Sources of Social Support and their Relation to Stress and Engagement among College Students

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ABSTRACT

SOURCES OF SOCIAL SUPPORT AND THEIR RELATION TO STRESS AND ENGAGEMENT AMONG COLLEGE STUDENTS

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Previous research has explored the impact of stress on students’ well-being, including academic outcomes such as grades and student engagement. Research has also noted the positive and protective impact of social support from family, friends, classmates, teachers, etc., on academic outcomes. The current study sought to extend the existing base of literature by exploring the relation between stress, social support, and engagement among college students. In the current sample, stress was found to be a significant, positive predictor of social engagement with peers. Regression results also revealed significant and positive associations between social support from family and academic engagement. Additionally, social support from family was found to have a moderating effect on the relation between stress and affective engagement. Implications of the current research are discussed, as well as limitations.
SOURCES OF SOCIAL SUPPORT AND THEIR RELATION TO STRESS AND ENGAGEMENT AMONG COLLEGE STUDENTS

BY

JONATHAN D. EMMONS
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A THESIS SUBMITTED TO THE GRADUATE SCHOOL IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE MASTER OF ARTS

DEPARTMENT OF PSYCHOLOGY

Thesis Director:
Michelle Demaray
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CHAPTER 1
INTRODUCTION

Overview

Adolescent students encounter unique stressors relevant to their schooling experience, as well as in other contexts. For some students who juggle extracurricular activities, part-time jobs, and romantic relationships, it is easy to see how responsibilities pile up to produce stress in addition to the academic responsibilities of students, particularly in post-secondary education settings. The negative outcomes of stress are plentiful, with higher levels of stress being associated with poor academic and health outcomes (Hampton, 2006; Kaplan, Liu, & Kaplan, 2005; Skinner, Edge, Altman, & Sherwood, 2003). The effects of stress have the potential to be short-term, such as impacting sleep or a particular assignment or test. However, long-term effects of stress on younger age groups have also been considered in existing research (Compas, Connor-Smith, Saltzman, Thomsen, & Wadsworth, 2001; Hampton, 2006).

Despite the many different forms of stress that students may encounter, there are a variety of supports available to them. Friends, parents, and others can provide immense support, both emotionally and tangibly, to students in need. Much research has focused on positive physical and psychological benefits of receiving greater social support, particularly in adolescence (Beets, Cardinal, & Alderman, 2010; Rueger, Malecki, Pyun, Aycock, & Coyle, 2016; Uchino, 2009; Wickrama, Lorenz, & Conger, 1997). Social support may also play a role in determining academic outcomes such as grades and school engagement in college (Estell & Perdue, 2013;
Wang & Eccles, 2012; Wang & Holcombe, 2010; Woolley & Bowen, 2007), and has also been
shown to buffer the effects of stress (Auerbach, Bigda-Peyton, Eberhart, Webb, & Ho, 2011;
Cohen & Wills, 1985).

To date, very little research has examined possible connections between stress and
components of school engagement, and almost no studies have considered stress, social support,
and engagement together (Garriott & Nisle, 2017). These associations may be of great
importance as school personnel and other important figures in the lives of students consider ways
to support learning whilst teaching strategies and providing means to cope with the negative
effects of stress. Since stress may both stem from and impact the academic environment of
students, it is worthwhile to consider how these factors are related. The current study will seek to
address existing gaps in the literature by examining the overall effect of stress from various
sources on school engagement in college, as well as the potential protective factor of social
support.
CHAPTER 2
LITERATURE REVIEW

Stress in the Academic Environment

Stress can be defined in many ways. Early definitions of stress tended to be centered on the characteristics of the stress response (Selye, 1936). However, later definitions introduced the notion of stress as a process. For example, Cox (1978) characterized stress as a perceptual phenomenon, a comparative mechanism evaluating demands and coping ability. A simple and adequate definition has been offered by Lazarus and Folkman (1984b), who state that stress, as a cognitive manifestation, results from imbalance between resources and demands. The models describing this stress process are perhaps as plentiful as the definitions of stress itself. Therefore, a brief overview of several important models and how they relate to the current study will suffice.

One theory regarding the origins, process, and outcomes of stress is the transactional model of stress and coping, developed by Lazarus and colleagues (Coyne & Lazarus, 1980; Lazarus, 1966, 1981; Lazarus, Averill, & Opton, 1970; Lazarus and DeLongis, 1983; Lazarus & Folkman, 1984a, 1984b; Lazarus, Kanner, & Folkman, 1980). In this model, cognitive appraisal serves as an important means of recognizing and interpreting stress. Cognitive appraisal, which is a process of evaluating the impact of an individual’s various encounters with the environment on their personal well-being, is divided into two distinct types within the model – primary and secondary appraisal (Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986).
When primary appraisal occurs, a person typically determines what is at stake in their encounter (i.e., what are the risks and potential harmful effects of this encounter?). In addition, a person might think of outcomes in interpersonal or intrapersonal terms: “What impact will this have on my loved ones?” or “What impact will this have on my goals, my self-esteem, etc.?” (Folkman et al., 1986). Although presented as generally negative, perceptions of stress and stressors can be positive or negative. Some individuals may see events as challenging and an opportunity to grow, while others may have more negative experiences when faced with difficult events. Since stress in this model is largely defined in terms of the outcomes of cognitive appraisal, stress and the stress response may be mitigated or perhaps prevented as a result of the appraisal process. However, this is not always the case.

Secondary appraisal, on the other hand, involves an evaluation of available physical, social, and emotional resources, as well as ways in which the individual can respond to the situation in order to prevent harm or loss and improve the chances of benefitting from the situation. Prospective responses can include acceptance, acquiring more information, attempting to change the situation, or refraining from acting (Folkman et al., 1986). It is worth noting that although the labels of “primary” and “secondary” are applied to this appraisal process and seem to imply a linear process of thinking, these two often occur simultaneously and the secondary appraisal can often be a precursor to subsequent primary appraisals.

Coping, the next stage of the transactional process, is defined as the cognitive and behavioral efforts made by the individual to manage specific demands that are deemed as taxing during the appraisal process. Typically, the individual will select strategies which they believe will increase the potential for positive outcomes. These efforts may change drastically from person to person or from situation to situation. In short, the perception of stress in specific
contexts determines, in part, coping strategies, which are further evaluated by the individual as successful or unsuccessful. Thus, the appraisal process begins anew (Folkman et al., 1986). It is worth noting that earlier research noted the mediating role of coping strategies in the transactional process (e.g., Folkman, Lazarus, Gruen, & DeLongis, 1986). However, other research has contended that coping affects outcomes through both moderating and mediating processes (Dardas & Ahmad, 2015; Dunn, Burbine, Bowers, & Tantleff-Dunn, 2001).

Other models of stress introduce additional elements that may help clarify and/or simplify the understanding of stress as an entity and a process. The life events theory, proposed by Holmes and Rahe (1967), conceives of stress as resulting from major life change. More traumatic events such as death, divorce, and major illness, are thought to produce higher amounts of stress, while other, less severe changes (changes in diet, changes in social activities) are deemed as less stressful. Outcomes are often considered in terms of the effects of stress on health. While there has been research to show the correlation between major life change and frequency of illness (Hlastala et al., 2000; Kessler, 1997; Murrell, Norris, & Grote, 1988; Rahe, Mahan, & Arthur, 1970), this model fails to consider individual differences in the stress response.

The diathesis-stress model (Ingram & Luxton, 2005; Meehl, 1962) is one way of accounting for factors related to an individual’s stress response outside of the immediate situation producing stress. It proposes that a diathesis, or vulnerability, is an underlying and relatively stable factor affecting health outcomes in conjunction with stress. In other words, vulnerability, combined with stress, creates an increased risk for illness and disease. A diathesis can occur in many forms, including family history of mental illness or drug abuse, maltreatment during childhood, low socioeconomic status, and other biological and individual psychological characteristics. One example providing support for this model is the relation between mental
illness and stress. Studies have found that individuals with a genetic risk for depression (and other risk factors) develop this disorder at higher rates when they report having been exposed to high levels of stress, while those with the same genetic risk develop depression at lower rates under low levels of stress (Caspi et al., 2003; Lewinsohn, Joiner, & Rodhe, 2001).

Considering the function and utility of the above models of stress, it was determined that the transactional model would be best for guiding the current study. It is evident in the transactional model that stress can indeed function as more than just an outside force or pressure that acts on an individual. Stress can also be seen as an outcome of an individual’s appraisals, which can vary significantly depending on the event and the resources available for responding to the event or encounter. The current study focused primarily on elements of the appraisal process and outcomes of stress, rather than coping strategies. The academic environment served as the specific context in which stress was measured, and facets of student engagement were the determining outcomes of various stressors. Stress was measured in terms of students’ responses to given events or situations, rated as stressful or not stressful, while ratings of various sources of social support informed an additional part of the appraisal process.

