression (Subjective SES - Society Ladder; T1)

Society Ladder Percentile Values	Effect	Bootstrap SE	LLCI	ULCI
-1.7887	-1.1991	0.1592	**-1.5416**	**-0.9042**
-0.7887	-1.2028	0.1418	**-1.4996**	**-0.9375**
0.2113	-1.2066	0.1380	**-1.4987**	**-0.9549**
1.2113	-1.2103	0.1489	**-1.5234**	**-0.9454**
2.2113	-1.2140	0.1717	**-1.5912**	**-0.9185**

Note: 95% bias-corrected bootstrap confidence intervals were produced for the 10th, 25th, 50th, 75th, and 90th percentiles of the society ladder. Bias-corrected bootstrap confidence intervals are based on 1,000 bootstrap resamples. Statistically significant effects are bolded. Perceived support, network diversity, and society ladder scores were mean centered prior to analysis. The conditional indirect effect of network diversity on depression through perceived support at various levels of the society ladder is $Y=a(b_{1i} + b_{2i}V)$, where V is peer ladder percentile.

Model 4a: Generation Status (N=604)



Note. *p<.01

R^2 = .5676
F (11, 592) = 25.5773
p < .0001

Figure 11. Path Coefficients and Standard Errors for Conditional Process Model (Generation Status; T1)

Table 29.

Index of Moderated Mediation (Generation Status; T1)

Index	Bootstrap SE	Bootstrap LLCI	Bootstrap ULCI
-0.1307	0.1875	0.5430	0.2105

Table 30.

Conditional Direct Effects of Network Diversity on Depression (Generation Status; T1)

Generation Status	Effect	SE	t	p	LLCI	ULCI
First Gen.	0.4148	0.2182	1.9007	0.0578	-0.0138	0.8434
Continuing Gen.	0.7920	0.3378	2.3444	**0.0194**	**0.1285**	**1.4556**

Note. 95% bias-corrected bootstrap confidence intervals were produced for first-generation and continuing-generation students. Bias-corrected bootstrap confidence intervals are based on 1,000 bootstrap resamples. Perceived support and network diversity scores were mean centered prior to the analysis. The conditional direct effect of network diversity on depression for first vs. continuing generation students, when perceived support scores are held constant, is c1' + c3'V.

Table 31.

Conditional Indirect Effects of Network Diversity on Depression (Generation Status; T1)

Generation Status	Effect	Bootstrap SE	LLCI	ULCI
First Gen.	-1.1703	0.1051	**-1.4354**	**-0.9059**
Continuing Gen.	-1.3010	0.2151	**-1.8034**	**-0.9440**

Note. Bias-corrected bootstrap confidence intervals are based on 1,000 bootstrap resamples. The conditional indirect effect of network diversity on depression through perceived support for first vs. continuing generation college students is is $Y=a(b_{1i} + b_{2i}V)$, where V is generation status.

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