Socioeconomic Factors and Perceived Parenting During the Transition to College

by

Phillip J. Small

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Graduate Supervisory Committee:

Suniya S. Luthar, Chair
Frank J. Infurna
Keith A. Crnic
Cady Berkel

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ABSTRACT

There were two primary goals of this study, the first of which was to replicate previously established curvilinear associations between school affluence and substance use, while assessing potential relations between socioeconomic status (SES) and academic success during the transition to college. The second goal of this study was to establish patterns of perceived parenting factors in order to assess predictive value of such latent profiles with respect to student outcomes relevant to wellbeing and retention in college. Results indicated that substance use was, in fact, associated in a "U-shaped," curvilinear fashion with high school affluence. Additionally, students grouped into three primary perceived parenting profiles, characterized broadly as "authoritative," "warm and permissive," and "uninvolved." While "optimal" outcomes were associated with students in the authoritative group, these latent profiles lacked predictive value. Supplemental analyses revealed differential associations of various parent factors with males and females, as well as advantaged and disadvantaged youth. Taken together, these results emphasized the importance of parenting during high school in order to promote healthy, safe habits and sufficient self-agency during the transition to college.

Keywords: substance use, college, parenting

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INTRODUCTION

The focus of this study is on substance use and academic success among youth during the transitional first year of college, and how perceived parenting practices may affect those indices of maladjustment and success. To extend the existing literature, the current work includes relatively high socioeconomic status (SES) into the conceptualization of salient risk and protective factors for young adults. It is well established that those living in low socioeconomic communities have a range of challenges, risks, and vulnerabilities, and recently, higher SES youth have been shown to demonstrate elevated substance use and psychopathology relative to national norms during both adolescence and early adulthood. Comparing levels and antecedents of risk among youth from different socioeconomic backgrounds during the high-stress, transitional time of first year of college would be highly informative and innovative so as to best meet the range of needs of diverse college students.

A curvilinear association between community SES and indices of maladjustment has been demonstrated, but generalizability is still lacking. This field of inquiry is now burgeoning. Lund and Dearing (2013) parsed out community affluence as a risk factor over and above other forms of affluence (i.e., family). Recently, these "U-shaped" associations between SES and indices of adjustment have been demonstrated in international cohorts, in Norway (Lund, Dearing, & Zachrisson, 2017), the US (Coley, Sims, Dearing, & Spielvogel, 2017), and France (Legleye, Beck, Khlat, Peretti-Watel, & Chau, 2012), with greater maladjustment demonstrated at the high and low ends of the socioeconomic spectrum. As SES becomes more accepted as a complex risk and

protective factor, there has been a call for a deeper understanding into how this may operate and generalize across contexts.

Parent factors during adolescence have been shown to predict substance use problems in high school, as well as later in development (Luthar, Small, & Ciciolla, 2017; White et al., 2006). Additionally, parent factors have been associated with academic achievement across adolescence (Steinberg, Lamborn, Dornbusch, & Darling, 1992), but there is a need for additional work that turns its focus to the college years. The extent to which different constellations of parent factors have a lasting influence on college-bound youth is not yet clear.

Are Patterns of Generalizability Present in the College Years?

In college, drinking and drug use are common to student culture, and a range of problems have been well documented. Extending the developmental literature into the college years -- by examining U-shaped links between SES and maladjustment post-high school -- is one major way in which this study builds upon existing work. A second way in which we extend the literature is by including a full range of parent SES in our sample, as opposed to past work that has typically included only schools from the high and low SES extremes. A third innovation of this study is to assess the extent to which perceived parent factors thought to be important in adolescence endure and remain influential during the first year of college.

Thus, the central goal of this study is to strengthen the knowledge base on adjustment problems (i.e., substance use) and academic achievement across the first year of college, with a sample of young adults spanning the full socioeconomic continuum. Further, the current work seeks to identify perceived parent factors that influence

adjustment patterns in college, separately by gender. With increasing concern relating to serious substance use, depression, anxiety, and suicide attempts in college, the current work is timely, relevant, and essential, and seeks to protect and meet the needs of college students across higher education contexts. With a sample from a large public university, furthermore, this study has the potential to strengthen student retention efforts by university administrators, and drug prevention programs across late adolescence/emerging adulthood.

Theoretical Basis for the Study

The current work draws on the theoretical grounding of developmental psychopathology, which emphasizes a life-course perspective to understand how normal development can go awry and lead to different forms of maladjustment (Cicchetti & Toth, 1997; Luthar, Cicchetti, & Becker, 2000). Within the developmental psychopathology approach, the interaction between ecological contexts and the child is emphasized (Cicchetti & Lynch, 1993). The term "ecological context" refers to a child's immediate surroundings (parents, community, peers) as well as the broader social culture in which a child's development occurs over time. In Bronfenbrenner's (1986) Ecological Systems Theory, family is one of the more proximal influences on the individual within a given microsystem, especially pre-college. As such, parental practices have been considered in past work as it relates to adolescent academic success and engagement, as well as more problematic trends (i.e., emotional problems and substance use), but less-so in college-aged youth and young adults.

Developmental psychopathology is grounded in the conceptualization that development occurs amid many transactions between individual factors and a child's

ecological surroundings. There have been calls for this approach to be applied to a variety of areas related to problem behaviors, as there is much that can be learned about the onset, course, and changes in risky and developmentally attenuating behaviors (i.e., depression, substance use) by studying them over time (Brook, Balka, & Whiteman, 1999; Cicchetti & Luthar, 1999). The concepts of equifinality and multifinality (Cicchetti & Rogosch, 1996) can help guide this conceptualization, as problematic substance use and academic problems can eventuate from multiple pathways with different starting points (equifinality), reflecting the conceptual importance of studying risky and problematic behaviors over time. Similarly, students from similar backgrounds can lead drastically different lives, which attests to the importance of understanding risk and protective factors (multifinality).

Further conceptual grounding comes from Garcia Coll and colleagues (1996), who underscored the importance of accounting for social and cultural influences unique to a given subgroup or culture, especially when considering a subpopulation that has not been the focus of extensive study. This integrative model combined and expanded upon several dominant theories in developmental science, including transactional theory (Sameroff, 1975), life span (Lerner, 1989), organizational (Cicchetti & Schneider-Rosen, 1986), and ecological theories (Bronfenbrenner, 1977). While other comprehensive, integrative models like that of Sameroff (2010) exist, the scope of some models are too broad to be pertinent to the narrow window of interest in this work. Garcia Coll and colleagues' (1996) integrative model allows for the inclusion of factors directly related to both college culture, as well as the cultures that are characterizing of low- and high-SES communities.

This approach considers shifting ecological contexts amid the developmental transition to college, and allows for acknowledgement that physical proximity to parents typically decreases as offspring leave for college (Arnett, 2000; Bailey, Haggerty, White, & Catalano, 2011). As such, the extent to which specific perceived parent factors prior to the transition to college have an enduring effect following the move away from home is not yet clear. While this study is rooted in early parenting work (Baumrind, 1966; Maccoby & Martin, 1983; Pierce, Sarason, & Sarason, 1991), it seeks to extend descriptions of parenting using *youth-perceived* factors in specific constellations of factors already known to be salient within specific subcultures (i.e., culture of affluence). How parent factors and relationship quality affect academics and substance use remains to be seen for this important developmental transition.

LITERATURE REVIEW

Substance Use and SES

Alcohol and substance use are major problems in the United States. Approximately 88,000 people die from alcohol-related causes each year, with nearly 10,000 alcohol-impaired driving fatalities reported in 2014 in the US (National Institute on Alcohol Abuse and Alcoholism, 2016). As the death toll claimed a record high 47,000 lives in 2014, the Centers for Disease Control and Prevention (CDC) has referred to the rise in drug overdose deaths as an "epidemic" (CDC, 2015). There are many long-term problems that start early in adolescence and can manifest into disability, illness, and early death. In addition to the staggering number of lives claimed by drugs and alcohol, these problems place an immense economic burden on the country, costing an estimated 600 billion dollars annually (National Institute on Drug Abuse, 2014). Young people account for the highest rate of alcohol and drug use of any age demographic.

SES is thought to relate to substance use in complex ways, and in reviewing effects of these societal factors, we must first define these constructs. SES is the result of a combination of factors, including parental education, income, marital status, and family history, and it likely interacts with a number of developmentally-important factors in one's environment. Coley, Sims, Dearing, and Spielvogel (2017) note that accounting for socioeconomic factors across a range of communities is essential in research, as it greatly influences the norms for behavior, provides barriers or resources for facilitating development, and affects potential buffers to stress. SES directly or indirectly affects most aspects of life, including the quality and types of health services available, social

supports, and education. It is necessary to consider SES when discussing cultural phenomena, such as substance use among college students.

The majority of existing literature that considers SES as a prominent factor relating to child development has conceptualized it in a linear fashion, with worse outcomes associated with poverty and "better" outcomes associated with higher household income. This conceptualization of SES is now outdated – as will be discussed below, links can often be curvilinear, not linear. Thus, when considering SES in regards to certain outcomes, *more* is not necessarily *better*. However, when accounting for a range of risk and protective factors, a more linear trend may become apparent.

There is currently little attention to potential curvilinear links between family SES and youths' maladjustment post the high school years. As noted before, there are some studies that have use national data sets on high school samples (e.g., Coley et al., 2017; Lund et al., 2017), but there is currently little research at the college level, using participants from the full socioeconomic spectrum. Past work has demonstrated curvilinear associations between family income and substance use in adolescents (Coley et al., 2017). These patterns provide reasonable suspicion that similar curvilinear associations between SES and substance use will be evident among a college-aged sample.

Growing up in impoverished conditions contributes to a stressful and strained upbringing. Low socioeconomic status has a wide range of deleterious effects on many domains of development (Letourneau, Duffett-Leger, Levac, Watson, & Young-Morris, 2013). Recent research has pointed to persistent problems associated with poverty for youths' mental and behavioral health (Dearing, 2008) as well as adolescent delinquency,

aggression, and depression, specifically (Letourneau et al., 2013). Brody and colleagues (2013b) list several risk factors associated with poverty, including limited occupational and educational opportunities, frequent and sudden housing changes in response to economic strife, interpersonal and institutional racism, and disparities in medical and mental health settings.

Parenting in low-income environments is often more difficult due to lack of childcare, less parental involvement, and limited resources, and parenting practices, in turn, affect both substance use and academic achievement . In low income environments in which parents may be less available due to strains on time and resources, adolescents are left with less supervision and decreased academic encouragement. Indeed, research has revealed that the presence of poverty is associated with increased levels of depression and delinquency among adolescents (Leventhal, Dupéré, & Shuey, 2015), as well as lower academic engagement and autonomy.

College students from low-SES backgrounds may demonstrate resilience in some areas while they struggle considerably in others; as Luthar, Doernberger, and Zigler (1993) established among inner city late adolescents, resilience is not a unidimensional construct. Subsequently, others have argued that low income youth may manifest "skin-deep" resilience, as they may demonstrate academic success but internal distress (Brody et al., 2013a; Chen, Miller, Brody, & Lei, 2015). One study demonstrated that college-attending African American youth from particularly disadvantaged neighborhoods demonstrated lower levels of substance use but higher allostatic load as compared with those from better neighborhoods or their non-college-attending peers (Chen et al., 2015). This is an important concept to consider within the context of the current study, as

resistance to substance use and academic failure may not necessarily be indicative of a comprehensive distinction of "resilience."

High rates of substance use in low socioeconomic communities may be the result of a number of different factors. Some researchers assert that resilient youth must develop self-regulation, competence, and control in order to resist pitfalls common to high-poverty neighborhoods (i.e., academic failure, delinquency, and substance use) (Wills, Gibbons, Gerrard, & Brody, 2000). Constant adversity and social disadvantage are likely to contribute to high rates of substance use among low SES communities.

There seem to be challenges on the upper end of the economic spectrum, as well, as indicated by research on youth in relatively affluent settings. In this regard, an important distinction must be made regarding references to "affluence" in this literature: the demographic discussed refers to *teens attending high achieving schools,* who are usually from white collar professional families; this is not simply the wealthiest 1% of individuals. Programmatic research by Luthar and colleagues have shown that in high achieving schools across the country, ubiquitous pressure to succeed may contribute to these elevations in psychological symptoms and substance use (Luthar, 2003; Luthar, Barkin, & Crossman, 2013). To reiterate, the common denominator across all these samples is attendance at schools with excellent test scores, rich extracurricular and AP academic offerings; not all students at these schools are from white-collar families (with incomes two to three times national median rates), but most are. From this point forward, the terms "affluent" or "upper middle class" are used interchangeably to refer to these high achieving school samples.

In recent years, upper middle class youth have been shown to demonstrate elevated substance use and other problems relative to national norms during both adolescence (Luthar et al., 2013) and early adulthood (Luthar et al., 2017). These elevated rates of use have been documented in rural and urban areas, in private and public schools, and in geographically distinct areas of the United States (Luthar et al., 2013). A range of disturbances among these youth (i.e., substance use and internalizing) was first documented nearly 20 years ago (Luthar & D'Avanzo, 1999), and over time, such evidence led to this population being labeled as an "at-risk group" (Koplewicz, Gurian, & Williams, 2009, p. 1053). Although alcohol and substance use have been well-documented in these communities, with one exception (Luthar et al., 2017), problematic behaviors have not been studied over the course of developmentally important, transitional years of emerging adulthood, in which the first year of college is encompassed (Arnett, 2000; 2007). Understanding these potentially harmful substance use behaviors over time within this at-risk group is an important step in preventing and treating this widespread issue.

In an investigation of the source of SES-related risk, Coley and colleagues (2017) identified school's economic status – but not those of family or neighborhood – as the "type" of affluence that conferred the most salient risk. Attending schools with mostly affluent peers was associated with higher rates of intoxication, substance use, and delinquency, while youth at schools with few affluent students reported higher anxiety and depression, violence, and male intoxication (Coley et al., 2017). By comparison, family and neighborhood affluence were much less predictive of problems. The economic strata of schoolmates impacts youths' behavioral and mental health, perhaps representing

a "neighborhood effect" for youth development (Lund & Dearing, 2013). Similarly, Lund and colleages (2017) used data from a large scale public health initiative in Norway to demonstrate that school affluence was associated with increased alcohol abuse for 10th graders, while family poverty and affluence were risks for conduct problems.

Substance Use in College

Rates of substance use are highest among emerging adults (ages 18-25), with particular elevations noted among college-attending youth (typically ages 18-22). The transition to college is considered to be a period of increased vulnerability for developing problematic substance use habits (Tucker, Ellickson, Orlando, Martino, & Klein, 2005). Previous longitudinal studies have demonstrated slow increases in substance use behavior from early to late adolescence (Duncan, Duncan, & Strycker, 2006; Kristina M. Jackson, Sher, Cooper, & Wood, 2002), followed by further increases, peaking during the early to mid-20's and subsequently declining into adulthood (Chen & Kandel, 1995; Muthén & Muthén, 2000). Chen and Jacobson (2012) demonstrated similar findings for smoking, alcohol use, heaving drinking, and marijuana use in a nationally representative sample, with all four substance use markers reaching their peak in the mid-20's.

In recent years, substance use has increased significantly in college-attending 18- to 22-year-olds (Caldeira, O'Grady, Vincent, & Arria, 2012). This increase has been shown to be particularly problematic in a number of ways. First, freshman college students disproportionally accounted for more than one third of alcohol-related deaths in college, despite representing approximately one fourth of all college students (Davis & Debarros, 2006). Second, substance use during this transitional period has been associated with comorbid health outcomes during college (Weitzman, Nelson, &

Wechsler, 2003) as well as six years later, including psychiatric symptoms, illness, and health-related quality of life (Caldeira et al., 2012). Third, the college period is of particular importance for developing autonomy, independence, and establishing one's identity as an adult (Azmitia, Syed, & Radmacher, 2013). Missteps during this stage can have damaging effects on grades, which affect job prospects and quality of life after college.

This increase in substance use during college extends beyond alcohol and marijuana use. In addition to these two commonly used substances, college students have been shown to use a variety of other illegal drugs at an alarming rate. Kasperski and colleagues (2011) demonstrated that 13% of students use cocaine during their four years of college. While other studies have demonstrated that the rate of nonmedical use of prescription drugs (e.g., stimulants [Adderall], painkillers) varies by college campus (Arria & DuPont, 2010; Garnier-Dykstra, Caldeira, Vincent, O'Grady, & Arria, 2012), recent work by Luthar and colleagues (2017) youth showed elevated rates of stimulant use in females and males within an affluent sample spread throughout the country, as compared to national norms. In fact, rates of drunkenness and use of marijuana, stimulants, and cocaine were shown to be elevated within this annually assessed sample, relative to national norms, throughout college. Despite recent trends of substance use beyond alcohol and marijuana, the literature is sparse regarding the range of use behaviors early in college. It is essential to understand trends in substance use among students throughout this critical transitional period given the prevalence of drug-related deaths within this age group.