Sources of Stress

Certain stressors may be particularly salient to students. The pressure of performing well in school, having to balance studying many materials and subjects at once, and waking up early to get to school on time can all contribute to stress over time. In addition, some academic stressors, such as homework, grades, and future schooling or career choices may be even more relevant to high school and college students, whereas social stressors and family stressors could apply to student in a broad range of ages. Conflict between parents, siblings, and even a
perceived lack of control over a person’s life can bring about stress, as well as a number of other possible situations (Call & Mortimer, 2001; Repetti, McGrath, & Ishikawa, 1999).

Research on stress in the college years has led to hypotheses about the stressful effects of transitioning from adolescence to adulthood, noting the role of “developmental tasks” (see Arnett, 2000; Roisman, Masten, Coatsworth, & Tellegen, 2004) in the exploration and establishment of an individual’s identity as an adult (Towbes & Cohen, 1996). The challenges of living independently, taking on greater responsibility for finances, performing to academic and personal standards, as well as modifying or adopting social roles, can all sum up to be what is described by the veritable phrase of someone “having a lot on their plate” (Broughan, Zail, Mendoza, & Miller, 2009; Salmela-Aro, Aunola, & Nurmi, 2007).

As mentioned above, stress for students in college can stem from many sources, including academics, socialization, family relations, intimate relationships, independence, and responsibility (Dill & Henley, 1998). For example, the conflict between feeling a sense of autonomy and being respected as a young adult and having to submit to the decisions of older adults even when there might be some disagreement can be particularly challenging for adolescent and college students. Stress from these relationships can also come about due to lack of communication, unrealistic expectations, or the perception that school staff are not really interested in the well-being of students.

Not only does the pressure of school impact the way in which students perceive and experience stress, but relationships with others may play a role in producing stressful experiences. For example, the difficulty of seeking out and maintaining romantic relationships can be a new, yet challenging experience of adolescence which extends to the college years (Brendgen, Vitaro, Doyle, Markiewicz, & Bukowski, 2002; Zimmer-Gembeck, 2002). Imagine
the experience of having to ask someone out and then being rejected by that person or breaking up with a long-time boyfriend/girlfriend and it becomes easy to see how these experiences can negatively affect an individual. Additionally, the pressure of having to fit in with a larger group of people and being judged based on actions, clothing choices, and other seemingly insignificant behaviors can lead to negative outcomes. Previous research has linked these interactions with peers to poor adjustment in adolescence (Asher & Coie, 1990; Parker & Asher, 1993).

Additional sources of stress for college students can include financial pressures, worry about taking on more adult responsibilities, including the challenge of balancing work, school, and time with family/friends/significant others, and stress about the future and uncertainties associated with it (Jessor, 1993; Repetti et al., 1999). Measurement of these various stressors and how they might relate to poor academic outcomes is a concern for researchers. Tools such as the Perceived Stress Scale (Cohen & Williamson, 1988) provide insight into the above factors, with particular focus on the individual’s perceptions of the cumulative effects of stress. These tools allow for meaningful questions about the school-related experiences of college students to be answered through scientific research.

**Stress Outcomes**

Research on the effects of stress on students has demonstrated a wide array of outcomes. Stress may impact various domains in adolescence and in the college years, but of particular interest to the current study are facets of student engagement related to stress. Beginning in earlier schooling years, higher academic stress is linked with lower academic self-concept (Wenz-Gross, Siperstein, Untch, & Widaman, 1997). School-related stress reported in junior high school has also been connected to poor academic performance in the high school years.
(Kaplan et al., 2005). The negative impact of stress on academic achievement and overall well-being has been established (Skinner et al., 2003), with long-term negative consequences affecting children’s physical and psychological health also being demonstrated as stress outcomes (Compas, Connor-Smith, Saltzman, Thomsen, & Wadsworth, 2001; Hampton, 2006). Longitudinal data from high school students has also revealed higher stress scores and more life change events reported by those who eventually dropped out of school than those who went on to graduate (Hess & Copeland, 2001).

One particular area of consideration in understanding the effects of stress during college is that of stress carry-over (Thoits, 1995), which examines how stress in one domain or role may impact stress in another, leading to role conflict (Hudd et al., 2000). As an example, college students report more days of poor mental health when stress from school spills over into other areas of their lives (Pedersen, 2012). Other identified outcomes of stress in college have included difficulties with concentration, increased rates of depression and anxiety, decreased life satisfaction, decreased levels of exercise and higher consumption of junk food, inadequate sleep, and finally, poorer academic performance (Bailey & Miller, 1998; Chang, 2001; Dyson & Renk, 2006; Edwards, Hershberger, Russell, & Market, 2001; Hudd et al., 2000; Lumley & Provenzano, 2003; Pritchard, Wilson, & Yamnitz, 2007; Struthers, Perry, & Menec, 2000).

Various demographic factors such as gender may be considered, as well, in relation to stress. Generally speaking, women in college are more likely to report higher levels of stress than men (Brougham, Zail, Mendoza, & Miller, 2009; Dusselie, Dunn, Wang, Shelley II, & Whalen, 2005; Hudd et al., 2000; Pierceall & Keim, 2007), and also report feeling more academic pressure than men (Misra, McKean, West, & Russo, 2000). College-aged men and women are likely to both report different stressors as contributing most to overall stress and display different
reactions (e.g., behavioral, emotional, and physiological) to academic stressors (Misra & Castillo, 2004). For both men and women in college, school stress is positively associated with depressive symptoms (Pedersen, 2013). Students’ economic situation can also impact stress levels, as cumulative stress, or stress in multiple contexts, is negatively associated with adjustment as early as elementary school (Morales & Guerra, 2006). Parental educational background, international student status, and race also relate to the experience of stress and related outcomes (Misra & Castillo, 2004; Morazes, 2016; Turner & Avison, 2003).

Social Support

Social support theory has aimed to understand how close relationships with others can affect well-being. Support is often understood in a different light depending on the theoretical perspective and tradition in which it is viewed. Lakey and Cohen (2000) proposed several important factors in evaluating social support theory, including the perspective of what social support is, how it operates, and whether it emphasizes a buffering effect or main effect on various outcomes.

The supportive actions perspective emphasizes the positive role of received social support on the effectiveness of coping (see Lakey & Cohen, 2000). A hypothesis of stress-support matching (Cohen & McKay, 1984; Cutrona & Russell, 1990) provides an even more explicit explanation of the mechanism of social support in buffering stress. Various stressors may present particular demands on an individual. Therefore, specific means of support are required. For example, a person who is struggling to pay their bills or who does not have enough food to eat will likely benefit from tangible resources and supportive actions that provide those resources more than from some sort of emotional support. Contrariwise, a person who is dealing with the
death of a family member or a breakup will likely benefit most from emotional support provided by close others.

An alternative perspective indicates that social support affects appraisals by helping a person interpret a situation that is stressful in a less negative manner (Cohen & Hoberman, 1983). This is consistent with the transactional model of stress and coping (Lazarus, 1966; Lazarus & Folkman, 1984a) and the secondary appraisals which lead individuals to evaluate and respond to stressful encounters by considering their available personal and social resources. Social support, in fact, may alter primary and secondary appraisals, resulting in more positive evaluations of stress and more effective means of coping (Cohen & Hoberman, 1983; Cohen & McKay, 1984).

A social-cognitive approach to social support draws on the premise that it is the perception of social support that ultimately influences outcomes. This perspective proposes that perceived support is actually influenced more by the recipient’s perception of the supporter’s personality characteristics than actual support provided (Lakey, Ross, Butler, & Bently, 1996). Once a person develops a stable pattern of beliefs about the supportive nature of others, they will see the actions of others through the lens of this perspective. Those with high levels of perceived support would interpret the same actions as more supportive compared with those who report low levels of perceived support (Baldwin, 1992; Lakey & Cassady, 1990; Lakey & Drew, 1997; Mankowski & Wyer, 1997). In this way, perceived support has a direct impact on health outcomes, but also influences health indirectly through self-esteem (Baldwin & Holmes, 1987; Lakey & Cassady, 1990; Sarason, Pierce, & Sarason, 1990).

Other perspectives on social support include the importance of an individual’s roles and role concepts and how they may contribute to a sense of identity and therefore well-being
(Stryker, 1980), as well as conceptualizing social support as one of many relationship qualities or processes that reflect the positive and negative associations we make in our view of others in general (Lakey & Cohen, 2000). Interestingly, research has provided evidence for both a buffering model and a main effect model depending on the measure used (Cohen & Wills, 1985).