Frequency of drunkenness, marijuana use, and other illegal drug use may display similar patterns over time across late adolescence and college. For high school seniors and college students of all ages, drinking and using drugs is commonly a social practice (Chase, 2008). Rozenbroek and Rothstein (2011) showed that non-medical users of prescription medications in college (particularly Ritalin and Adderall) tended not only to share these substances with friends, but to take them in combination with other drugs in social contexts. Alcohol and marijuana use are more prevalent than other drugs, and thus research is scant on substance use other than these two substances.

Gender must also be taken into account when considering substance use. Male use tends to be higher than that of females (Curran, Muthén, & Harford, 1998; White, Pandina, & Chen, 2002). However, in multiple samples from high-achieving schools, girls have reported as much if not greater use of several substances including alcohol, marijuana, and hard drugs (Luthar & Ansary, 2005; Luthar & D'Avanzo, 1999). Accounting for gender when considering substance use behaviors is essential in the elucidation of other salient predictors and risk factors, especially when considering these behaviors from a developmental perspective.

Substance use seems to plague college campuses, and there are important socioeconomic factors that need to be considered if treatment and prevention efforts hope to succeed. Additionally, these problems must be considered from a developmental perspective, as harmful patterns typically develop over time.

Developmental Considerations of Substance Use, Academic Success, and

Transitioning to College

Baltes and Nesselroade (1979) stated that a goal of developmental science is to describe and explain changes in behavior over time, and as such, exploring how, why, and when changes in particularly harmful behaviors occur should be a priority. In a study that focused on adolescent and emerging adult substance use, the transition from adolescence into emerging adulthood was determined to be a period of increased vulnerability for developing problematic patterns of smoking, binge drinking, and marijuana use (Tucker et al., 2005). While some underage drinking or drug use can be considered developmentally normative (Patrick, Wightman, Schoeni, & Schulenberg, 2012) with particular prevalence within upper middle class culture (Luthar et al., 2013), it has confounded universities, parents, and policy-makers how to differentiate between non-problematic teen use and those who are at increased risk for long-term problems, treating any substance use as a harsh offense. Approaching substance use during this vulnerable transition period from a developmental point of view can help elucidate risk and protective factors among substance users, ultimately improving how we prevent and treat these issues.

Assessing drug, alcohol, and academic success from a developmental perspective will help address one of the primary limitations of youth literature: determining whether certain parenting practices have an enduring effect during a developmental period when the importance of parental support is thought to diminish. It is possible for youth to experiment with drugs and/or alcohol, and for it to not necessarily lead to limitations in psychosocial or academic functioning (cf. Richters & Cicchetti, 1993). Low levels of

drug and alcohol experimentation are both developmentally normative among teens (Patrick et al., 2012) and quite prominent within upper middle class communities (Luthar et al., 2013). Some might argue that the rise of substance use during college is benign. However, Sher and Gotham (1999) demonstrated associations between substance use during late adolescence and a range of long-term problems including educational, occupational, and social difficulties. Suerken and colleagues (2016) reported negative educational outcomes for college students who used marijuana, with increasingly serious repercussions for heavy users. With the effects of college substance use well established, the extent to which specific perceived parent factors endures following increased independence from parents remains.

Stress experienced by college students has been on a steady rise, and increased stress can have negative effects on youth development. It is important to consider changing cultural contexts to best diagnose and assess problems related to the college setting. One study demonstrated that 85% of students at a four-year college experienced stress on a daily basis, which was up from 80% just one year prior (Shatkin, 2015). Stress is not inherently toxic; moderate levels of stress can serve a motivating function and aid in productivity. Still, one in six college students has been diagnosed with or treated for clinical anxiety in the last 12 months (Hoffman, 2015). The rise in stress at college has been accompanied by an increase in the use of mental health services on campus. One university reported that 40% of its first-year students visited their counseling center (Altschuler, 2000). With regard to the first year of college, students have reported feeling increased pressure to know what they want to study, and subsequently what they would like to do as a career. Some researchers have moved to assess sources of stress for college

students, revealing differences between on- and off-campus living arrangements and a decrease in physical health activities of college students (Hicks & Heastie, 2008). The American College Heath Association's most recent report (2016) demonstrated that more than half of all college students report feeling "overwhelming anxiety" and a third reported feeling "so depressed it was difficult to function." Emotional problems during college are a major public health concern, especially considering the relation between emotional difficulties and substance use in college. These trends demand serious attention, as the college years fall within the emerging adulthood developmental stage. Disruption of a life stage such as this – by substance use, toxic levels of stress, or failing to meet academic standards – could lead to prolonged problematic behavioral and emotional patterns.

Heightened stress is not the sole reason for the uptick in mental health problems on college campuses; as the stigma surrounding mental health has gradually declined, more people have sought services (Altschuler, 2000; Lewin, 2011; Rhodan, 2016). A generation ago, adolescents with ADHD, anxiety, depression, or other mental health problems possibly would not have had the medical or psychological support to function at a level high enough to even consider attending college. Today, treatments are much more commonly accessed, and thus, more students with mental health concerns are attending and succeeding within higher education (Rhodan, 2016).

Shortcomings in access to health services remain. Despite the decrease in mental health stigma, the necessary services do not yet reach all of those in need. Among students with both frequent binge drinking and mental health problems, 67% felt as though they were in need of services, and only 38% received treatment (Cranford,

Eisenberg, & Serras, 2009). Those who remain untreated are left with a multitude of complex problems that threaten their academic and social functioning, and possibly even their lives. Troubling trends like increased stress and substance use on campus and low retention rates at large universities must be carefully considered in order to best serve the full range of college attendees.

Freshman Year of College and Beyond: A Time of Major Transitions

The transition to college includes many important developmental transitions and challenges, including beginning a career path, navigating complex interpersonal relationships, establishing an identity as an independent from parents, and generally having more involved responsibilities (Arnett, 2000). The first year of college coincides with the beginning of a new developmental stage, emerging adulthood. It is a transitional period (ages 18-25; Arnett, 2000) during which many young people seek college and graduate education or vocational experiences. This period is also characterized by use of alcohol and other substances (Cleveland, Reavy, Mallett, Turrisi, & White, 2014; Johnston, O'Malley, Bachman, & Schulenberg, 2012).

Epidemiological studies suggest that most individuals' risky substance use declines in their mid-to-late twenties, likely a result of changing incentives to use substances as well as transitions to new responsibilities (e.g., marriage and family) (Dawson, Grant, Stinson, & Chou, 2006; O'Malley & Johnston, 2002; Schulenberg & Maggs, 2002). Evidence has suggested decreasing levels of substance use as early as ages 22-24 (Schulenberg & Zarrett, 2006; Jackson, Sher, Gotham, & Wood, 2001). This decline is consistent with Arnett's (2007) conceptualization of emerging adulthood,

which suggests a decrease in deviant behaviors occurs toward the end of this transitional phase.

Maturing out of substance use, however, may not be as common in upper middle class youth as it is in the general population (Chase, 2008; LaBrie, Hummer, & Pedersen, 2007; O'Hara, Armeli, & Tennen, 2015), for two reasons, as outlined by the work of Luthar and colleagues (2017). First, it is common for upper middle class youth to begin using substances at an early age (Luthar & Barkin, 2012), and second, college culture supports and perpetuates substance use. Early onset of substance use is a strong predictor of long-term, problematic use (Capaldi, Tiberio, Kerr, & Pears, 2016; Moss, Chen, & Yi, 2014). With binge drinking rates shown to be as high as 44% among college undergraduates (Wechsler & Nelson, 2008), it appears there is a salient expectation for college students to use drugs or alcohol. Additionally, college students from well-educated, affluent families have been found to engage in more frequent, harmful drinking habits than their peers (Dantzer, Wardle, Fuller, Pampalone, & Steptoe, 2006).

Contextual cultural factors of upper middle class youth could help explain the probable lack of maturing out of substance use even after college. Within this culture of affluence, it is common for parents to provide financial support to their adult children (Luthar, 2003). As such, this support may provide individuals with the freedom to delay working full time, which may in turn promote the continued use of substances. Moreover, national averages for age of marrying have increased, also delaying motivation to end substance use during this transitional period. Studying drug and alcohol use during the first year of college will provide valuable information about whether youth across the

socioeconomic spectrum are at risk for prolonged problems with substance use and other challenges to development.

The majority of research related to problems in college has focused in two general areas: the effects of peers (Abar & Maggs, 2010; Dishion & Owen, 2002; Marshal & Chassin, 2000; Park, Sher, & Krull, 2009) and the role of the community (Nelson, Naimi, Brewer, & Wechsler, 2005; Reboussin, Preisser, Song, & Wolfson, 2010; Weitzman et al., 2003). The reason for these areas of emphasis relates to how alcohol consumption among college students has been an urgent public health concern: university administrators and researchers alike have prioritized the most direct potential influences for college students (e.g., their immediate social environment). As this evidence has developed, researchers have begun taking a more developmental approach to substance use in early adulthood, assessing for long-term effects of childhood factors. While certain malleable peer and community factors have been identified, two areas of need remain in the literature: 1) a more longitudinal assessment of the long-term effects of substance use behaviors over time (Abar & Turrisi, 2008), and 2) targeted identification of the enduring effects of potentially moldable parent factors in adolescence (Turrisi, Jaccard, Taki, Dunnam, & Grimes, 2001). The current work seeks to expand on the latter, and we must first ensure appropriate understanding of challenges to development during the transition to college.

An investigation into college-aged substance use and related developmental issues would not be complete without consideration of peer factors. Dishion and Owen (2002) demonstrated that substance use from early adolescence to young adulthood seems to be partly attributable to the influence among friends, and engagement in substance use

behaviors can influence selection of friends as well. Early work by Dishion and Loeber (1985) revealed the joint influence of parenting practices (e.g., parental monitoring) and peers on alcohol and marijuana use initiation during adolescence. As we know from developmental literature on emerging adulthood (Arnett, 2000), social support gradually shifts from parents toward peers as social roles change and adolescents age into young adults. As such, the influence of peers cannot be ignored in a discussion of early adult substance use, even when it is the influence of parents that is of central interest. At the least, influences by peers would merit covariation in analyses considering links involving parents; this was the approach taken in the present study.

Parenting, Adjustment to College, and Academic Success

Parenting practices do not occur in isolation, as various constellations of parenting behaviors combine to influence child outcomes in different, important ways. Research related to parent practices, along with parent-child interactions and relationship quality, has been focused on two primary areas: *responsiveness* and *demandingness* (Maccoby & Martin, 1983). Resulting from the different combinations of high- and low- levels of these concepts have been parenting styles identified that include authoritative, authoritarian, permissive, and uninvolved styles. Gray and Steinberg (1999) demonstrated that youth outcomes are most positive when children were reared in *authoritative* households, characterized by both high responsiveness and demandingness. These differing parenting styles will be considered throughout the current work, as we assess different latent profiles of parenting practices.

Parents can feel as though their influence over their children wanes once high school ends, but research has shown positive outcomes associated with continued

involvement and engagement as children progress into college (Sher & Rutledge, 2007; Waterman & Lefkowitz, 2017). Strange and colleagues (1999) examined the associations between college students' adjustment and success and relationship quality with parents. They revealed that parent autonomy granting, supportiveness, and demandingness were associated with college grades, confidence, and rapport with teachers, among other indices of healthy adjustment. Parent factors were less predictive for college seniors as compared to college freshmen, sophomores, and juniors, suggesting a shift in social support and influence across the developmentally important college years.

As mentioned above, parenting style may be a parsimonious way of approaching the question of enduring effects of parenting. Past work has investigated the effects of authoritarian parenting styles on adjustment to college. This parenting style is characterized by high demands and low responsiveness, often resulting in an overall style that is low in warmth. Excessive autonomy is also a characteristic of this style, as parents provide minimal feedback and guidance, while harshly punishing missteps. Beyers and Goossens (1999) assessed different forms of autonomy in children, and found that emotional autonomy predicted higher levels of internal distress, while behavioral autonomy predicted lower school grades and higher deviant behavior. Hickman, Bartholomae, and McKenry (2000) showed similar findings, but with authoritative parenting and positive academic outcomes. Authoritative parenting can be characterized by high expectations and high responsiveness, often fostering a healthy sense of autonomy and self-reliance. College-aged youth with more permissive mothers tended to view grades as less important (Waterman & Lefkowitz, 2017), demonstrating worse

academic outcomes associated with permissive parenting styles. Grouping parenting practices into parenting *styles* can yield information more useful for actual interventions.

Logic may suggest that parenting effects endure into the beginning of college but wear off by the end. There is evidence, however, that some effects may not fade away so quickly. In a study that considered attachment to parents and adjustment to college using both lower- and upper-classmen, Lapsley, Rice, and Fitzgerald (1990) found that attachment to a parent associated with positive adjustment outcomes even in upperclassmen. Parents can continue to play an important role in their college-aged children's lives in terms of both protecting against excessive drug and alcohol use, as well as fostering academic independence and success (Heffernan & Wallace, 2016). These findings provide an important foundation for the current work, as perceived parent factors and relationship indices clearly have important, long-term effects on adjustment.

One example of researchers focusing on the effects parents can have is in regard to their own use of alcohol, tobacco, and marijuana, which have all been linked to early onset of substance use in adolescence (Capaldi et al., 2016). These links suggest the important role parental modeling may play in shaping adolescent substance use behaviors. The same can be said for promoting various forms of autonomy in children (i.e., academic autonomy). Capaldi and colleagues (2016) demonstrated that parental modeling of the use of drugs, tobacco, or alcohol was not substance-specific. In other words, they showed that maternal tobacco use was a robust predictor of earlier offspring alcohol us.

It is important to understand what influences substance use over time, and how malleable those influences are. Researchers have discovered salient predictors of

substance use in adolescence (Chen & Jacobson, 2012; Colder, Campbell, Ruel,

Richardson, & Flay, 2002), throughout adolescence into emerging adulthood (Chassin,

Pitts, & Prost, 2002; Homel, Thompson, & Leadbeater, 2015; Tucker, Orlando, &

Ellickson, 2003), and from emerging adulthood into adulthood (Jackson, Sher, & Wood,

2000), however little work has been done to ascertain whether there are any systematic

differences in predictors of substance use across the socioeconomic spectrum, and how

parent factors may operate differently for females and males specifically during the

transitional period of interest for this work.

Among affluent youth in particular, lax parent attitudes regarding substance use

can be a critical predictor, and a measure of 'containment' may serve as a reliable

representation of those lenient attitudes. Parent containment, which represents "…a

child's beliefs that adults' have the capacity to impose firm limits and to prevail if there is

a conflict in goals" (Schneider, Cavell, & Hughes, 2003, p. 97), has been shown to have

important implications among adolescent youth. Conceptually similar to containment is

parental monitoring, which has been linked to adolescent substance and delinquency in

6th grade, including less drinking in boys (Dishion & McMahon, 1998; Griffin, Botvin,

Scheier, Diaz, & Miller, 2000). Poor monitoring of adolescents has been shown to be a

strong predictor of alcohol use in adolescence (Siebenbruner, Englund, Egeland, &

Hudson, 2006; Windle et al., 2008), as well as marijuana use, binge drinking, and

methamphetamines (Shillington et al., 2005). Monitoring children's behavior has even

been linked with lower levels of use of marijuana, binge drinking, and

methamphetamines (Shillington et al., 2005), but for college-attending young adults,

parents are no longer in a position to monitor their children. Containment may differ from

more conventionally examined parental monitoring constructs because it addresses an adolescents' belief that their parents will discipline them versus a report of actual parental behavior (Schneider et al., 2003). Still, containment was shown to be a better predictor of substance use in both teenagers (Luthar & Barkin, 2012) and in college seniors than parental monitoring in two upper middle class samples (Luthar et al., 2017). Fairlie, Wood, and Laird (2012) demonstrated that parental monitoring was not significantly associated with alcohol involvement in college, and that peer involvement was better associated with alcohol use.

Little is known about the effects of containment in college, with the exception of a recent poster presentation by Hartman and colleagues (2017). In this study, adolescents were assessed on parent containment, relationship quality, and alcohol use before the transition to college. Main effects of containment on alcohol use and also interaction effects were present, showing particularly strong inverse links in the presence of high parent warmth.

Aside from containment, there are several parenting dimensions known to be associated with both substance use and more positive outcomes. Of particular importance is the affective quality of the parent-child relationship. Regularly assessed using established measures (i.e., the Network of Relationships Inventory; NRI) (Furman & Buhrmester, 1985), two important components of the parent-child relationship include perceived parental antagonism and parental warmth. Branstetter and Furman (2013) demonstrated the buffering effect of both a warm parent-child relationship and high parental monitoring on the negative effects of adolescent substance use. Extending these findings to college-aged individuals, one would imagine that parental monitoring

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naturally diminishes, but closeness in the parent-child relationship may not. Once there is decreased direct monitoring, the child is left with 1) their relationship with each parent, and 2) their values and beliefs about the consequences of misbehaving. The former can be assessed by varying levels of antagonism and affection felt from each parent, while the latter is better reflected in perceived parental containment.

Previous work has sought to characterize different constellations of parenting practices that were thought to have deleterious effects on adolescents. One study employed person-based analyses to characterize perceived parenting latent classes using parental values of achievement (Ciciolla, Curlee, Karageorge, & Luthar, 2017). Separated by mother and father values, this study revealed six distinct latent classes, with optimal child outcomes (i.e., lower psychological distress, high higher self-esteem, higher school functioning) associated with low to neutral parental achievement emphasis. A similar approach is needed with older youths using developmentally appropriate outcomes, like substance use and college academic success. While the findings of Ciciolla and colleagues (2017) emphasized their findings within an upper middle class sample, the current work seeks to explore parenting profiles that can generalize to youth outcomes regardless of socioeconomic status. There remains a gap in the literature relating to how certain perceived parent factors endure over time following an increase in autonomy.

Statement of Problem, Research Question, and Hypotheses

Existing work examining youth from different socioeconomic backgrounds has focused on individual schools generally serving high or low SES families. The current work explores the socioeconomic diversity that typically exists at large public universities. In addition to socioeconomic considerations, we explore the extent to which

certain perceived parent factors endure during the transitional first year of college, and how different constellations of those parent factors relate to adjustment.

First, we replicated the 'U' shaped association between community income and substance use. We then examined the relation between income and academic success. Substance use and academic success are both critical outcomes in the transitional first year of college, and there are important socioeconomic factors that have yet to be considered as they pertain to first-year college students. Particularly within large public universities, any nuanced understanding of how to reduce barriers to resources and improve student retention should be a priority. This study has the potential to provide helpful information in this effort.

Past work has revealed parent factors of containment to be salient and protective for affluent children and adolescents. We do not know if these factors continue to have protective effects for emerging adults transitioning to college, and otherwise know little about effects of the affective quality of parental relationships [parental antagonism, affection] during this developmental stage. We expect containment to work in a protective manner in conjunction with high affection, but as a vulnerability factor when coexisting with high parent antagonism. There have been no studies to date that have investigated the effects of parental containment and the affective quality of the parental relationship on youth transitioning to college.

Thus, there are two primary hypotheses for the current work:

1. The 'U' shape for maladjustment across the socioeconomic spectrum will be present in this sample of college freshmen, reflecting higher rates of substance use for low- and high-income youth. By contrast, the positive association between income and

GPA will present as more linear, as Steinberg and colleagues (1992) outlined that high parental expectations for success influence academic engagement and performance. Upper middle-class culture is characterized by high expectations for academic success, among other things.

2. Using person-based analyses, four major parenting profiles are expected to emerge: authoritative (considered optimal; high warmth, high containment/low antagonism), authoritarian (considered harsh; low warmth/high containment/high antagonism), permissive (high warmth/low containment), and uninvolved (low warmth/low containment) (see Figure 1 for expected profiles). As this is an exploratory analysis and the profiles will be determined based on a number of fit indices and theoretical considerations, specific predictions about different profiles would be untenable.

METHOD

Sample

Study participants were incoming first-year students at Arizona State University. The sample consists of 378 students (253 females and 125 males) in the first wave of data collection, which took place in the beginning of the fall semester of 2014 and again in 2015. The mean age of participants beginning the first year of college was 18.28 years, with a standard deviation of 0.87. Additionally, 64.3% of students were Caucasian and the next biggest ethnic group representation was Asian/Asian American (13.7%). The mean household income was $72,940 for the entire sample, based on information provided by the university's records. Previous publications reporting on affluent populations (e.g., Luthar et al., 2017) consisted largely of communities where the median family incomes were well over three times the national average in 2014 of $52,250 ($151,771 and $241,453 in the two towns). As part of the sampling procedures, described below, low- and high-income youth were oversampled as part of the primary mission of this study. Oversampling of low- and high-socioeconomic youth resulted in a higher rate of first-generation college students than has typically been represented in similar samples. The sample characteristics can be seen in Table 1 for the entire sample, and in Table 2 separately by socioeconomic quintile.

Coley and colleagues (2017) used a large-scale, nationally representative sample from the National Longitudinal Study of Adolescent Health (Add Health) that consisted of 13,179 youth in 76 different schools. The present study, while much smaller in scale as compared to the Add Health study, employs similar methods for coding and interpreting demographic information. Building upon the work of Coley and colleagues (2017), the

current research will consider school affluence as a potential risk factor for problems during the transition to college.

In order to achieve the goals of this work, economic diversity within the study sample is a necessity. Economic diversity has received increased attention lately as some elite universities seem to be trending toward decreased acceptance for the poor (Pérez-Peña, 2013). One method for assessing economic diversity in universities is exhibited by the US News and World Report (2017). They report the percentage of undergraduate student bodies receiving federal Pell Grants, designated for students with family income of less than $20,000. Arizona State University ranks 8th highest in the percentage of its student body receiving a Pell Grant, at 68%. As a reference point for elite private universities, Yale and Harvard show 13% and 17% of their student bodies receiving Pell Grants, respectively. Although previous studies accounting for socioeconomic status have largely been based in these elite settings, the current work seeks to draw from a more socioeconomically diverse pool.

---- Insert Tables 1 and 2 about here ----

Procedure

Study participants were recruited with the assistance from the ASU Office of Institutional Analysis (OIA) as part of an ASU-funded initiative to improve undergraduate retention. The OIA identified eligible freshmen students in 2014 based on a desired socioeconomic distribution, ensuring representation from across the spectrum. These incoming first year students were sent an initial consent form that granted ASU permission to share academic records with the PI of this study. Students who provided consent to access academic records were then contacted with a link to the full survey,

which included a second consenting procedure, specifically informing participants about potential risks and benefits involved in completing the full battery of questions.

The online questionnaire took approximately 40-60 minutes to complete. Study participants were compensated $20 for their participation in this study at each of two waves. All data collection and study procedures were approved by the ASU Institutional Review Board (IRB). Identifying information of study participants was maintained in accordance with rigorous security guidelines, and only accessible to the PI.

Measures: Students' Substance Use and Academic Success

Substance Use

The substance use questionnaire from the Monitoring the Future study (MTF; Johnston, O'Malley, & Bachman, 1984; Johnston et al., 2012) was used to assess the frequency of substance use, including alcohol, drunkenness, marijuana, and other illegal drugs, such as amphetamines and cocaine. The MTF measure included past month and past year substance use. Past month substance use (drunkenness, marijuana use, and other illegal drug use) was included in the current analyses, as the past year rates may face a ceiling effect (e.g., the highest category is "40+ times"; for a daily alcohol user, past year use would not be adequately represented by this range). Drunkenness and marijuana use were selected due to their high frequency among college students relative to other substances (i.e., cocaine, heroin). An overall substance use composite was also included to capture overall use across different types of substances. Reliability for this composite score was acceptable, Alpha= .76. Note that the response categories for the MTF scale ranged from 0-6, with the following response options for each of 14 substances assessed:

0 = no use; 1 = 1-2 times; 2 = 3-5 times; 3 = 6-9 times; 4 = 10-19 times; 5 = 20-39 times; and 6 = 40+ times.

Academic Success

Study participants' first and second semester grade point averages (GPA) were used as the measures of academic success for the first year of college.

Measures: Perceived Parent Factors

Parental Containment

Perceived parental containment is based on Luthar and Goldstein's (2008) 14-item measure using a five-point scale assessing the degree of expected parental repercussions regarding different delinquent teen behaviors. Subscales include: substance use, delinquency, rudeness, and academic integrity (coefficient alphas = .85, .71, .78, and .78 respectively). The substance use subscale, composed of four items, is of central interest in predicting to substance use (Luthar et al., 2017), however all four subscales are thought to provide valuable information for the current work. Questions in the substance use subscale include, "How serious would the consequences be if your parents knew you (a) attended a keg or drinking party without permission; (b) were smoking marijuana; (c) got drunk; and (d) went to a party where no adults were present, without permission?" Example questions from the, rudeness, academic integrity, and delinquency subscales (respectively) include: "how serious would the consequences be if your parents knew you: …were rude to an adult relative, …copied someone else's essay rather than writing your own, …took something from a store without paying for it? Five response categories reflected seriousness of the repercussions: 1 = not serious at all, 3 = moderately serious, 5 = extremely serious.

Relationship with Parents

To assess indices of relationship quality with each parent, there were two primary variables assessed: antagonism and affection. These indices are in line with the conceptualization of parenting styles outlined by Maccoby and Martin (1983), in which demandingness and responsiveness are key components. Antagonism and affection are two subscales within the Networks of Relationships Inventory (NRI; Furman, 1996). The two subscales were measured separately by mother and father and were represented by composites of three questions each. The mother and father scores were combined to create overall parenting composite variables for antagonism and affection (coefficient alphas: .84 and .92, respectively). Example questions for antagonism and affection, respectively, include: "how much do you and your [mother or father] hassle or nag one another?" and "how much does your [mother or father] love you?" Five response categories ranged from little or none (1) to the most (5).

Measures: Demographic Variables and Peer Deviance

Socioeconomic Status

First, consistent with past work in this field (Coley et al., 2017; Lund et al., 2017), we used census data for the median family income using the zip code of the high school attended by each participant, referred to in this work as "school affluence". Second, we assessed parental education level based on the highest educational attainment between both parents.

Sex

Sex of the participants was dummy coded in analyses (females = 0).

Peer Deviance

In enhancing stringency of testing parent influences on college level substance use, we included, as a covariate, the effects of deviant peers. Peer deviance was controlled for using the Peer Deviance Scale (PDS; Keenan, Loeber, Zhang, Stouthamer-Loeber, & Kammen, 1995). Example questions from this measure include: "Over the past 12 months, how many of your friends have engaged in the following activities: …drank alcohol; …been in a fist fight; …cheated on tests." Response options ranged from 0-4: none (0) to all of them (4). Reliability for this measure was strong, alpha=.90.

<div align="center">

Analysis Plan

</div>

Preliminary Analyses

Individual substance scores were used for frequency of drunkenness and marijuana use. Two substance use composite scores were summed: one overall, past-month substance use composite that totaled any reported substance use, and one past-month sum of cigarette, alcohol, and marijuana use only. Regarding parenting variables, youth reported on antagonism and affection separately for mothers and fathers. These values were summed to create overall parental antagonism and affection indices. Means and standard deviations are presented in Table 3, along with statistical tests for gender differences. Correlations are presented for the full sample (Tables 4 and 5) and separately by gender (Tables 6 and 7), both for the composite scores as well as for Mother and Father variables separately.

---- Insert Tables 3, 4, 5, 6, and 7 about here ----

Analyses for Aim 1 and Aim 2

Aim 1a of the current work sought to replicate the curvilinear "U-shaped"

association between income and substance use (Lund & Dearing, 2013; Lund et al., 2017; Luthar & D'Avanzo, 1999), and attempted to determine the nature of the association between income and academic success for college freshmen. These goals were addressed first by dividing the study sample into similarly-sized quintiles based on the median income of each participant's high school town. Information regarding each quintile can be found in Table 2, and outcome descriptive information can be seen in Table 8 separately by income quintile. Substance use (frequency of drunkenness, marijuana use, and two composites) and GPA were then plotted in a scatterplot using SPSS to demonstrate the hypothesized associations. A quadratic regression term was fit to the data to examine the curvilinear association of these predictor variables.

---- Insert Table 8 about here ----

As is common throughout the substance use literature, we expected a high number of non-users with a frequency count of zero. Thus, in parallel with Coley and colleagues (2017), we estimated a zero-inflated negative binomial model to address *Aim 1b*, which predicted both the odds of being a non-user, as well as the predicted count for substance users. Predicting academic success using income level was completed using ordinary least squares regression models, again consistent with Coley and colleagues (2017). Covariates to be included will parallel past work, and include parent, peer, and demographic variables (i.e., sex, peer deviance).

Aim 2 sought to explore the relation between dimensions of perceived parenting and substance use and GPA among a representative sample of college freshmen. A person-centered approach using latent profile analysis (LPA) was conducted to identify discrete profiles of perceived parenting styles within this sample, based on four

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Containment scores and two affective scores (antagonism and affection). The person-oriented approach identified profiles of perceived parenting styles, which are informative on their own, and useful for the remaining goals of this work. For Aim 2b, parenting profiles were used to predict substance use (drunkenness, marijuana, and two composite use scores) and academic success at the beginning of freshman year.

In order to address Aim 2, a two-step mixture model was implemented using MPLUS 7.3 (Muthen & Muthen, 2012). Formally referred to as "Gaussian (or finite) mixture models," LPA takes continuous observed variables (i.e., a number of perceived parenting indices) and produces latent discrete classes (or profiles) from the data. This approach provides the opportunity to extend beyond simple group comparisons and regressions, revealing suspected latent groups within the data. Oberski (2016) described one of the useful features of LPA: "When you fit a model but suspect that it may work differently for different people, and you are interested in how" (p. 1). This feature can be used to assess different combinations of parent factors that may reflect different profiles of parenting or "styles" and determine if they have an enduring effect as part of the transition to college. Analyses controlled for biological sex and peer deviance. The discrete profiles of perceived parenting were then used to predict substance use and academic achievement in the first year of college.

Aim 2, Step 1: Latent Profile Analysis (LPA)

A mixture model was used to identify latent profiles of perceived parent factors that were believed to promote risk or protection in late-adolescent development. All parent factors included in this analysis were measured during the first month of college, reflecting each participant's perception of his or her parents prior to coming to college.

We followed the guidelines set forth by Ram and Grimm (2009): (a) problem identification; (b) model specification; (c) estimation of the model; (d) logical selection and interpretation of the model.

The process by which LPA is conducted involves three main steps: systematically estimating the parameters or number of profiles; calculating posterior probabilities of being in one of the predicted profiles; and updating the parameters of the model with additional solutions until there is theoretical and practical consensus (Oberski, 2016).

As has been made clear throughout the literature, selecting the appropriate number of latent profiles includes an element of subjectivity (Tein, Coxe, & Cham, 2013). It is recommended that a number of different fit indices be used and considered, rather than just one. As such, these fit indices occasionally contradict each other. This project based the final decision relating to the number of latent profiles on theoretical sense, as well as four fit indices: the bootstrapped Likelihood Ratio Test (BLRT; McLachlan & Peel, 2000), the Lo-Mendell-Rubin likelihood ratio test (LMR; Lo, Mendell, & Rubin, 2001), relative entropy, and the sample-adjusted Bayesian Information Criterion (saBIC; Sclove, 1987). The saBIC was used over other commonly used fit indices (i.e., Akaike's Information Criterion [AIC]), as Tien and colleagues (2013) demonstrated their limitations in detecting even large degrees of separation between profiles. Results were interpreted carefully and systematically, per the best practices of this analytic technique. Beginning with a one-profile solution and adding one additional profile in each step, the fit indices and theoretical logic were considered until a solution was determined. Additionally, it is recommended that multiple variables be

included in LPA in order to provide a range of information to best determine profiles

(Oberski, 2016). The expected latent perceived parent profiles can be seen in Figure 1.

---- Insert Figure 1 about here ----

Aim 2, Step 2: Multiple-Group Prediction of Substance Use and Academic Success

The parent profiles determined in step 1 were treated as an observed variable in

step 2. Substance use (measured as one overall composite score, a sum of marijuana,

alcohol, and marijuana use, as well as two individual substance use indicators) and GPA

(fall semester) were predicted from group membership in the discrete parent profiles

determined in Aim 1, step 1. In these predictive analyses, socioeconomic status and peer

deviance were included as covariates in order to best parse out the effects of the

parenting profiles. See Appendix A for the full model.

Statistical Power and Sample Size

The sample size of this project seems to be appropriate given the number of

variables considered. There are 349 eligible participants in this sample (235 females, 114

males). This is likely to allow for ample room to address gender differences. Table 1

includes demographic characteristics of the study sample. Due to the two-step consent

process, more students consented to the passive portion of the study (allowing for the

university to provide demographic and academic information) than they did for the

survey portion. As such, students who did not complete survey questionnaires were

considered as missing data.

RESULTS

Descriptive Statistics

Descriptive data for fall semester GPA and past month overall substance use are presented separately by gender in Table 3. Following descriptive analyses, perceived parenting factors were rescaled using Z-scores to adjust for differences in ranges of scores. These mean centered scores are presented in the person-oriented analyses of Aim 2.

Replicating Associations of Adjustment and Socioeconomics

Following previous reports, several approaches were taken to replicate findings of adjustment indices being differentially associated with varying socioeconomic levels. Following methodological guidelines established by similar studies, the sample was divided into quintiles based on socioeconomic factors, with group sizes of 78, 70, 73, 95, and 50. These groups were used primarily to help visualize associations between community-level socioeconomics and outcome variables (Figures 2-6). Trends for substance use and academic outcome were best visualized using quintiles. In addition, based on previous methods (i.e., Coley et al., 2017), the current work used the continuous measure of school affluence in regression analyses to test a curvilinear association between socioeconomics and the outcome variables of interest.