Perhaps as important as the mechanism of social support is the means. Sources of social support can include friends, teachers, classmates, siblings, and parents, among others. Research has also indicated that gender differences exist in the perception of social support from these various sources (Rueger, Malecki, & Demaray, 2010). For example, boys and girls report similar levels of support from both parents and teachers (Demaray & Malecki 2002; Malecki & Demaray, 2003), yet girls report higher levels of support from friends than do boys (Cheng & Chan, 2004). In addition, boys report significantly higher levels of support from parents than peers, while girls report more support from peers than parents (Frey & Röthlisberger, 1996). Further research on gender differences in perceived social support indicates the relative importance of different sources for girls to be, first, close friends, followed by teachers, parents, classmates, and school personnel. For boys, the highest level of support came from teachers and parents, followed by friends, school personnel, and finally classmates (Rueger et al., 2010).

In adult samples, men and women have been shown to differ significantly, particularly in their utilization of different types of support, with women reporting more support utilized from friends and family than men (Day & Livingstone, 2003). Additionally, seeking and receiving social support (particularly support that is emotional in nature) is more closely associated with feminine personality characteristics, while masculine personality characteristics are more closely aligned with tangible aspects of support (Reevy & Maslach, 2001).
Social Support Outcomes

Various outcomes related to social support have been outlined in the literature. For example, Helsen and colleagues (2000) found that high parent support was predictive of lower emotional problems in adolescence. In addition, a negative association between depressive symptoms and social support has been noted (Rueger et al., 2016), with support from family sources (Colarossi & Eccles, 2003; Rueger, Malecki, & Demaray, 2008) and school sources (Reddy, Rhodes, & Mulhall, 2003; Rueger et al., 2010) serving as protective factors. Evidence also exists for a consistent link between social support and physical health (Beets et al., 2010; Uchino, 2009; Wickrama et al., 1997). Among college students in particular, higher levels of social support have been associated with greater life satisfaction (Coffman & Gilligan, 2002), and having higher levels of friend support specifically has been noted as a protective factor in personal-emotional, social, and overall adjustment for first-year college students (Friedlander, Reid, Shupak, & Cribbie, 2007).

Social support relationships are also associated with various academic outcomes. Support from a person’s general peer group is associated with positive outcomes such as school adjustment (Demaray, Malecki, Davidson, Hodgson, & Rebus, 2005), as is support from parents (Cutrona, Cole, Colangelo, Aaaouline, & Russel, 1994). Likewise, support from classmates is also predictive of positive outcomes, including lower rates of depression and better social skills for girls, and higher leadership for boys (Rueger et al., 2010). Higher teacher support has also been associated with more adaptive emotional functioning and higher levels of academic achievement (Colarossi & Eccles, 2003; Malecki & Demaray, 2003; Reddy, Rhodes, & Mulhall,
In the current study, the outcome of school engagement was considered, testing a buffering model of social support and its effect on outcomes of stress.

**School Engagement**

A long-standing vein of research which has been of interest to educational scientists is that of school or student engagement. School engagement might be best understood as an individual’s investment in the learning community and learning process. Engaged students demonstrate their commitment not simply through grades, but in their effort to benefit from what school offers, feeling a sense pride in understanding materials, and most importantly, internalizing and incorporating lessons from school into their personal lives (Newmann, 1992). Efforts have been made to understand additional underlying factors and components of school engagement. It should be noted that various models present various numbers of factors that are encompassed within the broader concept of school engagement. However, the main facets of engagement tend to be highly inter-correlated and are all exhibited by students to different extents (Zhoc, Webster, King, Li, & Chung, 2019). The current study utilizes a five-factor definition of school engagement based on updated research and measures relevant to college students (see Zhoc et al., 2019).

Academic engagement, as one distinct factor of overall school engagement, refers specifically to behaviors that are directly related to the learning process. This could include a student’s use of technology to support learning, regularly attending class, and demonstrating significant effort and persistence in academic tasks (Zhoc et al., 2019).
Behavioral engagement can consist of a variety of activities ranging from doing homework, being on the student council, or participating in other extracurricular activities (Fredricks, Blumenfeld, & Paris, 2004). Distinct definitions of behavioral engagement entail positive conduct (following the rules and avoiding disruptive behavior), involvement in academic tasks, including asking questions, effort, and concentration, and participation in school-related activities (Fredricks, 2013). Finn (1989) provided a definition that includes separate levels of participation, where theoretically higher-level behaviors are the result of greater commitment to the school or institution. Although there are a range of behaviors associated with this type of engagement, including academic and non-academic, much research has focused on ways which behavioral engagement is related to academic achievement (either as a function of engagement or disengagement) and other types of engagement such as emotional/affective engagement (Finn, 1989; Fredricks, 2013; Hughes, Luo, Kwok, & Loyd, 2008; Newmann, Wehlage, & Lamborn, 1992).

Cognitive engagement is yet another well-established concept, with its role in learning being examined extensively in the research community (Blumenfeld, Kempler, & Krajcik, 2006; Corno & Mandinach, 1983; Greene, Miller, Crowson, Duke, & Akey, 2004; Meece, Blumenfeld, & Hoyle, 1988; Pintrich & Schrauben, 1992). One way to describe cognitive engagement is in terms of cognitive strategies used to process information in a context of learning. For example, shallow processing strategies (e.g. memorization) have been shown to be less effective than meaningful processing (e.g. relating a story or concept to one’s self), the latter leading to greater performance on measures of achievement (Graham & Golan, 1991; Greene & Miller, 1996; Kardash & Amlund, 1991; Miller, Greene, Montalvo, Ravindran, & Nicholls, 1996; Nolen, 1988; Pintrich & Garcia, 1991). Cognitive engagement is further influenced by motivational
factors, including self-efficacy, achievement goals, and the relevance or instrumentality of school tasks in attaining future goals. The combination of these factors relates to cognitive strategy, which can result in different learning outcomes and, ultimately, varying levels of academic achievement (Bandura, 1986; Dweck, 1986; Greene et al., 2004; Husman & Lens, 1999). Cognitive engagement may also be related to cognitive energy expended or invested, rather, in processes that allow students to learn, understand, and master knowledge and concepts (Newmann et al., 1992).

Social engagement involves interactions with others that have the potential to aid in academic success. This may include engaging with peers in a cooperative and reciprocal manner of learning (e.g., studying together, tutoring, or working on group projects) or engaging with teachers to gain greater clarity of the subject matter and to review errors and make improvements. In higher education, as noted by Pascarella and Terenzini (1991), “a large part of the impact of college is determined by the extent and content of one’s interactions with major agents of socialization on campus, namely faculty members and student peers” (p. 620). Behaviors relating to this type of engagement can be quite expansive, including interactions with roommates, interactions in social spaces outside of the classroom, and interactions within student clubs or extracurricular activities (Thomas, 2012).

The affective component deals with how students feel about the environment, materials, and methods of learning with which they are expected to engage. This aspect might consider sense of belonging and identity within the educational sphere, with low school attendance, skipping class, and tardiness as distinct indicators of disengagement (Willms, 2003). In other words, the emotional response of students to their connection with the school relates to
motivation and participation in the learning process, potentially impacting academic outcomes (Appleton, Christenson, & Furlong, 2008; Finn & Zimmer, 2012).

Components of school engagement may also be derived from associated terms such as school commitment, motivation for learning, and the contexts of engagement-related behavior (e.g., academic performance, extracurricular involvement, interpersonal relationships, classroom behavior, etc.) (Jimerson, Campos, & Greif, 2003). Hence, it may be best to conceptualize school engagement as a multifaceted construct, considering multiple factors together in the measurement and overall understanding of engagement in schools (Archambault, Janosz, Morizot, & Pagani, 2009; Fredricks et al., 2004; Hart, Stewart, & Jimerson, 2011; Wang & Eccles, 2012).

Regarding gender differences in school engagement, previous research has indicated differences among boys and girls on measures of school engagement as early as kindergarten (Portilla, Ballard, Adler, Boyce, & Obradović, 2014). These differences continue to exist in secondary settings and in college, but can also be explained by additional factors, such as type of engagement and gender composition of the school (Roorda, Koomen, Spilt, & Oort, 2011; Tison, Bateman, & Culver, 2011).

### Engagement and Academic Outcomes

Global engagement has been shown to be negatively related to high school dropout (Archambault, Janosz, Fallu, & Pagani, 2009), while longitudinal data reveals that decreases in engagement over time, and particularly behavioral engagement, present an increased risk of later dropout (Archambault et al., 2009). Minority school engagement in particular can vary depending on cultural context and other factors such as low SES (Conchas, 2001; Johnson,
Crosnoe, & Elder, 2001), yet additional research has considered outcomes in African American students who are not considered to be “at risk” and found no evidence of markedly low engagement or academic achievement (Dotterer, McHale, & Crouter, 2007). Positive impacts of higher levels of school engagement include decreased delinquent activity and lower rates of drug use by students (Li & Lerner, 2011; Wang & Fredericks, 2013). Among college students, links between positive interactions with faculty and perceptions of the college environment (Kuh, Kinzie, Buckley, Bridges, & Hayek, 2006), peer engagement and academic development (Kuh, 1995), and students’ use of information technologies and gains in particular academic areas (Kuh & Hu, 2001) have all been noted in existing research.

In earlier grades, levels of behavioral and emotional engagement have been shown to affect academic growth and achievement in later grades. Ladd and Dinella (2009) found that lower levels of these types of engagement, measured in grades 1-3, were predictive of less growth and achievement through the 8th grade. Other research has found general declines in GPA in middle- and high-school students (grades 7-11), which are associated with similar declines in school participation and self-regulated learning for the same individuals (Wang & Eccles, 2012).

School Engagement and Social Support

Important to the current study is how engagement relates to the experience of stress and perceived social support by students. Social support from various sources can lead to positive outcomes when considering the different facets of school engagement. Parent, peer, and teacher support can have a positive impact on school compliance, participation in extracurricular activities, school identification, and students’ perception of the value of learning (Wang & Eccles, 2012). Additionally, parent support can be important in promoting higher behavioral
engagement, while peer support more strongly impacts affective engagement (Estell & Perdue, 2013). Perception of teacher support, within the context of other elements of the school environment, impacts engagement as well, with negative perceptions leading to more withdrawal (Wang & Holcombe, 2010). Social support relationships may also become increasingly important for ensuring positive academic outcomes for students who are considered at risk (Woolley & Bowen, 2007).

**School Engagement and Stress**

Less research has been conducted on the relation between stress and school engagement (Gan, Yang, Zhou, & Yang, 2007; Raufelder et al., 2014), and almost no studies to date have addressed the three factors of stress, social support, and student engagement together in the college age group. Some inferences may be drawn about the relation between stress and school engagement by considering engagement among high-risk students and certain minorities (Conchas, 2001; Crockett et al., 2007; Museus & Quaye, 2009), noting inherent environmental and cultural stressors, but studies have generally not measured these constructs together directly. In considering the factors of stress, social support, and academic outcomes, Garriott and Nisle (2017) have proposed that support from friends and family would explain the relation between stress and perceived academic goal progress (a subjective indicator of academic involvement and self-efficacy) among first-generation college students, but this hypothesis was not supported. However, it is still likely that these sources of support are important to college students and may impact the effect of stress on different behaviors related to specific factors of school engagement.
Current Study

The aim of the current study was to further explore the associations among stress, social support, and school engagement, while also considering the impact of gender. The following questions guided the current research.

Research Question 1

Research Question 1: How is overall stress related to five factors of school engagement? Are there gender differences in these associations? It was predicted that, overall, there would be a negative relation between stress and each of the five factors of student engagement (academic, cognitive, social engagement with teachers, social engagement with peers, and affective; Kaplan et al., 2005; Skinner et al., 2003).

Research Question 2

Research Question 2: How are various sources of social support (family, best friend/significant other, and friends) related to school engagement? Do gender differences exist in these associations? It was predicted that there would be a positive relation between students’ ratings of perceived social support and their school engagement for all sources of support and all factors of engagement (Colarossi & Eccles, 2003; Demaray et al., 2005; Rueger et al., 2008).
Research Question 3:

Research Question 3: Do various sources of social support moderate the association between stress and school engagement? What differences, if any, exist when considering gender? It was predicted that several social support sources would have a moderating effect on the association between stress and student engagement. In particular, it was predicted that: support from family would buffer the effect of stress on cognitive and affective engagement, the support provided by close friends/significant others would buffer the effect of stress on affective and social engagement, and support from friends would impact the relation between stress and affective engagement (Estell & Perdue, 2013; Wang & Eccles, 2012; Wang & Holcombe, 2010).
CHAPTER 3

METHODOLOGY

Participants

Participants consisted of 158 undergraduate psychology students from a midwestern university. Students self-reported their gender (66.5% Female), age (range from 17 to 58; \( M = 21.4 \) years; \( SD = 4.563 \)), year in school, and ethnicity for the present study. Among the current sample, 34.2% reported that they were in their Freshman/1\(^{\text{st}}\) year in college, 18.4% Sophomore, 29.1% Junior, 10.8% Senior, and 7.6% 5\(^{\text{th}}\) year or higher. Students reported their ethnicity as follows: 44.3% White, 22.2% Hispanic, 20.3% African American, 8.2% Asian, 3.8% Other, and 1.3% Native American. Overall enrollment at the university is approximately 16,609 with an ethnic makeup of 51.5% White students, 17.4% Black/African American, 19.3% Hispanic/Latino, 5.7% Asian, 3.7% two or more races, 1.9% Non-resident Alien, 0.1% Native American, 0.1% Native Hawaiian, and 0.2% Unknown. Demographic data for the university was obtained from the university’s website and reflects student characteristics as of the fall of 2019. In comparing the participants of the current study to the overall population of the university, the ethnic makeup seems to constitute a representative sample.
Measures

Perceived Stress Scale

The 10-item Perceived Stress Scale (PSS; Cohen, Kamarck, & Mermelstein, 1994) provides a measure of stress arising from various situations in one’s life. Participants recount experiences from the previous month to inform their responses to the various items. The PSS was designed to be used in community samples where participants had at least a middle school or junior high level of education. Each item is rated by participants on a 5-point response scale ranging from 0 (Never) to 4 (Very Often). The PSS provides a unidimensional measure of stress and yields a single total score reflecting a participant’s overall level of perceived stress. Multiple studies have demonstrated an acceptable level of internal consistency for the 10-item version of the PSS (Chronbach’s $\alpha$ ranged from .74 to .91 in various samples; Lee, 2012). Internal consistency for the current study was determined to be at a questionable level ($\alpha = .60$). Test-retest reliability was also determined to be acceptable in multiple studies (Lee, 2012). For a full review of the PSS, see Appendix A.

Child and Adolescent Social Support Scale

The CASSS (Malecki, Demaray, & Elliot, 2000) is a 60-item scale measuring various elements of social support from parents, teachers, classmates, a close friend, and other people in the school. A modified version of this scale consisting of 36 items was used to reflect sources of support that would be most relevant at the college level, including family, best friend/significant other, and friends. Participants report the frequency of supportive behaviors from the above sources. Possible scores for frequency of social support range from 1 (Never) to 6 (Always). For
importance, the range includes possible scores from 1 (*Not important*) to 3 (*Very important*). Reliability of CASSS frequency scores for grades 9-12 ranges from $\alpha = .92$ to $\alpha = .97$ for individual subscales and overall ratings. For the current study, internal consistency was $\alpha = .95$ for support from family, $\alpha = .97$ for support from a best friend/significant other, and $\alpha = .96$ for support from friends. Construct validity for the CASSS is also good, as indicated in a study by Malecki and Demaray (2002). Due to the difference in sources of support measured in the original and current versions of the CASSS, an exploratory factor analysis was run, forcing a 3-factor solution. The three factors accounted for approximately 70.1% of the total variance, and all items loaded on their respective subscales (family support ranged from .656 to .907, support from best friend/significant other ranged from .723 to .909, and friend support ranged from .687 to .908). A full review of the CASSS is available in Appendix B.

**Higher Education Student Engagement Scale**

The HESES (Zhoc, Webster, King, Li, & Chung, 2019) is a 28-item, self-report questionnaire aimed at measuring student engagement and its distinctive characteristics within higher education. The HESES measures five facets of engagement including: Academic Engagement (consisting of the Academic Learning Scale; $\alpha = .71$ and the Online Engagement Scale; $\alpha = .70$), Cognitive Engagement ($\alpha = .85$), Social Engagement with Peers (consisting of the Peer Engagement Scale; $\alpha = .83$ and the Beyond-class Engagement Scale; $\alpha = .78$), Social Engagement with Teachers ($\alpha = .79$), and Affective Engagement ($\alpha = .87$). Possible scores range from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). Results of a study examining the psychometric properties of the HESES revealed similar characteristics for a 7-factor and 5-factor solution. Satisfactory criterion validity was also found among the factors of the HESES and other
measures such as GPA, satisfaction of the university experience, and self-growth outcomes. It was determined that the simplified 5-factor solution would be used in the current study. Reliability statistics for the current sample were calculated and are as follows: Academic Engagement ($\alpha = .78$), Cognitive Engagement ($\alpha = .77$), Social Engagement with Peers ($\alpha = .88$), Social Engagement with Teachers ($\alpha = .86$), and Affective Engagement ($\alpha = .87$). The questions from the HESES can be reviewed in Appendix C.