The overall substance use composites and individual substance use variable means were compared by gender. These outcome measures were then predicted separately by gender. Past month overall substance use appeared to be in the expected "U-shaped" with elevated levels of use for low- and high-income youth. Figures 2-6

illustrate the relation between SES and substance use and academics using the established quintiles, while Figures 7-10 include the quadratic regression line.

---- Insert Figures 2-10 about here ----

Using regression analyses that controlled for gender, the squared term for school affluence was significantly associated with substance use during the transition to college for past month frequency of drunkenness, overall use, and the cigarette, alcohol, and marijuana use composite. Results are presented in Table 9. The significant results predicting the positive quadratic relation between income and use for frequency of drunkenness was confirmed in a binomial regression, coding students who got drunk 0-2 times in the past month as a zero, and any more frequent drunkenness as a 1. The curvilinear effect for SES was significant in predicting to three of the four substance use indicators – Drunkenness, β=.89, CAM use, β=.60, and overall use, β=.2.52, (but not marijuana use) and unexpectedly, was also linked to GPA β=-2.15.

---- Insert Table 9 here ----

Creating Latent Perceived Parenting Profiles

Following initial analyses, perceived parenting variables were added to a mixed model analysis. Fit statistics indicated a 2-, 3-, 4-, and 5-profile solution was viable (see Table 7). The addition of a third profile from the two-profile solution drew a sizeable group of individuals away from the second-largest profile to create an additional, distinct profile, described below. The majority of fit indices were improved with the three-profile solution. Adding a fourth profile, however, showed negligible improvements in relative entropy and sample size-adjusted BIC. Additionally, the fourth profile did not appear to be distinct in any meaningful way from other established profiles (see Appendix B for the

four-class solution). The three-profile solution appeared to be ideal. Although one fit

index, relative entropy, appeared to improve for the four-profile solution, the

improvement was negligible. Theoretical feasibility of the three-class solution made it the

most favorable solution.

---- Insert Table 10 here ----

The three latent profiles can be characterized as follows:

- *Profile 1 (N=281)* – Authoritative

- *Profile 2 (N=78)* – Warm, permissive

- *Profile 3 (N=24)* – Uninvolved

Note that indications of "low" and "high" are relative to the other profiles within

the current sample. The different profiles can be viewed in Figure 11 to better understand

the distinctness of each established profile. The entropy for the three-profile solution was

0.83, suggesting relatively minimal uncertainty when assigning individuals to profiles.

Entropy values above .80 are considered acceptable. Means and standard deviations can

be viewed in Table 11 separately by profile and sex.

---- Insert Table 11 here ----

Profiles were compared according to substance use, GPA, and peer deviance to

determine if differences among these perceived parenting profiles are apparent. Table 11

displays the analysis of variance (ANOVA) demonstrating the differences by gender,

profile, and interaction. As shown there, profiles differed significantly on four of the five

outcomes, i.e., marijuana use ($F(2, 304) = 3.44$, $p<.05$; partial eta squared=.02); CAM use

($F(2, 305) = 3.90$, $p<.05$; partial eta squared=.03); overall use ($F(2, 301) = 3.38$, $p<.05$;

partial eta squared=.02); and peer deviance ($F(2, 349) = 3.30$, $p<.05$; partial eta

squared=.02). Gender differences were noted for marijuana use ($F(1, 304) = 6.49$, $p<.05$; partial eta squared=.02); CAM use ($F(1, 305) = 6.68$, $p<.05$; partial eta squared=.02); and overall use ($F(1, 301) = 6.72$, $p<.05$; partial eta squared=.02). There also seemed to be a number of interaction effects between latent profile and gender, i.e., marijuana use ($F(2, 304) = 4.00$, $p<.05$; partial eta squared=.03); CAM use ($F(2, 305) = 3.92$, $p<.05$; partial eta squared=.03); and overall use ($F(2, 301) = 4.73$, $p<.05$; partial eta squared=.03). Figures 12-16 provide a visual representation of how the students in different profiles performed on each outcome measure.

---- Insert Figures 12-16 about here ----

Predicting Transition to College Functioning Using Profiles

The next objective was to determine if distinct clusters of perceived parenting factors predicted substance use and academic success during the transition into college, after controlling for affluence both as a linear effect and as a curvilinear effect. Given the aforementioned differences in gender, this was also included among the indicators covaried at the outset. The latent profiles determined above were treated as an observed variable in this step.

Regression analyses showed that parenting profiles had limited predictive ability regarding substance use during the transition to college. Two different models were examined for each outcome variable: Model 1 included gender, school affluence, and the dummy coded parenting profiles. Model 2 added peer deviance into the equation in addition to these predictors. Results demonstrate that the latent profiles did not seem to predict college substance use (see Table 12). While some full models seemed to predict substance use, much of that predictive value could be attributed to peer deviance rather

than the latent parenting profiles.

Supplementary Variable-Based Analyses (a): Individual Parenting Dimensions

Although parenting profiles made conceptual and quantitative sense, these profiles did not relate to substance use as predicted. One reason that effects were not significant is possibly because of limited power, as the two groups compared to the normative group (Authoritative) were small in size, e.g., a total of 16-24 in the Uninvolved profile.

Given these constraints, we also conducted variable-based regression analyses to assess potential associations for perceived parent factors separately. In these analyses, besides the previously noted links for school affluence and peer deviance, a number of perceived parent factors were significantly associated with substance use during the transition to college (see Table 13). Containment was significantly linked to CAM use (β = -.12, $p<.05$) and marijuana use (β = -.12, $p<.05$).

For the overall substance use composite, these predictor variables explained approximately 39% of the variance (R^2=.39, $F(7, 266)$=24.32, $p<.001$). It was found within this model that peer deviance was significantly associated with past month substance use (β=.51, $p<.001$), as were the linear and quadratic terms for school affluence, parental affection, and parental antagonism (see Table 13). The squared term for school income seemed to remain relevant throughout the regression analyses, even when accounting for peer deviance.

---- Insert Tables 12 and 13 here ----

Supplementary Variable Analyses (b): Within-Group Analyses by Gender and SES

Based on the robust findings assessing perceived parenting factors separately

(Table 13) along with prior evidence that associations for parenting dimensions can differ

substantially by gender and by low versus high parents' SES (Luthar et al., 2013), we

conducted post hoc analyses to ascertain if the effects were similar for males versus

females, and for "privileged" students vs others, i.e., those with college educated parents

vs. first generation students; white vs. non-white students, and low versus high SES

students (bottom two vs. top two quintiles) (see Tables 14-17). Appendix C displays

means, standard deviations, and group difference effects for the various "splits" of

advantage vs. disadvantage.

Results of analyses separately by gender showed that the quadratic figure for

school affluence appeared to associate with female substance use more strongly than that

of males. With regard to parenting, three borderline, modest associations were observed

for females between substance use and containment. Results also indicated that opposite-

gendered perceived parental affection was associated with lower college substance use,

while same gendered perceived parental antagonism was associated with higher use.

(While there was a statistically significant, positive beta coefficient ($\beta = .33$, $p<.01$) for

father antagonism with male students' GPA, this is believed to be the result of a

suppressor effect, as the correlation between these variables was negative.) Table 14

displays these supplementary analyses separately by gender.

In analyses conducted separately by advantaged vs disadvantaged status, for

advantaged youth, results consistently indicated that containment related to drinking and

drugs was linked to substance use during the transition to college, more so for privileged

than for disadvantaged youth, i.e., for students with college educated parents, of higher school affluence, and of White backgrounds. Additionally, the quadratic term for school affluence was more strongly associated with substance use for advantaged youth than for disadvantaged students. The substance use of advantaged youth seemed to vary more with levels of mother affection than that of disadvantaged students.

There were also consistent effects of mother antagonism in relation to substance use among the more disadvantaged groups. Effects were observed among first generation students, nonwhite students, and among low-SES youth, in relation to eight of the 12 outcomes (i.e., marijuana use, drunkenness, and overall use). Additionally, for disadvantaged youth there were strong associations between father affection and low substance use during the transition to college.

Finally, while there were some statistically significant predictors of first semester GPA between groups, the magnitude of these differences was not as large as with substance use. Side-by-side comparisons of advantaged and disadvantaged students can be seen in Appendix D.

---- Insert Tables 14-18 about here ----

DISCUSSION

Results of this study had three major findings. From the first aim of the study, as expected, the data revealed the "U-shaped" quadratic association between school-level affluence and students' self-reported substance use during the transition to college. Consistent with past literature, more pronounced elevations in use seemed to be present at the higher end of the socioeconomic continuum. Contrary to expectations of a linear association, academic success (Fall GPA) and school affluence appeared in a negative quadratic (or "n" shape) association.

The second aim sought to establish meaningful latent profiles of perceived parenting factors that were predictive of substance use and academic success during the transition to college. Person-based analyses revealed a three-group solution, suggesting the presence of authoritative, warm/permissive, and uninvolved profiles among incoming first-year students. Overall, findings showed that the majority of students (n=281) fell into the optimal, authoritative perceived parenting profile, characterized by perceived high affection and high, stable expectations and consequences for acting out. The warm, permissive and uninvolved groups were less optimally characterized by lower levels of containment, and the sizes of these groups were small, at 20.4% and 6.3% of the overall sample respectively. Significant results from regression analyses comparing authoritative youth to non-optimal groups were sparse. Due to the exploratory nature of latent profile analyses, the predictive merit of a four-group solution was also assessed, though results were similar to those of the three-group solution. Although group membership appeared to lack in its predictive ability with regard to substance use and academic success during

the transition to college, the variables used to create the profiles were still suspected to have a lasting effect into college.

Supplementary analyses considering each parenting index in multivariate regressions which yielded several associations of interest. Broadly, "U-shaped" associations between school affluence and substance use seemed to be driven largely by these links among females, more so than among males. Additionally, containment was consistently associated with advantaged youth substance use, while mother antagonism proved to relate to disadvantaged students' use. For advantaged youth, mother antagonism was negatively associated with fall semester GPA. These results yielded from the supplementary analyses are contextualized and discussed below.

Aim 1 Discussion

The "U-shaped" pattern between substance use and socioeconomic status was replicated within a sample of first-year college students. A similar pattern had been demonstrated by Coley and colleagues (2017) in their work with high school students (average age 16), demonstrating higher rates of emotional and behavioral problems among low- and high-socioeconomic youths. This work extended these findings by assessing a group of incoming first-year college students (average age 18) for similar patterns. Additionally, it should be noted that elevations in substance use in the low- and high-SES quintile groups were robust across gender. Elevations in the high-SES groups seemed to be higher than the low-SES groups.

The confirmation that substance use seems to be associated with school affluence has a number of possible interpretations. Through a theoretical lens, these results can be

considered the result of societal and cultural factors. First, possible reasons for low-SES use are discussed, followed by high-SES.

Among the lowest two income quartile groups, a higher percentage of study participants were first-generation college students. As such, substance use could be the result of a number of factors. First, elevated substance use during the transition to college for low-SES youth may be the result of limited support within the college context, including having no family member with experience in the role of a college student. Being placed in a large, unfamiliar context can be overwhelming and difficult to navigate, causing stress and possibly distress. In such an unfamiliar context, substance use may be reasonably conceptualized as a coping strategy to reduce the stress of such a major transition. From a societal viewpoint, it has been well established that pre-college party and heavy drinking expectations for college can influence similar behaviors in college (Dantzer et al., 2006). College is repeatedly portrayed in the media as a consequence-free time to party. It is not unreasonable to suspect that, as a first-generation college student, some of these expectations may be entrenched.

As for high-SES youth, the reasons and context for drinking and drug use are known to be somewhat different. Luthar and colleagues (2013) demonstrated a range of pressures to succeed experienced by upper-middle class youth. Described as a pressure cooker culture, college is a familiar context for upper-middle class families; so familiar, in fact, that many families expect their children not only to attend college, but to excel and obtain competitive positions following graduation. Combined with a more relaxed attitude surrounding substance use in general (e.g., where drinking to intoxication is commonplace and even normative in affluent contexts), increases in substance use among

upper-middle class youth can be understood and perhaps even expected as a natural continuation into emerging adulthood.

Conceptualizing school affluence as a relevant demographic index possibly conferring risk (Coley et al., 2017), the current also work sought to assess relations between socioeconomics and academic success. While a positive linear relationship was expected, results indicated a negative quadratic relation between school affluence and first semester college GPA. This result was clarified upon conducting supplementary analyses, the interpretation of which follows below.

Aim 2 Discussion

The second objective of this work was to identify meaningful latent profiles of different perceived pre-college parenting factors, and to determine differences in outcomes that may indicate academic retention and student wellbeing. A three-class solution was selected following careful analysis, revealing Authoritative, Warm/Permissive, and Uninvolved perceived parenting profiles. The authoritative profile (N=281) reflected high parental affection and consistent, high parental containment. The warm/permissive group (N=78) was characterized by high affection and moderately low containment. Most troubling was the uninvolved profile (N=24), reflecting low parental affection and very low, inconsistent perceived containment.

The "best" outcomes appear to be associated with the authoritative profile as expected. This is consistent with what is known about authoritative parenting being characterized as loving and firm. Considering the context of the transition to college, one can expect a positive relationship and consistent, high expectations for a students' behavior to result in a more "mature" (or responsible) conduct. The two remaining

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profiles can be interpreted, on the most basic level, as "medium" and "poor" parenting, though such an interpretation is overly simplistic. The low parental affection, combined with extremely low and volatile levels of containment, seem to suggest patterns of inconsistency and minimal positive parenting. While substance use appeared to be particularly elevated for males in the uninvolved group, a relatively small sample size limited the power of any meaningful follow-up analyses using these groups.

Supplementary Analyses: Variable-Based Regressions

While the perceived parenting profiles did not yield the expected results, as noted earlier, this may have been partly due to small sizes of the non-optimal groups and reduced power when their comparisons with the authoritative group were considered in regressions along with several other predictors (the groups showed modest differences when examined in simple analyses of variance). As such, the parenting variables were also examined separately (i.e., not as part of latent profiles) in multivariate regression analyses along with the other covariates, so that regressions included sex, peer deviance, school affluence (linear and quadratic), containment (drugs), mother and father affection, and mother and father antagonism. These regressions were assessed separately by a number of sample splits (i.e., among relatively advantaged (high SES, college educated parents, and White students) versus disadvantaged (low SES, first generation, and non-White students respectively)). Results consistently showed containment to be of import for substance use among the three sets of relatively advantaged youth, while father affection showed similar patterns of protection for the three sets of disadvantaged youth. Mother antagonism seemed to be associated with heightened substance use for disadvantaged youth and was linked with relatively low GPA for advantaged youth.

Acknowledging that these associations were not hypothesized *a priori*, a few comments on them are offered as suggestions that might usefully be explored in future research. Containment associating with drug use for advantaged students but not disadvantaged youth may make conceptual sense. Among the more affluent, access to drugs and alcohol permeates the culture, affecting peer norms and attitudes. As such, a belief that parents would treat drinking or drug use seriously takes on particular importance among the advantaged. Already shown to be protective for upper middle class youth at age 18 (Luthar et al., 2017), the current work replicates these findings while demonstrating the lack of salience for this particular dimension among disadvantaged youth. Underscoring the importance of containment during the transition to college, Luthar and colleagues (2017) also demonstrated that this belief in parental discipline for substance use at 18 had lasting effects among the affluent through age 22. It would be useful if future studies might replicate these differential associations for containment by parents' SES.

Perceived parental relationships demonstrated some associations with substance use among the more disadvantaged students. Consistent across the three sets of disadvantaged youth splits, mother antagonism related to many of the substance use indicators, but to none of them among the privileged youth. This could relate to differing family structures across cultures, as in many low-SES communities, mothers are often the primary caregivers. The antagonism measure reflects not just conflict, but *annoyances* (i.e., feelings of being nagged). This sense of antagonism between caregiver and child may relate to substance use during college in low-SES populations due to the sudden increase in independence and autonomy. Young people are free to make their own

decisions in a cultural environment where substance use is not just accepted but celebrated.

While mother antagonism among the disadvantaged seems to have detrimental psychosocial outcomes, the same construct seems to have different connotations among the advantaged. Described above, substance use among the advantaged seems to be more associated with peer use and containment and less so with affective measures of parental relationship. Fall semester GPA, however, is negatively associated with mother antagonism, likely a reflection of behaviors and practices common to upper middle class culture. Within advantaged communities, high school students are encouraged and expected to load up on extracurricular activities, AP and honors courses, and maintain stellar grades. To accomplish all of this, it is common for the advantaged to make use of academic tutors and have copious parental involvement in staying on top of academic deadlines and performance (referred to as 'helicopter parenting'). Once students transition to college and are removed from directly under the helicopter, so to speak, it seems as though the grades of advantaged students could suffer. Students who were high in perceived parental antagonism may not have the same support or daily reminders that they had in high school, and thus may not be equipped with the self-agency to responsibly manage or keep up with the academic expectations during this transitional time. As with suggestions about containment, it would be useful for further research to try and replicate the links for maternal antagonism across SES contexts, in relation to different adjustment outcomes including GPA.