Procedure

Approval of the study design and permission to collect data was obtained through the Institutional Review Board (IRB). The study was advertised through an online system which allows introductory psychology students to obtain research credit for participation in various studies. The study was also distributed to other course instructors and professors at the university. Furthermore, students were provided with an incentive of being placed within a random drawing for 1 of 2 $50 Amazon gift cards in exchange for participating. Students accessed the survey online via Qualtrics through a link provided by the researcher. Students were asked to first provide demographic information, including ethnicity, gender, age, and year in school, as well as their estimated cumulative GPA. The additional blocks of questions for the PSS, CASSS, and HESES were presented in random order for the participants. It should be noted that data collection occurred during the COVID-19 global pandemic (responses were submitted between April 8 and May 7, 2020). It is not clear if these extraordinary circumstances had any influence on participants’ responses.
CHAPTER 4

RESULTS

Preliminary Analyses

Preliminary analyses included examining means and standard deviations for all variables considered (Overall Stress, five factors of School Engagement, and three types of Social Support). Table 1 provides a summary of these results as well as means and standard deviations for female and male respondents. In addition, correlations among all study variables were examined. Table 2 summarizes correlations among variables across the entire sample, while table 3 summarizes the observed correlations among variables for females and males.

Gender differences between variables were tested using univariate (ANOVA) and multivariate (MANOVA) analysis of variance tests. For Overall Stress, an ANOVA revealed significant differences between males and females, $F(1, 152) = 6.859, p = .010$, with females reporting higher levels of Overall Stress compared to males ($M = 2.255, SD = .479$ for females; $M = 2.045, SD = .456$ for males). Among the five factors of School Engagement, no gender differences were found after completing a MANOVA, $p = .833$; Wilks’ $\Lambda = 0.986$. Finally, results from a MANOVA revealed significant gender differences between males and females among three types of Social Support, $p = .042$; Wilks’ $\Lambda = 0.947$. In particular, Social Support from Family was found to be different between males and females, $F(1, 152) = 4.931, p = .028$, with males reporting greater support from family members compared to females ($M = 4.437, SD = .928$ for males; $M = 4.022, SD = 1.185$ for females).
Table 1

Means and Standard Deviations for Study Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Female</th>
<th>Male</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>Stress</td>
<td>2.255</td>
<td>.479</td>
<td>2.045</td>
</tr>
<tr>
<td>Academic Engagement</td>
<td>3.863</td>
<td>.622</td>
<td>3.805</td>
</tr>
<tr>
<td>Cognitive Eng.</td>
<td>3.529</td>
<td>.787</td>
<td>3.462</td>
</tr>
<tr>
<td>Affective Eng.</td>
<td>3.696</td>
<td>.854</td>
<td>3.593</td>
</tr>
<tr>
<td>Social Support from Family</td>
<td>4.022</td>
<td>1.185</td>
<td>4.437</td>
</tr>
<tr>
<td>Social Support from Best Friend/Significant Other</td>
<td>4.903</td>
<td>.989</td>
<td>4.774</td>
</tr>
<tr>
<td>Social Support from Friends</td>
<td>4.572</td>
<td>1.064</td>
<td>4.621</td>
</tr>
</tbody>
</table>

*Note.* Scale for Stress scores ranged from 0 (Never) to 4 (Very Often), 1 (Strongly Disagree) to 5 (Strongly Agree) for subscales of Engagement, and 1 (Never) to 6 (Always) for sources of Social Support. Thus, higher scores on all of the above scales correspond to more stress, greater engagement, and more frequent support from different sources.
Table 2
Bivariate Correlations among Study Variables – Overall Sample

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Stress</td>
<td></td>
<td>.208**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Academic Engagement</td>
<td>.042</td>
<td>.113</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Social Eng. With Teachers</td>
<td>.081</td>
<td>.028</td>
<td>.505**</td>
<td>.532**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Social Eng. With Peers</td>
<td>-.006</td>
<td>.227**</td>
<td>.348**</td>
<td>.276**</td>
<td>.367**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Affective Eng.</td>
<td>.056</td>
<td>.181*</td>
<td>.228**</td>
<td>.313**</td>
<td>.102</td>
<td>.474**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Social Support from Family</td>
<td>-.177*</td>
<td>-.207*</td>
<td>.280**</td>
<td>.083</td>
<td>.227**</td>
<td>.174*</td>
<td>.129</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Social Support from Best Friend/Significant Other</td>
<td>.060</td>
<td>.029</td>
<td>.218**</td>
<td>.152</td>
<td>.263**</td>
<td>.262**</td>
<td>.275**</td>
<td>.412**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Social Support from Friends</td>
<td>-.022</td>
<td>-.057</td>
<td>.214**</td>
<td>.121</td>
<td>.220**</td>
<td>.395**</td>
<td>.303**</td>
<td>.530**</td>
<td>.713**</td>
<td></td>
</tr>
</tbody>
</table>

* = Correlation is significant at the 0.05 level. ** = Correlation is significant at the 0.01 level.
<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Stress</td>
<td>-</td>
<td>.070</td>
<td>.242*</td>
<td>.007</td>
<td>.281**</td>
<td>.267**</td>
<td>-.261**</td>
<td>.005</td>
<td>-.086</td>
</tr>
<tr>
<td>2. Academic Engagement</td>
<td>.172</td>
<td>-</td>
<td>.614**</td>
<td>.416**</td>
<td>.311**</td>
<td>.148</td>
<td>.289**</td>
<td>.185</td>
<td>.169</td>
</tr>
<tr>
<td>6. Affective Eng.</td>
<td>.003</td>
<td>.345*</td>
<td>.502**</td>
<td>.280*</td>
<td>.658**</td>
<td>-</td>
<td>.078</td>
<td>.245*</td>
<td>.305**</td>
</tr>
<tr>
<td>7. Social Support from Family</td>
<td>.038</td>
<td>.316*</td>
<td>.302*</td>
<td>.474**</td>
<td>.488**</td>
<td>.289*</td>
<td>-</td>
<td>.353**</td>
<td>.489**</td>
</tr>
<tr>
<td>8. Social Support from Best</td>
<td>.038</td>
<td>.261</td>
<td>.239</td>
<td>.314*</td>
<td>.464**</td>
<td>.316*</td>
<td>.622*</td>
<td>-</td>
<td>.667**</td>
</tr>
<tr>
<td>from Friend/Significant Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Social Support from Friends</td>
<td>.015</td>
<td>.297*</td>
<td>.255</td>
<td>.353**</td>
<td>.593**</td>
<td>.307*</td>
<td>.659**</td>
<td>.806**</td>
<td>-</td>
</tr>
</tbody>
</table>

*Note. Values above the diagonal are for females. Values below the diagonal are for males. * = Correlation is significant at the 0.05 level. ** = Correlation is significant at the 0.01 level.*
Research Question 1

In order to answer the question regarding the relation between Stress and School Engagement, a series of five regression analyses were conducted. Independent variables included Overall Stress and Gender in step 1. Step 2 included the interaction between the two, while dependent variables included the five factors of School Engagement as measured by the HESES (Academic Engagement, Cognitive Engagement, Social Engagement with Teachers, Social Engagement with Peers, and Affective Engagement). When considering Academic Engagement as an outcome, the overall model was not significant, $F(2, 151) = 0.899, p = .370$. Results of a regression analysis with Cognitive Engagement as an outcome yielded marginally significant results in the overall model (model 1: Overall Stress and Gender predicting Cognitive Engagement), $F(2, 151) = 2.985, p = .054; R^2 = .038$. In this model, Overall Stress was a significant predictor of Cognitive Engagement, $\beta = .195, p = .018$. There was not a significant change in $R$-squared from model 1 to model 2, $F(1, 150) = .721, p = .397$.

When considering Social Engagement with Teachers as an outcome, the overall model was not significant, $F(2, 151) = 0.505, p = .604$. When Social Engagement with Peers was considered as an outcome, the overall model (model 1: Overall Stress and Gender predicting Social Engagement with Peers) was significant, $F(2, 151) = 4.352, p = .015; R^2 = .055$, with Overall Stress emerging as a significant predictor, $\beta = .239, p = .004$. In this regression analysis, there was not a significant change in $R$-squared from model 1 to model 2, $F(1, 150) = .721, p = .397$.

Finally, when considering Affective Engagement as an outcome, the overall model was not significant, $F(2, 151) = 2.595, p = .078$. 
Research Question 2

A series of five regression analyses were also used to answer the research question about the relation of Social Support to School Engagement. Gender and specific sources of Social Support (Family, Best Friend/Significant Other, and Friends) served as the independent variables. The interaction between Gender and each source of Social Support were also included in each regression (step 2). Each of the five factors of School Engagement served as the dependent variables.

When Academic Engagement was considered as an outcome, the overall model (model 1: Social Support and Gender predicting Academic Engagement) was significant, $F(4, 149) = 4.008, p = .004; R^2 = .097$, with Social Support from Family emerging as a significant predictor, $\beta = .245, p = .010$. In this regression analysis, there was not a significant change in $R$-squared from model 1 to model 2, $F(3, 146) = .301, p = .824$. When Cognitive Engagement was considered as an outcome, the overall model was not significant, $F(4, 149) = .964, p = .429$.

When considering Social Engagement with Teachers, the overall model (model 1: Social Support and Gender predicting Social Engagement with Teachers) was significant, $F(4, 149) = 3.922, p = .005; R^2 = .095$. However, no individual predictors were significant within this model. In this regression analysis, there was not a significant change in $R$-squared from model 1 to model 2, $F(3, 146) = 1.624, p = .186$.

Next, Social Engagement with Peers was considered as an outcome. The overall model (model 1: Social Support and Gender predicting Social Engagement with Peers) was significant, $F(4, 149) = 7.011, p < .001; R^2 = .158$, with Social Support from Friends emerging as a significant predictor, $\beta = .446, p < .001$. In this regression analysis, there was not a significant
change in $R$-squared from model 1 to model 2, $F(3, 146) = 1.969, p = .121$. Lastly, when Affective Engagement was considered as an outcome, the overall model (model 1: Social Support and Gender predicting Affective Engagement) was significant, $F(4, 149) = 4.271, p = .003; R^2 = .103$, with Social Support from Friends emerging as a significant predictor, $\beta = .245, p = .043$. There was not a significant change in $R$-squared from model 1 to model 2, $F(3, 146) = .439, p = .725$.

Research Question 3

The hypothesis regarding the moderating effect of Social Support on the relation between Stress and School Engagement was tested using a series of regression analyses. The first step was to test Overall Stress, Gender, and each of the individual sources of Social Support (Family, Best Friend/Significant Other, and Friends) as predictors of one factor of School Engagement. The second step included testing two-way interactions between Stress and sources of Social Support, Stress and Gender, as well as sources of Social Support and Gender predicting School Engagement. The third step included testing possible three-way interactions among Stress, Gender, and sources of Social Support. Analyses were then repeated to test these predictors and interactions for each of the five factors of School Engagement.

When Academic Engagement was considered as an outcome, the overall model (model 1: Stress, Social Support, and Gender predicting Academic Engagement) was significant, $F(5, 148) = 4.037, p = .002; R^2 = .120$, with Social Support from Family emerging as a significant predictor, $\beta = .279, p = .004$, and Overall Stress appearing to be marginally significant as a
predictor, $\beta = .158, p = .052$. However, there was not a significant change in $R$-squared from model 1 to model 2, $F(7, 141) = .857, p = .542$.

A second regression analysis with Cognitive Engagement was run, and the overall model was not significant, $F(5, 148) = 2.051, p = .075$. When Social Engagement with Teachers was considered as an outcome, the overall model (model 1: Stress, Social Support and Gender predicting Social Engagement with Teachers) was significant, $F(5, 148) = 3.169, p = .010; R^2 = .097$. No individual predictors in the model were found to be significant, however, and there was not a significant change in $R$-squared from model 1 to model 2, $F(7, 141) = .713, p = .661$.

Considering Social Engagement with Peers as an outcome, the overall model (model 1: Stress, Social Support and Gender predicting Social Engagement with Peers) was significant, $F(5, 148) = 8.514, p < .001; R^2 = .223$, with Overall Stress emerging as a significant predictor, $\beta = .266, p = .001$, as well as Social Support from Friends, $\beta = .455, p < .001$. Again, there was not a significant change in $R$-squared from model 1 to model 2, $F(7, 141) = 1.389, p = .155$.

The final regression analyses considered Affective Engagement as an outcome. The overall model (model 1) was significant, $F(5, 148) = 4.655, p = .001; R^2 = .136$, with Overall Stress emerging as a significant predictor, $\beta = .190, p = .019$, as well as Social Support from Friends, $\beta = .249, p = .035$. The change in $R$-squared from model 1 to model 2 was also significant, $F(7, 141) = 2.072, p = .050$. The overall model (model 2) was significant, $F(12, 141) = 3.247, p < .001$, with the interaction between Overall Stress and Social Support from Family emerging as a significant predictor of Affective Engagement, $\beta = .222, p = .043$. A simple slopes test was conducted for the moderator at 1 standard deviation above and below the mean for Social Support from Family (i.e., high and low support). There was a significant difference of
reported Affective Engagement between those who reported low stress and low support and those who reported high stress and low support (simple slope = -3.506, \( p = .001 \)). There was no significant difference between those reporting low stress and high support and those who reported high stress and high support (simple slope = .733, \( p = .465 \)). Figure 1 shows a graphical representation of this interaction. The change in \( R \)-squared from model 2 to model 3 was not significant, \( F(3, 138) = .149, p = .930 \).

Figure 1. Interaction between Stress and Social Support from Family Predicting Affective Engagement.
CHAPTER 5
DISCUSSION

The current study sought to explore associations among stress, social support, and school engagement, as well as possible gender differences in these associations, thus extending existing research involving these constructs within the school setting. While more research exists regarding the nature of adolescent stress, its various outcomes, and its underlying mechanisms (Broughan et al., 2009; Folkman et al., 1986; Hampton, 2006; Kaplan et al., 2005; Pedersen, 2013; Skinner et al., 2003; Towbes & Cohen, 1996), few studies have investigated stress as predictive of various facets of school engagement (Gan, Yang, Zhou, & Yang, 2007; Raufelder et al., 2014). Social support research has also been plentiful, as many academic, social, and psychological outcomes have been linked to support from various sources (Beets et al., 2010; Estell & Perdue, 2013; Rueger et al., 2016; Uchino, 2009; Wang & Eccles, 2012; Wang & Holcombe, 2010; Wickrama et al., 1997; Woolley & Bowen, 2007). Furthermore, the evolving nature of school engagement literature has provided researchers with many opportunities to explore the nature and impact of school engagement in various levels of education (Zhoc et al., 2019). The recent introduction of a new scale aimed at understanding student engagement in higher education (i.e., the HESES) also provides a unique opportunity to further understand the role of stress and social support within college relationships (e.g., peer or classmate relationships) and experiences.
With a theoretical understanding of stress as a process of evaluating various stimuli through appraisals (Folkman et al., 1986), the current study conceptualized a measure of stress as a primary cognitive appraisal, a measure of various sources of social support as a secondary appraisal, and a measure of several components of school engagement as behavioral outcomes related to this transactional process. In order to examine this process, several research questions were developed to parse this process into distinct parts. First, the relation between stress and school engagement was examined. Second, the relation between social support and school engagement was examined. Finally, the relation of stress, social support, and school engagement was examined altogether, with social support being proposed as a moderator between stress and engagement.

The final sample consisted of 158 undergraduate students (primarily first-year students – 34.2%) with a wide range of ages (17 to 58; \( M = 21.4 \) years). The majority of participants were female (66.5%) and the overall sample was ethnically diverse (44.3% White, 22.2% Hispanic, 20.3% African American, 8.2% Asian, 3.8% Other, and 1.3% Native American). In examining gender differences among variables, females reported higher levels of stress compared to males, consistent with previous research (Misra & Castillo, 2004; Moksnes, Moljord, Espnes, & Byrne, 2010; Sulaiman, Hassan, Sapian, & Abdullah, 2009). Males reported greater support from family compared to females. Previous research has reported mixed results in regard to gender differences in family support (Cheng & Chan, 2004; Day & Livingstone, 2003), depending on age group and specific measure of social support.
Relation of Stress and School Engagement

It was predicted that there would be a negative association between perceived stress and the five factors of school engagement. Bivariate correlations between study variables revealed that significant positive correlations existed between stress and cognitive engagement, social engagement with peers, and affective engagement, which did not support the original hypothesis. Additionally, academic engagement and social engagement with peers were not significantly correlated with stress. Interestingly, when correlations between stress and school engagement were considered among males and females separately, no significant correlations emerged among males. The three significant correlations noted in the overall sample, however (stress and cognitive engagement, social engagement with peers, and affective engagement), remained significant when only females were considered.