Father affection demonstrated a number of associations among disadvantaged students but not advantaged ones. For one, father affection was associated with first

generation students' GPAs, while there seemed to be no association between these constructs for advantaged youth. Additionally, father affection was associated with a number of substance use variables for Low SES youth as well as non-White students, but not for their advantaged peers. Controlling for family structure or divorce did not change these results, suggesting a possible cultural difference in the influence of paternal warmth and involvement among the disadvantaged.

There are a number of implications for clinical, parental, and academic interventions. First generation college students would seem to benefit from supportive adult mentors – to offset high maternal antagonism or low father affection in order to do well in college. Advantaged youth need more perceived parent containment, but also attachment figures to offset maternal antagonism. Universities should consider bolstering mentorship programs for incoming students. University faculty could serve as formal, supportive mentors during the transition to college, serving as a guide to the academic system, community events, and a general support. Clinically speaking, the results from this would should inform interventions for parents of high school and college students. This work could serve as a means for informing treatment based on the relative advantage or disadvantage of college-aged clients, emphasizing different uses of supports depending on values and socioeconomic context of the client.

Overall, the supplementary post-hoc variable-based analyses turned out to be more informative than the person-based analyses planned *a priori*. Collectively, they underscore the importance of understanding the cultural contexts in which we all live, and fitting parenting approaches 1) to the specific needs of the child and 2) to meet that child's changing needs based on their stage of development. Socioeconomic status has

been shown to be a complex factor in affording some privilege but pressure, and others, adversity but possibly resilience. Different parenting factors seem to have enduring effects depending on differing contexts of particular college students, and this study emphasizes the importance of providing firm, fair, and consistent parenting.

Limitations

The current work had a number of limitations that are necessary to acknowledge. First, the study sample was over-sampled at socioeconomic "extremes" to obtain a sampling of the full range of incoming students to the large, public university of interest. As such, there was one participant in this study that had a school affluence much higher than those of the other participants. While this data point was briefly considered as an outlier, the researchers decided this case was to be considered an influential observation. As such, this participant may have influenced both the observed associations of substance use and GPA with school affluence. Both influences to the data made conceptual sense, and thus the data point was left in the study. In the future, having more study participants in this students' school affluence range would be advantageous.

Similarly, the sample size was modest compared to other studies that considered socioeconomic factors (i.e., Coley et al., 2017; Lund & Dearing, 2012). In particular, a more robust sample size would have benefitted the analyses conducted for the second aim of this study, in which latent profiles were determined within the sample of interest. The comparison group was considered robust (n=281), but the other two groups established were small in comparison (n's of 78 and 24). A replication of such analyses should be considered in order to better substantiate the findings of the second aim.

Finally, a number of limitations are inherently associated with the use of mixture modeling approaches, of which latent profile analysis is one. Growth mixture modeling is often the subject of debate, and while this study only uses one timepoint, several of the criticisms of this approach are relevant. Sher, Jackson, & Steinley (2011) caution that the use of mixture modeling often results in a "cat's cradle" effect, showing the same four trajectories despite studying different age ranges and behaviors. Similarly, in LPA, the reliance on interpretation adds a subjective component of the quantitative analysis, thus leaving it vulnerable to manipulation and potential bias. Solutions to such issues have been presented by Tien and colleagues (2013) and Infurna and Luthar (2016), the former of which recommended using a number of different fit indices to determine a final model solution, rather than over-relying on individual fit statistics that may be uniquely confirming of one's desired solution. Infurna and Luthar (2016) made recommendations related to growth mixture modeling in which they suggested granting more statistical flexibility to such analyses to allow for individual differences to be reflected in the final models. This adjustment allows such analyses to more accurately represent the data.

Future Directions

In the coming years, the current findings highlight the need for more focused research related to substance use during developmentally important transitional periods. Additionally, more work is needed to clarify and parse out the curvilinear association between socioeconomic factors indices of young adult wellbeing. Some have noted the need to follow study participants longitudinally, and in research that spans the socioeconomic continuum, providing adequate compensation for ongoing study participation can be difficult (Luthar et al., 2013). While studying specific subgroups is

needed, research that prioritizes getting a true range of participants can help avoid several types of biases.

While this work had limited definitive findings using the person-oriented analyses, such approaches should not necessarily be abandoned in future research. It is important to continue employing new and novel analytic techniques while carefully minding any best practices put forth in the field. Mixture modeling has the potential to identify otherwise unobservable patterns among large datasets. As such, these techniques can help researchers and university administrators to understand and ultimately support the youth they study and serve.

The supplementary analyses revealed a number of findings, some of which should be replicated in order to best understand the underlying mechanisms. One such association in need of replication is the relation between perceived mother antagonism and increased substance use among male students during the transition to college, containment for high SES youth, and father affection for low SES students.

In conclusion, more research is needed to better understand the enduring effects of different parenting factors throughout the transition to adulthood. By approaching these issues from a developmentally considerate perspective, risk and protective factors can be understood within a broader cultural context.

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Table 1

Demographic Characteristics of Study Sample

Characteristic	Full Sample	Males	Females
Total *N*	377 (%)	124 (32.9%)	253 (67.1%)
Mean age, *M* (*SD*)	18.3 (0.9)	18.4 (1.2)	18.2 (0.6)
Ethnicity, No. (%)			
Caucasian	239 (64.2)	89 (73.0)	150 (60.0)
Asian/Asian American	51 (13.7)	17 (13.9)	34 (13.6)
African American	20 (5.4)	1 (0.8)	19 (7.6)
Multi-Racial	26 (7.0)	4 (3.3)	22 (8.8)
Other	27 (7.3)	8 (6.6)	19 (7.6)
Hispanic/Latino	71 (18.9)	21 (17.1)	50 (19.8)
First generation college (%)	101 (27.4)	29 (23.6)	72 (29.3)
Parents' marital status, No. (%)			
Married	188 (69.1)	69 (72.6)	119 (67.2)
Divorced	58 (21.3)	21 (22.1)	37 (20.9)
Separated	23 (8.5)	5 (5.3)	18 (10.2)
Widowed	3 (1.1)	0 (0.0)	3 (1.7)
Mother education, No. (%)			
No diploma/degree	22 (5.9)	5 (4.0)	17 (6.8)
High school diploma/GED	120 (32.1)	34 (27.4)	86 (34.4)
College degree	163 (43.6)	62 (50.0)	101 (40.4)
Graduate degree	69 (18.4)	23 (18.5)	46 (18.4)
Father education, No. (%)			
No diploma/degree	29 (7.9)	9 (7.3)	20 (8.2)
High school diploma/GED	125 (34.1)	35 (28.5)	90 (36.9)
College degree	130 (35.4)	50 (40.7)	80 (32.8)
Graduate degree	83 (22.6)	29 (23.6)	54 (22.2)
Neighborhood Income, *M* (*SD*)	$73,001 ($25,499)	$75,612 ($25,165)	$71,097 ($25,370)

Table 2

Neighborhood Affluence Indicators by Quintile: Means and Standard Deviations

	School Affluence				
	Quintile 1	*Quintile 2*	*Quintile 3*	*Quintile 4*	*Quintile 5*
	$n = 78$	$n = 70$	$n = 72$	$n = 91$	$n = 46$
Med. income by zip (SD)	$40,863 ($7,247)	$55,298 ($3,835)	$70,456 ($5,667)	$94,396 ($5,629)	$111,528 ($11,116)
% **mothers** with a **BA** degree	56.2%	52.9%	61.1%	71.4%	73.9%
% **fathers** with a **BA** degree	52.8%	49.3%	52.1%	68.9%	67.4%
% **mothers** with a **graduate** degree	16.6%	14.3%	16.7%	20.9%	28.2%
% **fathers** with a **graduate** degree	24.4%	14.5%	16.9%	24.5%	34.8%

Note. Quintiles were divided into roughly equal-sized groups based on income distribution within the study sample.

Table 3

Means and Standard Deviations of Primary Variables of Interest

Variable	Full Sample	Males	Females	F_{Gender}	Eta Sq.
Perceived Parental Relationship					
Parent Affection	4.31 (0.93)	4.23 (0.99)	4.34 (0.90)	1.02	0.88
Parent Antagonism	2.12 (0.85)	2.06 (0.84)	2.15 (0.85)	0.75	0.54
Containment – Drugs	13.74 (5.45)	12.97 (5.33)	14.14 (5.49)	3.42^t	101.01
Containment – Rudeness	15.53 (4.62)	15.08 (4.97)	15.63 (5.48)	1.00	21.69
Containment – Delinquency	17.50 (4.13)	17.12 (4.42)	17.61 (4.04)	0.97	16.85
Containment – Acad. Dishonesty	16.09 (4.49)	16.12 (4.51)	16.04 (4.51)	0.02	0.47
Peer Influence					
Peer Deviance	8.86 (7.88)	9.42 (8.03)	8.58 (7.80)	0.90	55.78
Substance Use					
Drunkenness	0.66 (1.17)	0.70 (1.31)	0.64 (1.09)	0.17	0.23
Marijuana Use	0.71 (1.51)	0.80 (1.67)	0.67 (1.42)	0.55	1.27
Cigarette, Alcohol, & Marijuana	2.16 (3.26)	2.50 (3.75)	1.99 (2.97)	1.70	18.02
Overall Substance Use	3.05 (4.91)	3.44 (5.59)	2.85 (4.52)	1.03	24.71
Academic Achievement					
Fall GPA	3.26 (0.82)	3.19 (0.91)	3.29 (0.78)	1.09	0.74

Note. $^t p<.10$, $^* p <.05$, $^{**} p <.01$, $^{***} p <.001$

Males N=124; Females N=253

Table 3

Means and Standard Deviations of Primary Variables of Interest

Variable	Full Sample	Males	Females	F_{Gender}	Eta Sq.
Perceived Parental Relationship					
Parent Affection	4.31 (0.93)	4.23 (0.99)	4.34 (0.90)	1.02	0.88
Parent Antagonism	2.12 (0.85)	2.06 (0.84)	2.15 (0.85)	0.75	0.54
Containment – Drugs	13.74 (5.45)	12.97 (5.33)	14.14 (5.49)	3.42 [t]	101.01
Containment – Rudeness	15.53 (4.62)	15.08 (4.97)	15.63 (5.48)	1.00	21.69
Containment – Delinquency	17.50 (4.13)	17.12 (4.42)	17.61 (4.04)	0.97	16.85
Containment – Acad. Dishonesty	16.09 (4.49)	16.12 (4.51)	16.04 (4.51)	0.02	0.47
Peer Influence					
Peer Deviance	8.86 (7.88)	9.42 (8.03)	8.58 (7.80)	0.90	55.78
Substance Use					
Drunkenness	0.66 (1.17)	0.70 (1.31)	0.64 (1.09)	0.17	0.23
Marijuana Use	0.71 (1.51)	0.80 (1.67)	0.67 (1.42)	0.55	1.27
Cigarette, Alcohol, & Marijuana	2.16 (3.26)	2.50 (3.75)	1.99 (2.97)	1.70	18.02
Overall Substance Use	3.05 (4.91)	3.44 (5.59)	2.85 (4.52)	1.03	24.71
Academic Achievement					
Fall GPA	3.26 (0.82)	3.19 (0.91)	3.29 (0.78)	1.09	0.74

Note. [t]*p*<.10, **p* <.05, ***p* <.01, ****p* <.001

Males N=124; Females N=253

Table 5

Correlations – Mother/Father Affection and Antagonism Presented

	1	2	3	4	5	6	7
1. School Affluence	-						
2. Mother Affection	-.01	-					
3. Mother Antagonism	.03	-.30***	-				
4. Father Affection	.07	.65***	-.13*	-			
5. Father Antagonism	-.02	-.05	.40***	-.36***	-		
6. Cont – Drugs	.02	.07	.03	-.02	.09	-	
7. Past Month Substance Use	.02	-.20**	.27***	-.17**	.21***	-.23***	-
8. Fall GPA – College	.11*	.11*	-.15**	.16**	-.07	-.05	-.11 [t]

Notes: [t]$p<.10$, *$p<.05$, **$p<.01$, ***$p<.001$
Cont = perceived parent Containment.
Substance Use = sum of past month frequency of use of: Cig, Alc, Marij., Cocaine, Uppers, Downers, Ritalin/Adderall, Heroin, Steroids, Ecstasy, Inhalants
N=319-366

Table 6

Correlations – Males and Females Separately

	1	2	3	4	5	6	7	8	9	10	11	12
1. School Affluence	-	.12 t	.07	.14*	-.01	-.06	.14*	.11	.13 t	.02	.07	.11
2. Mother Education	.25**	-	.53***	.14*	-.14*	.15*	.27***	.27***	.29***	.01	.11 t	.07
3. Father Education	.25**	.51***	-	.07	-.01	.11	.22**	.25***	.23**	.02	.11 t	.09
4. Parental Affection	-.14	-.14	-.14	-	-.29***	.03	.17	.26***	.17*	-.14*	.27***	-.03
5. Parental Antagonism	.03	.01	.12	-.26**	-	.05	-.05	.01	-.01	.31***	-.14*	-.06
6. Cont–Drugs	.21*	-.03	.01	-.00	.06	-	.65***	.56***	.60***	-.23**	-.01	.02
7. Cont–Rudeness	.19 t	-.02	-.06	.17 t	.02	.53***	-	.72***	.75***	-.01	.03	.23 t
8. Cont–Delinquency	.19 t	.05	-.07	.25*	.03	.57***	.72***	-	.73***	-.00	.07	.27*
9. Cont–Acad. Dishonesty	.15	.05	.01	.15	.08	.57***	.62***	.74***	-	-.02	-.02	.22 t
10. Past Month Substance Use	.00	.06	.05	-.28**	.26**	-.25*	-.08	-.25*	-.18 t	-	-.12 t	-.17
11. Fall GPA–College	.19*	.16 t	.29**	-.05	-.14	-.11	-.10	.02	.02	-.08	-	.54***
12. Spring GPA–College	.66***	.35 t	.48**	-.10	-.13	.37 t	.25	.25	.40 t	.04	.80***	-

Note. ᵗp<.10, *p <.05, **p <.01, ***p <.001;
Cont = perceived parent Containment.
Substance Use = sum of past month frequency of use of: Cig, Alc, Marij., Cocaine, Uppers, Downers, Ritalin/Adderall,
Heroin, Steroids, Ecstasy, Inhalants; Values for males are in the bottom left; those for females are in the top right
Male N=96-123; Female N=185-238

Table 7

Correlations – Males and Females Separately

	1	2	3	4	5	6	7	8
1. School Affluence	-	.07	.02	.18**	-.01	-.06	.02	.07
2. Mother Affection	-.15	-	-.33***	.59***	-.03	.10	-.13 ^{t}	.19**
3. Mother Antagonism	.05	-.25**	-	-.11	.37***	-.01	.33***	-.09
4. Father Affection	-.13	.74***	0.18 ^{t}	-	-.38***	-.04	-.13 ^{t}	.29***
5. Father Antagonism	-.03	-.10	.46***	-.34***	-	.12 ^{t}	.16*	-.14*
6. Cont–Drugs	.21*	-.01	.09	.00	.02	-	-.23**	-.01
7. Past Month Substance Use	.00	-.31**	.18 ^{t}	-.21*	.28**	-.25*	-	-.12 ^{t}
8. Fall GPA – College	.19*	-.04	-.28**	-.06	.05	-.11	-.08	-

Notes: $^t p<.10$, $*p<.05$, $**p<.01$, $***p<.001$
Cont = perceived parent Containment.
Substance Use = sum of past month frequency of use of: Cig, Alc, Marij., Cocaine, Uppers, Downers, Ritalin/Adderall, Heroin, Steroids, Ecstasy, Inhalants; Values for males are in the bottom left; those for females are in the top right
Male N=96-123; Female N=185-238

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Table 8

Fall GPA and Past Month Substance Use by School Affluence and Gender

School Affluence Quintile	Full Sample (n = 308-378)			Males (n = 105-121)			Females (n = 203-249)		
	N	Fall GPA	Past Mon. Sub. Use	N	Fall GPA	Past Mon. Sub. Use	N	Fall GPA	Past Mon. Sub. Use
School Affluence Q1	58-78	3.10	3.07	15-21	3.08	3.53	43-56	3.10	2.91
(SD)		(0.78)	(5.52)		(0.73)	(7.73)		(0.80)	(4.63)
School Affluence Q2	61-70	3.30	3.86	23-24	3.16	4.20	38-46	3.39	3.66
(SD)		(0.74)	(6.07)		(0.90)	(5.19)		(0.64)	(6.61)
School Affluence Q3	59-73	3.18	2.22	16-18	2.67	2.50	43-54	3.37	2.12
(SD)		(0.97)	(3.09)		(1.48)	(3.54)		(0.66)	(2.94)
School Affluence Q4	74-95	3.45	2.43	30-39	3.41	3.02	44-53	3.46	2.04
(SD)		(0.75)	(4.43)		(0.69)	(5.84)		(0.81)	(3.14)
School Affluence Q5	42-50	3.27	4.26	17-18	3.44	4.14	25-29	3.21	4.34
(SD)		(0.71)	(5.31)		(0.56)	(5.77)		(0.74)	(5.10)

Table 9

Summary of Quadratic Regression Analyses for Income Predicting College Freshmen's Substance

Use (Drunk, Marijuana, CAM, and Overall) and Fall GPA

Variable	Drunkenness	Marijuana Use	CAM Use	Overall Use	GPA
	β	β	β	β	β
Sex	0.03	0.03	0.08	0.06	-0.08
School Affluence	-0.72**	-0.28	-0.58*	-0.66*	0.66*
School Affluence Sq.	0.89**	0.28	0.60*	2.52*	-2.15*
R^2	0.06**	0.01	0.02[t]	0.03 [t]	0.03*

Note. [t]$p<.10$, *$p<.05$, **$p<.01$, ***$p<.001$, [t]$<.10$; Sex was coded 0 = female, 1 = male;
$β$ = Standardized regression coefficient
N=298-358

Table 10

Fit Statistics for Latent Profile Analysis Solutions

Fit Indicator	1-class solution	2-class solution	3-class solution	4-class solution	5-class solution	6-class solution
Relative entropy	n/a	0.906	0.834	0.878	0.810	0.820
Sample size-adjusted BIC	6,563	5,902	5,642	5,527	5,501	5,408
Lo-Mendell-Rubin LR test	-	$p=.001$	$p<.001$	$p=.10$	$p=.12$	$p=.49$
Bootstrapped LR test	-	$p<.0001$	$p<.0001$	$p<.0001$	$p<.0001$	$p<.0001$
Sizes of classes (Ns)	384	43, 341	281, 79, 24	266, 18, 79, 21	18, 24, 21, 102, 219	19, 22, 66, 14, 63, 200

Note. BIC = Bayesian Information Criterion, LR = likelihood ratio; The 3-class solution was selected.

Table 11

Means and Standard Deviations for Outcome Variables

	Profile 1: Authoritative			Profile 2: Warm, Permissive			Profile 3: Uninvolved			F_{prof}	Eta Sq.	F_{gen}	Eta sq.	$F_{prof \times gen}$	Eta sq.
	All	F	M	All	F	M	All	F	M						
n:	212-253	150-184	73-82	65-78	41-48	25-30	16-24	11-15	5-9						
Drunk	0.60	0.59	0.62	0.86	0.93	0.73	0.81	0.36	1.80	1.82	0.01	3.19^t	0.01	2.83^t	0.02
	(1.10)	(1.04)	(1.22)	(1.25)	(1.30)	(1.19)	(1.64)	(0.67)	(2.68)						
Marijuana	0.62	0.61	0.64	0.91	0.93	0.88	1.19	0.45	2.80	3.44*	0.02	6.49*	0.02	4.00*	0.03
	(1.42)	(1.36)	(1.54)	(1.69)	(1.74)	(1.63)	(1.91)	(0.82)	(2.68)						
Cig., Alc., Marij.	1.92	1.78	2.22	2.68	2.81	2.46	3.38	1.82	6.80	3.90*	0.03	6.68*	0.02	3.92*	0.03
	(3.06)	(2.78)	(3.56)	(3.53)	(3.70)	(3.29)	(4.47)	(1.99)	(6.61)						
Total Use	2.76	2.60	3.08	3.68	4.00	3.18	4.69	2.18	10.20	3.38*	0.02	6.72*	0.02	4.73*	0.03
	(4.42)	(4.05)	(5.10)	(5.65)	(6.22)	(4.68)	(7.51)	(2.44)	(11.88)						
Peer Dev.	8.41	8.23	8.80	10.95	10.83	11.13	6.88	5.47	9.22	3.30*	0.02	1.40	0.00	0.46	0.00
	(7.60)	(7.84)	(7.07)	(8.39)	(7.98)	(9.15)	(8.10)	(4.67)	(11.86)						
Fall GPA	3.23	3.28	3.12	3.40	3.36	3.46	3.10	3.16	3.01	2.32^t	0.01	0.26	0.00	0.71	0.00
	(0.89)	(0.83)	(1.02)	(0.61)	(0.65)	(0.55)	(0.55)	(0.51)	(0.63)						

Note: ^{t}p<.10, *p<.05, **p<.01, ***p<.001, ^{t}<.10; Sex was coded 0 = female, 1 = male;
F = Females, M = Males; prof = Profile; gen = Gender.

Table 12

Summary of Linear Regression Analyses for Parent Profiles Predicting College Freshmen's Substance Use: Drunk and

Marijuana Use

| | Been Drunk – Transition to College | | | | | | Marijuana Use – Transition to College | | | | | |
| | Model 1 | | | Model 2 | | | Model 1 | | | Model 2 | | |
Variable	B	SE B	β	B	SE B	β	B	SE B	β	B	SE B	β
Peer Deviance	----	----	----	0.07***	0.01	0.49***	----	----	----	0.08***	0.01	0.43***
Sex	0.07	0.14	0.03	0.04	0.12	0.01	0.10	0.19	0.03	0.06	0.17	0.02
School Affluence	-0.00*	0.00	-0.68*	-0.00**	0.00	-0.66**	-0.00	0.00	-0.25	-0.00	0.00	-0.25
School Affluence Sq.	0.00**	0.00	0.86**	0.00**	0.00	0.81**	0.00	0.00	0.26	0.00	0.00	0.23
Parenting Profile												
Prof. 3 Permissive vs. Prof. 1 Authoritative	0.33	0.31	0.06	0.37	0.27	0.07	0.23	0.41	0.03	0.26	0.37	0.04
Prof. 2 Affectionate vs. Prof. 1 Authoritative	0.18	0.16	0.07	-0.01	0.14	-0.00	0.29	0.21	0.08	0.07	0.19	0.02
R^2	0.06**			0.30***			0.01			0.19***		

Note. $^{\dagger}p<.10$, $*p<.05$, $**p<.01$, $***p<.001$; Sex was coded $0 =$ female, $1 =$ male; $B =$ Unstandardized regression coefficient; $SE\ B =$ Standard error of the unstandardized regression coefficient; $\beta =$ Standardized regression coefficient; Model 1 does not control for Peer Deviance; Model 2 does control for Peer Deviance; Profile 3, "Authoritative", (n=281) used as a reference group, considered the most positive parenting profile

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Table 12 continued

Summary of Linear Regression Analyses for Parent Profiles Predicting College Freshmen's Substance Use: Past Month Total Use and CAM

Variable	Total Use – Transition to College						Cig., Alcohol, Marijuana Use – Transition to College					
	Model 1			Model 2			Model 1			Model 2		
	B	*SE B*	*β*	*B*	*SE B*	*β*	*B*	*SE B*	*β*	*B*	*SE B*	*β*
Peer Deviance	---	---	---	0.35***	0.03	0.57***	---	---	---	0.23***	0.02	0.56***
Sex	0.62	0.61	0.06	0.47	0.50	0.05	0.50	0.40	0.07	0.35	0.33	0.05
School Affluence	-0.00*	0.00	-0.62*	-0.00*	0.00	-0.58*	-0.00*	0.00	-0.53*	-0.00*	0.00	-0.53*
School Affluence Sq.	0.00*	0.00	0.66*	0.00**	0.00	0.59**	0.00*	0.00	0.57*	0.00*	0.00	0.52*
Parenting Profile												
Prof. 3 Uninvolved vs. Prof. 1 Authoritative	1.45	1.34	0.06	1.68	1.10	0.07	0.95	0.88	0.06	1.06	0.73	0.07
Prof. 2 Warm, permissive vs. Prof. 1 Authoritative	0.69	0.70	0.06	-0.10	0.58	-0.01	0.66	0.46	0.08	0.04	0.38	0.00
R^2	0.03*			0.35***			0.03			0.34***		

Note. $^{†}p<.10$, $^{*}p<.05$, $^{**}p<.01$, $^{***}p<.001$; Sex was coded 0 = female, 1 = male; B = Unstandardized regression coefficient; $SE B$ = Standard error of the unstandardized regression coefficient; $β$ = Standardized regression coefficient; Model 1 does not control for Peer Deviance; Model 2 does control for Peer Deviance; Profile 3, "Authoritative", (n=281) used as a reference group, considered the most positive parenting profile

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Table 12 continued

Summary of Linear Regression Analyses for Parent Profiles Predicting College Freshmen's Fall GPA

	Fall GPA					
	Model 1			Model 2		
Variable	B	$SE\ B$	β	B	$SE\ B$	β
Peer Deviance	---	---	---	0.00	0.01	0.01
Sex	-0.15	0.09	-0.09	-0.12	0.09	-0.07
School Affluence	0.00**	0.00	0.68**	0.00**	0.00	0.69**
School Affluence Sq.	0.00*	0.00	-0.57*	0.00**	0.00	-0.58**
Parenting Profile						
Prof. 3 Uninvolved vs. Prof. 1 Authoritative	0.03	0.18	0.01	0.04	0.18	0.01
Prof. 2 Warm, permissive vs. Prof. 1 Authoritative	0.19 t	0.10	0.10 t	0.19 t	0.11	0.10 t
R^2	0.04*			0.04*		

Note. t$p<.10$, *$p<.05$, **$p<.01$, ***$p<.001$; Sex was coded 0 = female, 1 = male; B = Unstandardized regression coefficient; $SE\ B$ = Standard error of the unstandardized regression coefficient; β = Standardized regression coefficient; Model 1 does not control for Peer Deviance; Model 2 does control for Peer Deviance; Profile 3, "Authoritative", (n=281) used as a reference group, considered the most positive parenting profile

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Table 13

Summary of Linear Regression Analyses for Parent Factors Predicting College Freshmen's Substance Use

Variable	Overall Use			CAM			Drunkenness			Marijuana Use		
	B	*SE B*	*β*	*B*	*SE B*	*β*	*B*	*SE B*	*β*	*B*	*SE B*	*β*
Peer Deviance	0.32***	0.03	0.51***	0.21***	0.02	0.51***	0.07***	0.01	0.45***	0.07***	0.01	0.38***
Sex	0.15	0.51	0.01	0.12	0.34	0.02	-0.01	0.13	-0.00	-0.01	0.17	-0.00
School Affluence	0.00*	0.00	-0.48*	0.00	0.00	-0.37	-0.00*	0.00	-0.55*	-0.00	0.00	-0.04
School Affluence Sq.	0.00*	0.00	0.50*	0.00^t	0.00	0.39^t	0.00**	0.00	0.71**	0.00	0.00	0.04
Containment – Drugs	-0.08^t	0.05	-0.09^t	-0.08*	0.03	-0.12*	-0.02^t	0.01	-0.10^t	-0.03*	0.02	-0.12*
Parental Affection	-0.83**	0.28	-0.15**	-0.46*	0.19	-0.13*	-0.17*	0.07	-0.13*	-0.17^t	0.10	-0.11^t
Parental Antagonism	0.65*	0.33	0.11*	0.37^t	0.21	0.09^t	0.07	0.08	0.05	0.17	0.11	0.10
R^2	0.39***			0.38***			0.33***			0.23***		

Note. $^t p < .10$, $^* p < .05$, $^{**} p < .01$, $^{***} p < .001$; Sex was coded 0 = female, 1 = male; B = Unstandardized regression coefficient; $SE B$ = Standard error of the unstandardized regression coefficient; $β$ = Standardized regression coefficient

Table 13 continued

Summary of Linear Regression Analyses for Parent Factors Predicting College Freshmen's Academic Success

	Fall GPA		
Variable	<u>B</u>	<u>SE B</u>	<u>β</u>
Peer Deviance	0.01	0.01	0.07
Sex	-0.09	0.09	-0.05
School Affluence	0.00*	0.00	0.55*
School Affluence Sq.	0.00	0.00	-0.45
Containment – Drugs	-0.01	0.01	-0.05
Parental Affection	0.09[t]	0.05	0.11[t]
Parental Antagonism	-0.10[t]	0.06	-0.11[t]
R^2		0.06**	

Note. [t]p<.10, *p<.05, **p<.01, ***p<.001; Sex was coded 0 = female, 1 = male*; B =* Unstandardized regression coefficient; *SE B =* Standard error of the unstandardized regression coefficient; *β =* Standardized regression coefficient

Table 14

Summary of Linear Regression Analyses for Parent Factors Predicting College Freshmen's Substance Use and GPA separately by Gender

Variable	Overall Use		CAM		Drunk		Marijuana Use		Fall GPA	
	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males
	β	β	β	β	β	β	β	β	β	β
Peer Deviance	.49***	.51***	.48***	.52***	.41***	.46***	.40***	.32**	.03	.05
School Affluence	-.55*	-.26	-.35	-.19	-.61*	-.46	.10	.11	.57t	.02
School Affluence Sq.	.57*	.28	.40	.17	.80**	.61	-.06	-.25	-.57t	.21
Containment – Drugs	-.10	-.11	-.14*	-.14	-.12t	-.11	-.12t	-.10	-.02	-.13
Mother Affection	.10	-.38**	.13	-.39**	.07	-.36*	.05	-.13	.09	-.25
Father Affection	-.23*	.21	-.19*	.19	-.16t	.21	-.06	-.15	.22*	.20
Mother Antagonism	.21**	-.06	.22**	-.04	.14t	-.07	.29***	-.05	-.10	-.46***
Father Antagonism	-.03	.21*	-.04	.16	-.06	.21t	-.04	.00	.03	.33**
R²	**.40*****	**.46*****	**.38*****	**.47*****	**.34*****	**.40*****	**.31*****	**.22****	**.12****	**.22****

Note. tp<.10, *p<.05, **p<.01, ***p<.001; Sex was coded 0 = female, 1 = male; β = Standardized regression coefficient
Female N=171-173, Male N=94-95

Table 15

Summary of Linear Regression Analyses for Parent Factors Predicting College Freshmen's Substance Use and GPA separately by First Generation Status

Variable	Overall Use		CAM		Drunk		Marijuana Use		Fall GPA	
	First Gen	Non-F.G.	First Gen	Non-F.G.	First Gen	Non-F.G.	First Gen	Non-F.G.	First Gen	Non-F.G.
	β	β	β	β	β	β	β	β	β	β
Sex	.11	-.01	.17	-.03	.02	-.00	.08	-.04	-.22^t	-.02
Peer Deviance	.41**	.54***	.46***	.52***	.36**	.47***	.19	.46***	.08	.03
School Affluence	-.04	-.47^t	.24	-.40	.35	-.62*	.49	-.09	-.54	.76*
School Affluence Sq.	-.05	.50^t	-.31	.43	-.30	.78**	-.60	.10	.66	-.68*
Containment – Drugs	-.02	-.12^t	-.09	-.14*	.04	-.13*	-.07	-.14*	-.07	-.06
Mother Affection	.08	-.12	.10	-.09	-.14	-.07	.19	-.15	-.23	.08
Father Affection	-.27^t	-.03	-.17	-.07	-.12	-.04	-.16	-.01	.33*	.08
Mother Antagonism	.27*	.04	.27*	.06	.08	.04	.28^t	.11	-.25	-.27***
Father Antagonism	.01	.07	-.01	.02	.12	-.00	-.01	-.03	.21	.11
R^2	.34**	.43***	.37***	.40***	.26*	.38***	.16	.29***	.15	.12**

Note. $^t p<.10$, $*p<.05$, $**p<.01$, $***p<.001$; Sex was coded 0 = female, 1 = male; β = Standardized regression coefficient
First generation N=72-80, Non-first-generation N=193-222

Table 16

Summary of Linear Regression Analyses for Parent Factors Predicting College Freshmen's Substance Use and GPA separately by Ethnicity