Further analyses were conducted to explore this association within the overall sample. Regression analyses revealed a marginally significant model with stress predicting cognitive engagement, controlling for gender. Stress was also determined to be a significant predictor of social engagement with peers, again controlling for gender. Of particular note in these findings is the discrepancy between the direction of the association of stress and elements of school engagement that was expected and observed in the sample. While a negative association was expected, suggesting that higher amounts of stress would produce a negative impact on engagement behaviors such as time spent studying, time spent with peers, etc., the opposite was observed. This may suggest that those who are highly engaged in their academic institution, whether academically, socially, or otherwise, also exhibit higher levels of stress, perhaps due to increased demands on time or personal expectations for goals related to academic success.
Additional research has found evidence that higher academic expectations can amplify the adverse effects of school-related stress on performance (Kaplan, Liu, & Kaplan, 2005; Krieg, 2013). Although academic performance was not measured in the current study, the relation between stress and expectations could certainly apply. Additionally, since the current study only measured overall stress and did not capture stress that possibly stems from specific aspects of the school environment (i.e., social stress, academic stress, etc.), more research is necessary to determine how engagement relates to specific stressors or perhaps functions as a stressor itself.

Those who report more stress may also be more adequately equipped to cope with its potential negative effects. In fact, the reported levels of stress may be highly subjective when measuring overall stress (as opposed to specific stressors) and could be related to intrapersonal factors such as motivation, self-regulation, and subjective well-being. Accounting for these factors in the stress appraisal process is consistent with Folkman et al.’s transactional model (1986), whereby subjective interpretation of potential stressors ultimately determines what “counts” as stress or stressful for an individual. In research with younger children, self-regulatory skills seem to play a key role in developing resilience to adverse psychological outcomes produced by external stressors (Blair, 2010; Blair & Raver, 2012). If these skills are well developed by the time individuals enter college, then it should follow that the likelihood of experiencing adverse effects of stress (i.e., decreased engagement) is much lower.

Finally, a consideration of mindset toward stress can help explain a positive relation between stress and engagement. Research on stress mindset, or the belief that stress can have enhancing consequences for individuals in various contexts, has proliferated in recent years. Adopting a “stress-is-enhancing” mindset (Crum, Salovey, & Achor, 2013) would seem to play a
positive role in shaping desired behavioral, psychological, physiological, and perhaps academic outcomes (Crum, Akinola, Martin, & Fath, 2017; Crum et al., 2013; Heubschmann & Sheets, 2020; Linley & Joseph, 2004). Research in this area has even attempted to make direct connections with variations in stress response as noted in the transactional model of stress and coping (Kilby & Sherman, 2016). In all, this research suggests that there are a multitude of factors that influence the interpretation of stress as enhancing or debilitating, which in turn relate to responses to, and outcomes of, stress.

**Relation of Social Support and School Engagement**

Correlations between family support, best friend/significant other support, and friend support and the five factors of school engagement were examined in the overall sample. All three types of support were significantly and positively associated with academic engagement. None of the three types of support were significantly associated with cognitive engagement. All three types of support were also significantly and positively associated with social engagement with teachers and social engagement with peers. Finally, support from a best friend/significant other and support from friends were significantly and positively associated with affective engagement, while family support was not. These results partially support the original hypothesis proposing a positive relation between types of support and types of engagement. While previous research has noted a connection between support from peers and parents and the subjective value of learning (i.e., cognitive engagement; Wang & Eccles, 2012), the current study found no such connection. It could be that the impact of family support, for example, on the development of intrinsic motivation is greater in younger ages compared to college students. In a similar fashion, the lack
of association between family support and affective engagement observed in the current study could be due to differences in shared experiences among supportive relationships. That is, the influence of family on belonging to a college or university community is likely to be lesser than that of peers who are likely to share experiences related to being a student and may be more readily available (Dennis, Phinney, & Chuateco, 2005; Rodriguez et al., 2003).

However, it is important to note the differences in these associations based on gender. For instance, family support and cognitive engagement were significantly and positively related among males, while this relation was not significant among females. Likewise, family support and support from a best friend/significant other were significantly and positively correlated to social engagement with peers among males but not among females. These findings, taken together with gender differences noted in participants’ ratings of family support, could indicate a relative importance of support received from specific sources for males and females overall. This relative importance would then consequently differentially affect engagement, or at least any apparent association between the two. Limited research has examined these connections between gender, social support, and engagement, but the differences in perceived stress and perceived support, as well as the utilization of social support, has been noted in the academic context, with females reporting more stress and more utilization of social support resources (Brougham et al., 2009; Day & Livingstone, 2003; Misra & Castillo, 2004).

Additional analyses exploring the association between social support and engagement were conducted in the overall sample. The regression models used to predict various types of school engagement included all three sources of support together, controlling for gender. In one model, social support from family was a significant predictor of academic engagement. The
overall model with cognitive engagement as an outcome was not significant. In additional models, social support from friends significantly predicted social engagement with peers, as well as affective engagement, and an overall model of support and gender predicting social engagement with teachers was significant, yet with no significant individual predictors. The associations described above partially support the original hypothesis of significant and positive associations between social support from various sources and school engagement. In all, it may be best to interpret these associations based on the context of a higher education setting, recognizing that instruments measuring social support may be more adept at revealing associations between social, academic, and other factors important to younger students as opposed to college students. Other factors that uniquely contribute to the mechanisms of social support for females and males may also not be adequately explored in the current study, although previous research is mixed on whether gender differences in socialization factors and social support adequately account for various academic outcomes (Day & Livingstone, 2003; Matud, Ibañez, Bethencourt, Marrero, & Carballeira, 2003; Wang & Eccles, 2012).

Relation of Stress, Social Support, and School Engagement

Finally, the current study proposed that several social support sources would moderate the association between stress and various aspects of school engagement. In particular, it was predicted that: support from family would buffer the effect of stress on cognitive and affective engagement, the support provided by close friends/significant others would buffer the effect of stress on affective and social engagement, and support from friends would impact the relation between stress and affective engagement.
The particular focus of analyses related to this proposed model of moderation was on higher level predictors of engagement (i.e., two-way and three-way interactions among gender, stress, and social support). Among the various models tested, only one significant interaction was noted. When affective engagement was considered as an outcome, the interaction between stress and social support from family was significant. Further examination of this interaction revealed that there was a significant difference in affective engagement between those who reported low stress and low support and those who reported high stress and low support. In particular, when lower levels of stress and lower levels of support are reported, affective engagement is significantly higher than at high levels of stress and low levels of support. Although evidence of a buffering effect in the original hypothesis was contingent on a negative relation between stress and engagement being evident, this pattern does suggest that the level of support provided by family does impact the relation between the two, partially supporting the original hypothesis.

The lack of moderation observed with other types of support and other types of engagement could be attributed to the direction of the association between stress and engagement, as noted above. That is, because stress was not observed to have an overall deleterious effect on engagement, any benefits from various sources of social support are more difficult to ascertain in the context of this relation. As previously discussed, use of different measures of stress, or rather, identifying stress more closely associated with the academic environment in particular, may yield different results in terms of how moderation may or may not occur. The moderating influence of additional variables on the perception of stress may also be explored, as previous research has noted significant effects of school climate (Konold, Cornell, Jia, & Malone, 2018; Liu & Lu, 2012), self-competence (Alva & de Los Reyes, 1999),
and self-esteem (Farhan & Khan, 2015; Friedlander et al., 2007; Stupinsky, Perry, Renaud, & Hladkyj, 2013), among other factors, on academic outcomes and/or the relation of stress to academic outcomes. The type of outcome measured may also be important, as previous studies have found a buffering effect of social support on stress and other outcomes such as adjustment following transition to middle school (Wenz-Gross, Siperstein, Untch, & Widaman, 1997).

Limitations and Future Directions

There are several limitations which may have impacted the current study. One limitation is that much of the data was collected during the COVID-19 global pandemic. As such, responses to measures of stress, as well as perceived support and school engagement, could have been affected as drastic changes to class schedules, social distancing procedures, and other factors limited participation in university-related activities for part of the semester while data collection was taking place. Future studies may perhaps consider significant life events or global phenomena such as COVID-19 as additional, unique stressors and explore their impact on student engagement.