Variable	Overall Use		CAM		Drunk		Marijuana Use		Fall GPA	
	Nonwhite	White	Nonwhite	White	Nonwhite	White	Nonwhite	White	Nonwhite	White
	β	β	β	β	β	β	β	β	β	β
Sex	-.01	.03	.03	.02	-.07	.02	-.00	-.01	.03	-.09
Peer Deviance	.40***	.52***	.42***	.49***	.36***	.47***	.49***	.31***	.01	.11
School Affluence	-.78*	-.24	-.59^t	-.28	-.75*	-.03	.21	-.18	1.11**	.05
School Affluence Sq.	.81*	.24	.65^t	.26	.96**	.15	-.07	.12	-.99*	.03
Containment – Drugs	-.00	-.14*	-.02	-.19**	-.07	-.12^t	-.06	-.15*	-.11	-.00
Mother Affection	.19	-.10	.27	-.10	.26	-.09	.26	-.12	-.20	.01
Father Affection	-.51**	.02	-.52**	.03	-.42*	-.02	-.33^t	.01	.21	.16
Mother Antagonism	.22^t	.09	.18	.13^t	.22*	-.00	.27*	.16^t	-.08	-.31***
Father Antagonism	-.05	.08	-.07	.05	.12	-.02	-.14	.02	-.01	.14^t
R^2	**.46*****	**.42*****	**.41*****	**.42*****	**.53*****	**.30*****	**.37*****	**.23*****	**.14**	**.14****

Note. $^t p<.10$, $^* p<.05$, $^{**} p<.01$, $^{***} p<.001$; Sex was coded 0 = female, 1 = male; β = Standardized regression coefficient
Nonwhite N=82-97, White N=183-203

Table 17

Summary of Linear Regression Analyses for Parent Factors Predicting College Freshmen's Substance Use and GPA separately by SES

Variable	Overall Use		CAM		Drunk		Marijuana Use		Fall GPA	
	LowSES β	HighSES β	LowSES β	HighSES β	LowSES β	HighSES β	LowSES β	HighSES β	LowSES β	HighSES β
Sex	.01	.06	.06	.02	.00	.07	.14	-.04	-.06	.06
Peer Deviance	.52***	.51***	.52***	.49***	.45***	.46***	.35***	.38***	.01	.19ᵗ
Containment – Drugs	-.10	-.17*	-.13	-.17ᵗ	-.10	-.19*	-.12	-.20*	-.04	.16
Mother Affection	-.08	-.21	-.01	-.25ᵗ	-.20ᵗ	-.08	.21ᵗ	-.38*	.01	-.20
Father Affection	-.20ᵗ	.17	-.23*	.17	-.14	.08	-.30*	.23	.23ᵗ	.30ᵗ
Mother Antagonism	.13	.09	.15	.08	.06	.08	.23*	-.02	-.17ᵗ	-.36**
Father Antagonism	.04	.11	-.04	.12	.05	.06	-.11	.22ᵗ	.14	.12
R^2	.45***	.42***	.41***	.40***	.38***	.33***	.24***	.33***	.08	.11ᵗ

Note. ᵗp<.10, *p<.05, **p<.01, ***p<.001; Sex was coded 0 = female, 1 = male; β = Standardized regression coefficient
Low SES = lowest two school affluence quartiles; High SES = highest two school affluence quartiles.
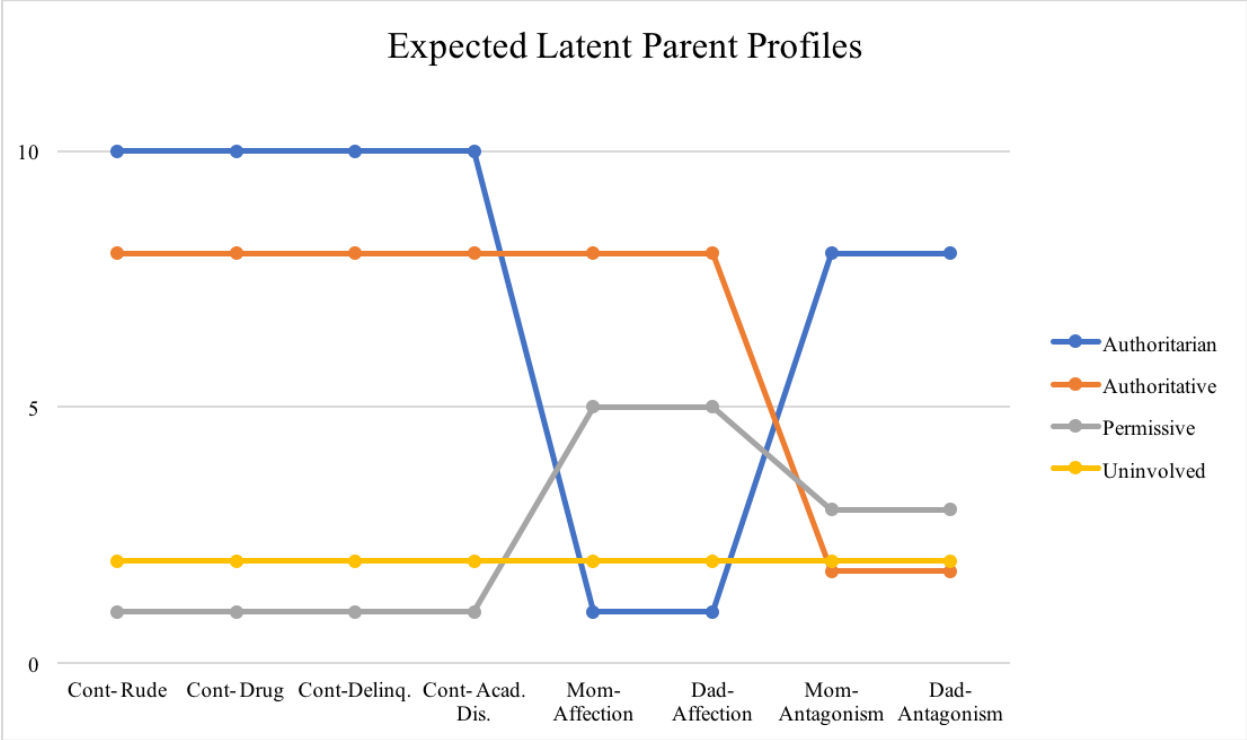Low SES N=108-126, High SES N=105-115
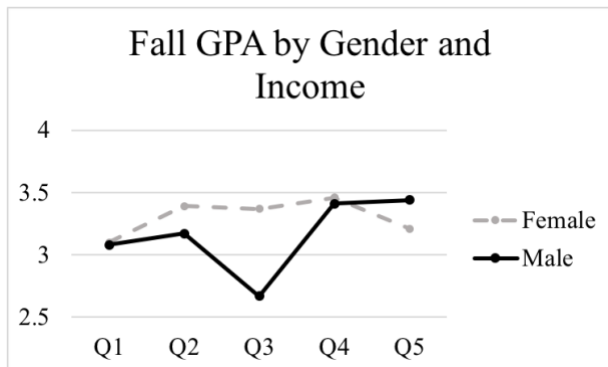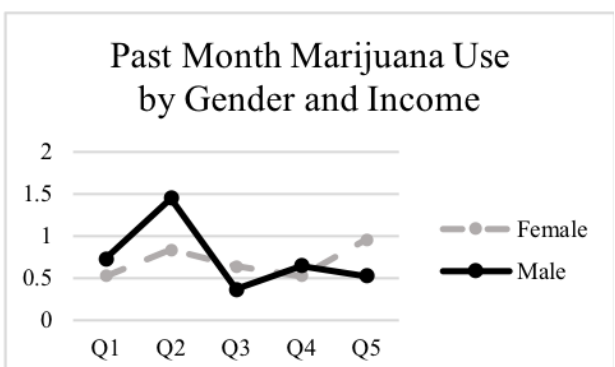
Figure 1. Expected latent parent profiles.

Past Month Substance Use by Gender and Income

Past Month CAM Use by Gender and Income

Past Month Drunkenness by Gender and Income

Past Month Marijuana Use by Gender and Income
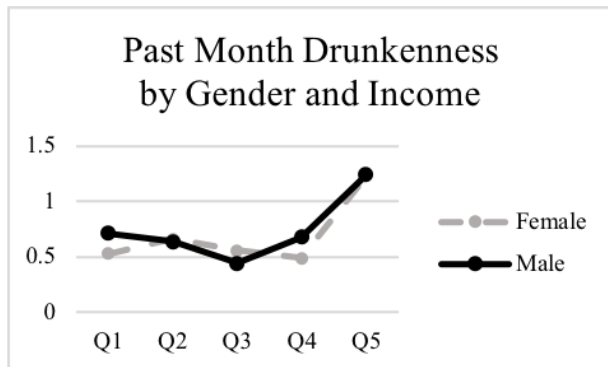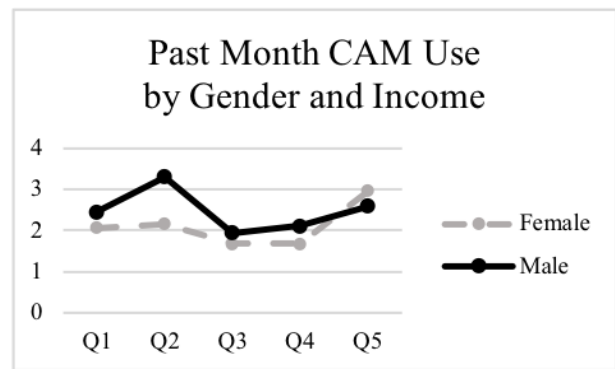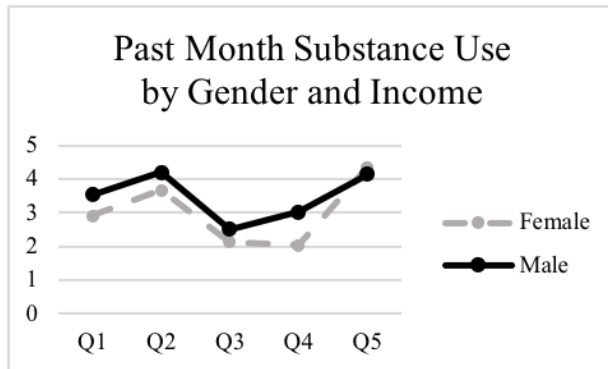

Fall GPA by Gender and Income

Figure 2. Past month substance use by gender and income during the transition to college.
Figure 3. Past month cigarette, alcohol, and marijuana use by gender and income during the transition to college.
Figure 4. Past month drunkenness by gender and income during the transition to college.
Figure 5. Past month marijuana use by gender and income during the transition to college.
Figure 6. Fall GPA by gender and income.

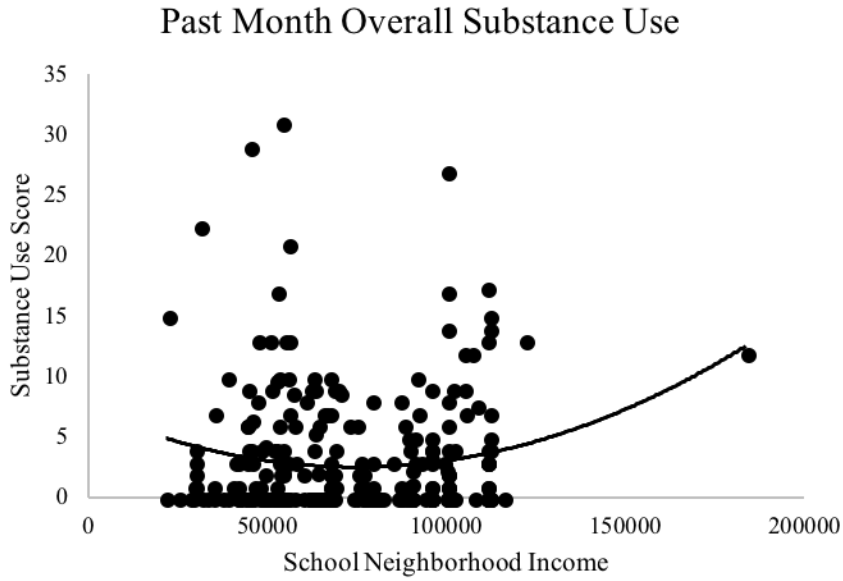*Note: Q5 represents highest income within sample.*

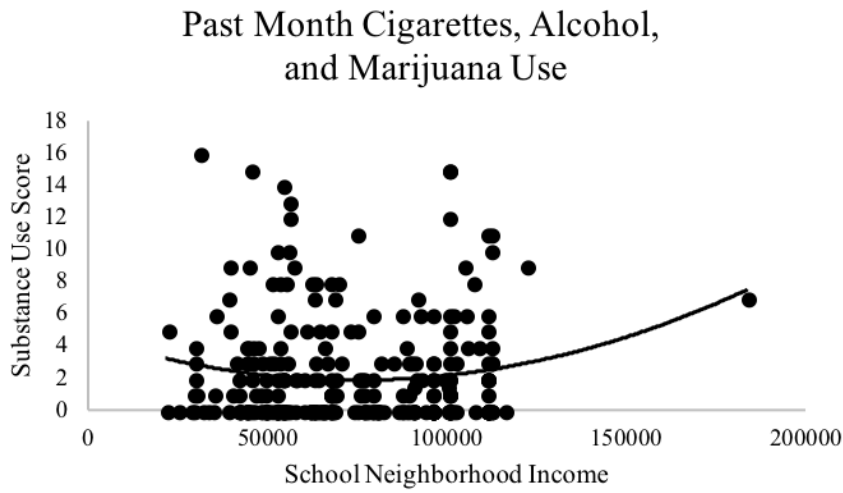*Figure 7*. Past month overall substance use by income.

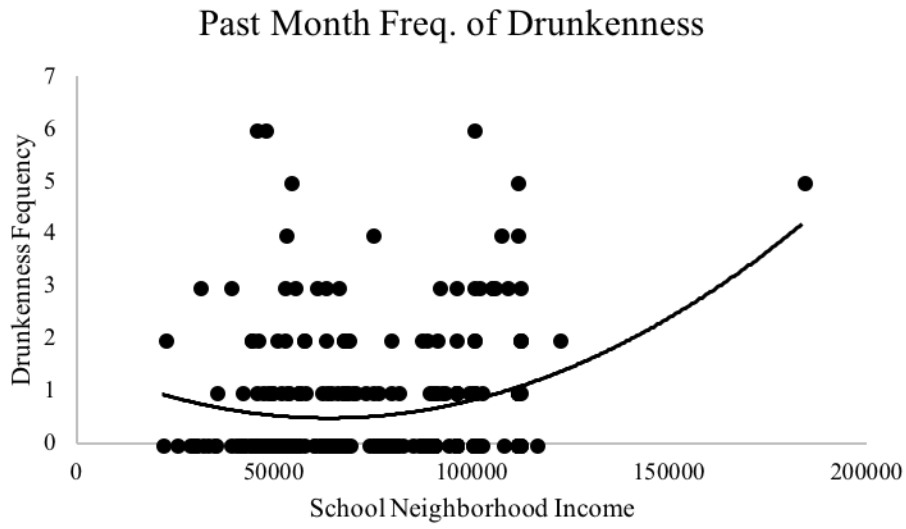*Figure 8*. Past month cigarette, alcohol, and marij. use by income.