The age of participants in the current study was another limitation. Although the majority of participants fell within the 18-22 range that is typical of undergraduate college students, the wide age range of 17-58 could have skewed responses to various measures and therefore affected the planned analyses. With regard to the PSS, low internal consistency was noted in the current sample. Without an adequate threshold of reliability statistics, the predictive ability and inferences made from analyses utilizing this scale can be greatly diminished and highly suspect.
Thus, additional measures of stress in relation to school engagement may be needed to provide greater clarity to the questions explored in this study.

Another potential limitation was the use of the HESES. Although this scale demonstrated sound psychometric properties in a validation study, a cursory examination of the structure of its items revealed many cross-loadings and loadings on multiple factors. While this could be somewhat related to the particular sample used, it nevertheless could raise concerns with the specificity of measuring each unique factor of school engagement with this particular instrument. Future studies should examine these properties by replication and variation of original studies while also utilizing a diverse sample.

Future studies might include additional outcomes to be considered in relation to stress and social support. While it was not feasible to collect official GPAs from participants in the current study, this may represent an important outcome in high school and college samples, above and beyond self-report measures of behaviors related to school engagement. The inclusion of ethnicity as a variable of interest may also be a goal of future studies, as cultural background and practices may determine which specific behaviors related to engagement are exhibited by students. Additionally, future studies may build on the current study by exploring additional mechanisms of social support and the stress appraisal process to account for associations found in the current study. For example, it may be worthwhile to explore stigmatizing characteristics such as socioeconomic status, national origin, ethnic and sexual minority status, as well as other characteristics in relation to overall stress, social support, and school engagement.
REFERENCES


Engagement in academic work: The role of learning goals, future consequences, pleasing others, and perceived ability. *Contemporary Educational Psychology, 21*, 388–442.


APPENDICES
APPENDIX A

PERCEIVED STRESS SCALE
The questions in this scale ask you about your feelings and thoughts during the last month. In each case, you will be asked to indicate by circling how often you felt or thought a certain way.

Name _________________________________________________________

Age ________ Gender (Circle): M F Other ____________________________

0 = Never 1 = Almost Never 2 = Sometimes 3 = Fairly Often 4 = Very Often

1. In the last month, how often have you been upset because of something that happened unexpectedly?

2. In the last month, how often have you felt that you were unable to control the important things in your life?

3. In the last month, how often have you felt nervous and “stressed”? 

4. In the last month, how often have you felt confident about your ability to handle your personal problems?

5. In the last month, how often have you felt that things were going your way?

6. In the last month, how often have you found that you could not cope with all the things that you had to do?

7. In the last month, how often have you been able to control irritations in your life?

8. In the last month, how often have you felt that you were on top of things?

9. In the last month, how often have you been angered because of things that were outside of your control?

10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?

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APPENDIX B

CHILD AND ADOLESCENT SOCIAL SUPPORT SCALE
On the next several pages, you will be asked to respond to sentences about some form of support or help that you might get from others in your life. Read each sentence carefully and respond to them honestly. There are no right or wrong answers.

For each sentence you are asked to provide one response. You will rate how often you receive the support described.

My Family

How Often?

1) Never
2) Almost Never
3) Some of the Time
4) Most of the Time
5) Almost Always
6) Always

My Family…
…shows they are proud of me.
…understands me.
…listen to me when I need to talk.
…makes suggestions when I don’t know what to do.
…gives me good advice.
…helps me solve problems by giving me information.
…tells me I did a good job when I do something well.
…nicely tells me when I make mistakes.
…rewards me when I’ve done something well.
…helps me practice my activities.
…takes time to help me decide things.
…gets me many of the things I need.

How often do you see your family? A) Daily B) Weekly C) Monthly D) Yearly E) Never
My Best Friend/Significant Other

How Often?

1) Never
2) Almost Never
3) Some of the Time
4) Most of the Time
5) Almost Always
6) Always

My Best Friend/Significant Other...
...understands my feelings.
...sticks up for me if others are treating me badly.
...helps me when I’m lonely.
...gives me ideas when I don’t know what to do.
...gives me good advice.
...explains things that I don’t understand.
...tells me he or she likes what I do.
...nicely tells me when I make mistakes.
...nicely tells me the truth about how I do on things.
...helps me when I need it.
...shares his or her things with me.
...takes time to help me solve my problems.

Who were you thinking of when you rated “My Best Friend/Significant Other?”
A) Best Friend B) Significant Other C) Other: _______________________

How often do you see this person? A) Daily B) Weekly C) Monthly
D)Yearly E) Never
My Friends

How Often?

1) Never
2) Almost Never
3) Some of the Time
4) Most of the Time
5) Almost Always
6) Always

My Friends...
...treat me nicely.
...like most of my ideas and opinions.
...pay attention to me.
...give me ideas when I don’t know what to do.
...give me information so I can learn new things.
...give me good advice.
...tell me I did a good job when I’ve done something well.
...nicely tell me when I make mistakes.
...notice when I have worked hard.
...ask me to join activities.
...spend time doing things with me.
...help me with projects in class.

How often do you see these friends? A) Daily B) Weekly C) Monthly D) Yearly E) Never
APPENDIX C

HIGHER EDUCATION STUDENT ENGAGEMENT SCALE
Please answer the following questions based on your experience in the University. Do ‘✓’ the most appropriate answer only by indicating the extent of your agreement to the items using the following scale:

1 = Strongly Disagree (SD)
2 = Disagree (D)
3 = Neither Agree nor Disagree (N)
4 = Agree (A)
5 = Strongly Agree (SA)

<table>
<thead>
<tr>
<th>(I) Academic Engagement</th>
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<th>2</th>
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<td>Academic Learning Scale (ALS)</td>
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<td>1. I regularly study on the weekends.</td>
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<td>2. I spend a lot of time studying on my own.</td>
<td>☐ ☐ ☐ ☐ ☐</td>
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<td>3. I rarely skip classes.</td>
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<td>4. I usually complete readings or assignments before coming to class.</td>
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<td>Online Engagement Scale (OES)</td>
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<td>5. I regularly use web-based resources and information designed specifically for the course.</td>
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<td>6. I regularly use email and/or other electronic means (such as WhatsApp, WeChat, Facebook, etc.) to contact friends in my course.</td>
<td>☐ ☐ ☐ ☐ ☐</td>
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<td>7. I regularly use the internet to study.</td>
<td>☐ ☐ ☐ ☐ ☐</td>
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<td>8. Online resources (e.g., course notes, free software and materials on the web) are very useful for me.</td>
<td>☐ ☐ ☐ ☐ ☐</td>
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(II) Cognitive Engagement

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<th>Cognitive Engagement Scale (CES)</th>
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<td>9. I enjoy the intellectual challenge of the courses I am studying.</td>
<td>☐ ☐ ☐ ☐ ☐</td>
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<td>10. I get a lot of satisfaction from studying.</td>
<td>☐ ☐ ☐ ☐ ☐</td>
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<td>11. I am finding my courses intellectually stimulating.</td>
<td>☐ ☐ ☐ ☐ ☐</td>
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<td>12. I am usually motivated to study.</td>
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### (III) Social Engagement with Teachers

**Social Engagement with Teacher Scale (SETS)**

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<td>13.</td>
<td>I communicate with teaching staff (e.g., professor, TA, advisor) to let them understand difficulties that I have in my work.</td>
<td>1</td>
<td>2</td>
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<td>14.</td>
<td>Most academic staff take an interest in my progress.</td>
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<td>15.</td>
<td>I make real effort to get more helpful feedback from teaching staff on my progress.</td>
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<td>16.</td>
<td>I discuss my work with teaching staff.</td>
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### (IV) Social Engagement with Peers

**Peer Engagement Scale (PES)**

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<td>17.</td>
<td>I regularly work with other students on difficult course content.</td>
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<td>18.</td>
<td>I regularly get together with other students to discuss courses.</td>
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<td>19.</td>
<td>I regularly study with other students.</td>
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<tr>
<td>20.</td>
<td>I feel part of a group of students committed to learning.</td>
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**Beyond-class Engagement Scale (BES)**

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<td>21.</td>
<td>I tend to interact with other students in college.</td>
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<td>22.</td>
<td>I have made at least one or two close friends in college.</td>
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<td>23.</td>
<td>I am actively involved in university extra-curricular activities (e.g. cultural, sporting, etc.).</td>
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<td>24.</td>
<td>I am interested in the extra-curricular activities or facilities provided by this university.</td>
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### (V) Affective Engagement

**Affective Engagement Scale (AFES)**

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<td>25.</td>
<td>I really like being a college student.</td>
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<td>26.</td>
<td>College has lived up to my expectations.</td>
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<td>27.</td>
<td>I feel like I belong to the university community.</td>
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<td>28.</td>
<td>I really like being on my campus.</td>
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~The End ~