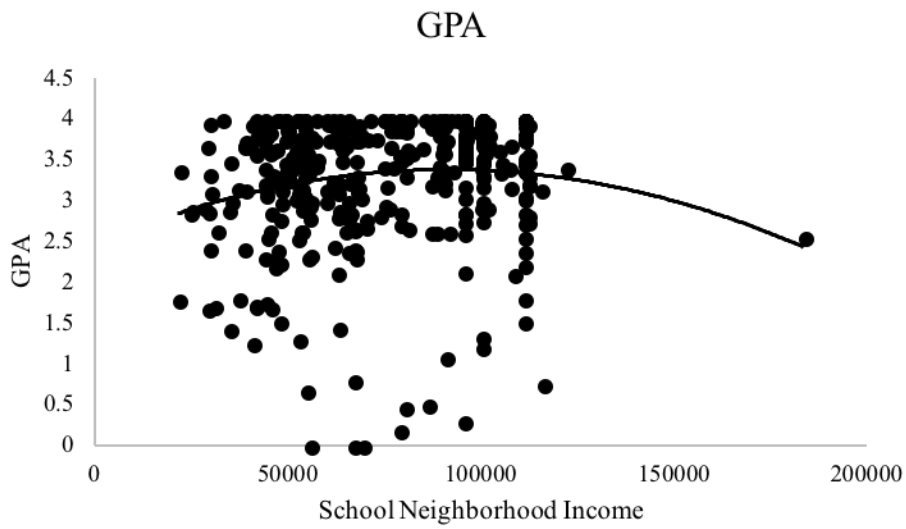*Figure 9.* Past month frequency of drunkenness by income.
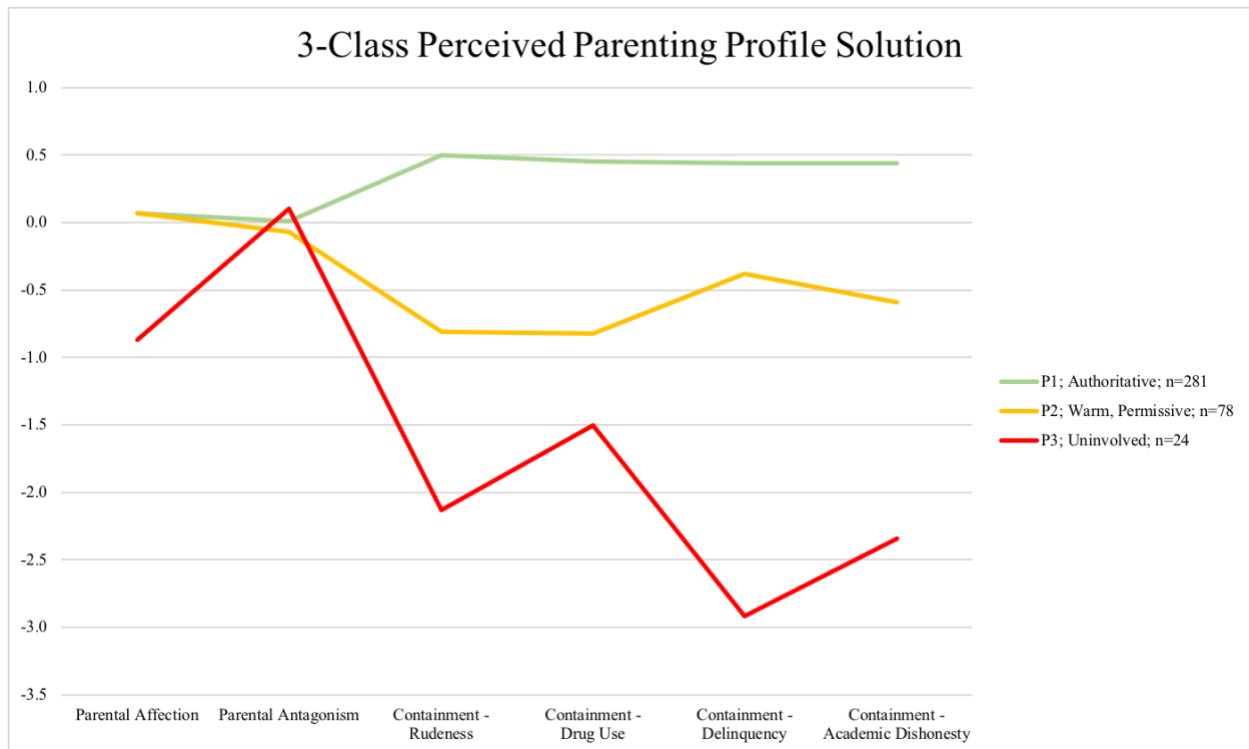

Figure 10. First Fall GPA by income.

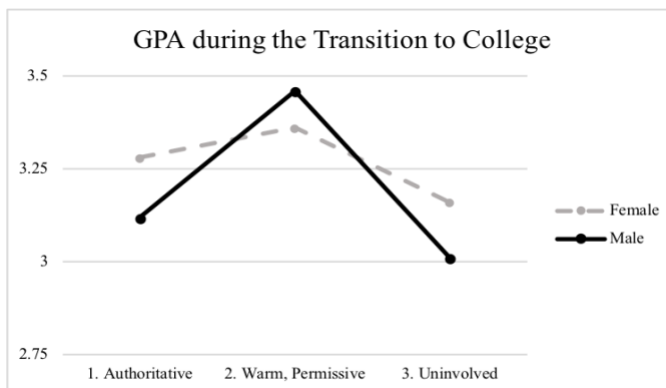*Figure 11*. Three-profile perceived parenting latent profile solution.

Overall Substance Use during the Transition to College

12 — 9 — 6 — 3 — 0

1. Authoritative   2. Warm, Permissive   3. Uninvolved

Female
Male

Cigarette, Alcohol, and Marijuana Use during the Transition to College

8 — 6 — 4 — 2 — 0

1. Authoritative   2. Warm, Permissive   3. Uninvolved

Female
Male

Drunkenness during the Transition to College

2 — 1.5 — 1 — 0.5 — 0

1. Authoritative   2. Warm, Permissive   3. Uninvolved

Female
Male

Marijuana Use during the Transition to College

3 — 2 — 1 — 0

1. Authoritative   2. Warm, Permissive   3. Uninvolved

Female
Male

GPA during the Transition to College

3.5 — 3.25 — 3 — 2.75

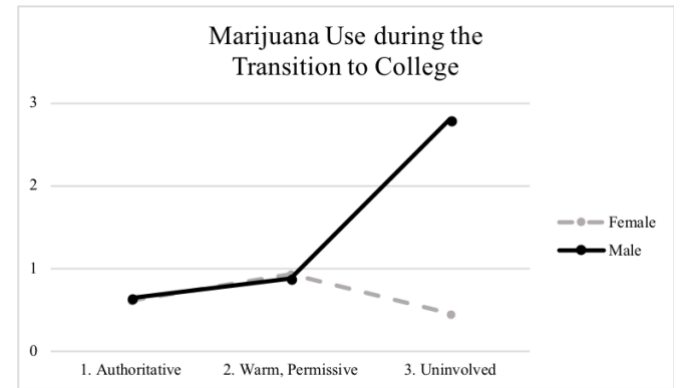1. Authoritative   2. Warm, Permissive   3. Uninvolved

Female
Male

Figure 12. Overall substance use during the transition to college by perceived parenting profile.

Figure 13. Cigarette, alcohol, and marijuana use during the transition to college by perceived parenting profile.

Figure 14. Frequency of drunkenness during the transition to college by perceived parenting profile.

Figure 15. Marijuana use during the transition to college by perceived parenting profile.

Figure 16. Fall semester GPA during the transition to college by perceived parenting profile.

APPENDIX A

STUDY MODEL, AIM #2: PREDICTING COLLEGE SUBSTANCE USE AND ACADEMIC
SUCCESS USING PERCEIVED PARENT PROFILES
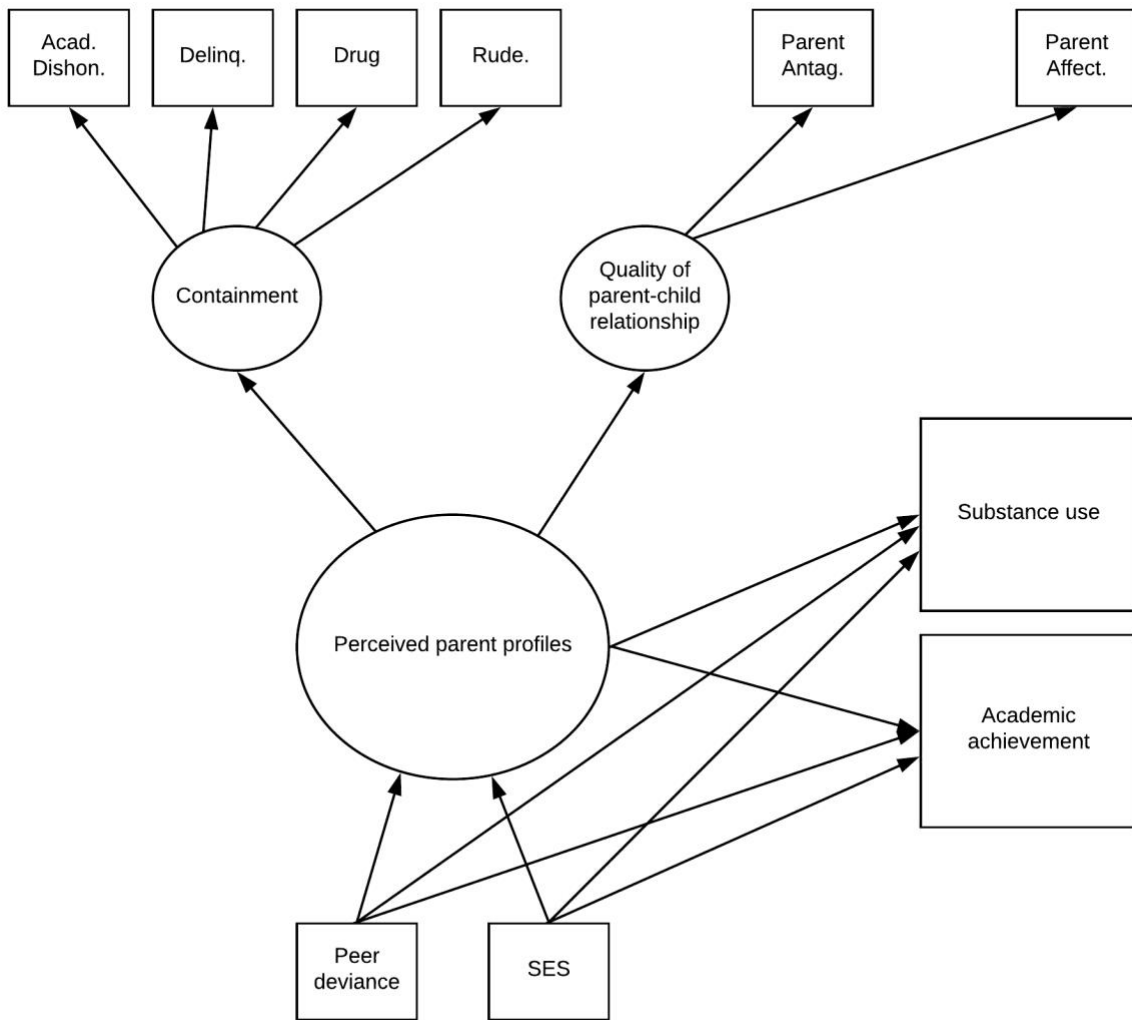
APPENDIX B

4-CLASS PERCEIVED PARENTING PROFILES

4-Class Perceived Parenting Profiles

P1; Authoritative; n=276
P2; Permissive; n=18
P3; Affectionate; n=79
P4; Uninvolved; n=21

APPENDIX C

MEANS AND STANDARD DEVIATIONS OF PRIMARY VARIABLES OF INTEREST BY
FIRST GENERATION STATUS

Table I

Means and Standard Deviations of Primary Variables of Interest by First Generation Status

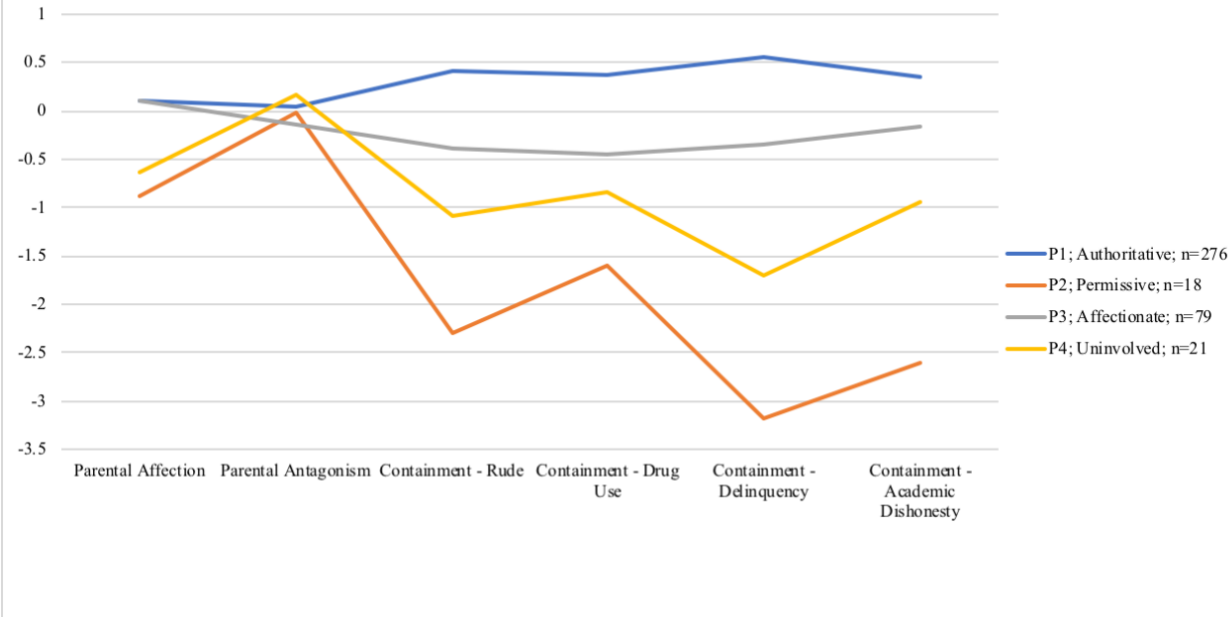| Variable	Full Sample	First Generation	Non-First Generation	$F_{First Generation}$	Eta Sq.
Perceived Parental Relationship					
Parent Affection	4.31 (0.93)	4.18 (0.95)	4.35 (0.93)	2.20	0.01
Parent Antagonism	2.12 (0.85)	2.20 (0.92)	2.09 (0.82)	1.08	0.00
Containment – Drugs	13.74 (5.45)	12.99 (5.77)	13.99 (5.32)	2.17	0.01
Containment – Rudeness	15.53 (4.62)	13.87 (5.61)	15.98 (4.17)	13.06***	0.04
Containment – Delinquency	17.50 (4.13)	16.11 (5.34)	18.00 (3.45)	13.57***	0.04
Containment – Acad. Dishonesty	16.09 (4.49)	14.52 (5.49)	16.65 (3.96)	14.26***	0.04
Peer Influence					
Peer Deviance	8.86 (7.88)	7.32 (7.61)	9.57 (7.93)	5.67*	0.02
Substance Use					
Drunkenness	0.66 (1.17)	0.58 (0.95)	0.70 (1.25)	0.68	0.00
Marijuana Use	0.71 (1.51)	0.65 (1.53)	0.74 (1.52)	0.25	0.00
Cigarette, Alcohol, & Marijuana	2.16 (3.26)	1.88 (2.86)	2.29 (3.42)	0.94	0.00
Overall Substance Use	3.05 (4.91)	2.59 (4.16)	3.25 (5.20)	1.09	0.00
Academic Achievement					
Fall GPA	3.26 (0.82)	3.11 (0.92)	3.32 (0.79)	4.70*	0.01

*Note. $^{†}p<.10$, *p <.05, **p <.01, ***p <.001*

Full sample N=308-362, First generation N=83-98; Non-first generation N=221-264

Table II

Means and Standard Deviations of Primary Variables of Interest by Ethnicity

Variable	Full Sample	Non-White	White	$F_{Ethnicity}$	Eta Sq.
Perceived Parental Relationship					
Parent Affection	4.31 (0.93)	4.25 (0.99)	4.32 (0.90)	0.39	0.00
Parent Antagonism	2.12 (0.85)	2.29 (0.92)	2.04 (0.80)	7.07**	0.02
Containment – Drugs	13.74 (5.45)	14.26 (5.71)	13.56 (5.25)	1.22	0.00
Containment – Rudeness	15.53 (4.62)	15.38 (4.85)	15.62 (4.41)	0.19	0.00
Containment – Delinquency	17.50 (4.13)	17.26 (4.58)	17.72 (3.63)	0.97	0.00
Containment – Acad. Dishonesty	16.09 (4.49)	16.30 (4.66)	16.11 (4.21)	0.13	0.00
Peer Influence					
Peer Deviance	8.86 (7.88)	8.51 (7.80)	9.16 (7.96)	0.53	0.00
Substance Use					
Drunkenness	0.66 (1.17)	0.58 (1.16)	0.71 (1.18)	0.95	0.00
Marijuana Use	0.71 (1.51)	0.71 (1.49)	0.72 (1.54)	0.01	0.00
Cigarette, Alcohol, & Marijuana	2.16 (3.26)	2.08 (3.44)	2.22 (3.20)	0.12	0.00
Overall Substance Use	3.05 (4.91)	2.82 (5.03)	3.19 (4.89)	0.38	0.00
Academic Achievement					
Fall GPA	3.26 (0.82)	3.18 (0.78)	3.30 (0.85)	1.65	0.01

Note: $^{t}p<.10$, $*p <.05$, $**p <.01$, $***p <.001$

Full sample N=308-362, Non-White N=99-121; White N=206-229

Table III

Means and Standard Deviations of Primary Variables of Interest by Low/High SES

Variable	Full Sample	Low-SES	High SES	F_{SES}	Eta Sq.
Perceived Parental Relationship					
Parent Affection	4.31 (0.93)	4.24 (0.87)	4.25 (1.05)	0.00	0.00
Parent Antagonism	2.12 (0.85)	2.19 (0.81)	2.15 (0.90)	0.20	0.00
Containment – Drugs	13.74 (5.45)	13.19 (5.82)	13.91 (5.03)	1.10	0.00
Containment – Rudeness	15.53 (4.62)	14.62 (4.90)	16.31 (4.14)	8.31**	0.03
Containment – Delinquency	17.50 (4.13)	17.05 (4.66)	18.09 (3.49)	3.80[t]	0.02
Containment – Acad. Dishonesty	16.09 (4.49)	15.65 (4.81)	16.77 (3.91)	3.85[t]	0.02
Peer Influence					
Peer Deviance	8.86 (7.88)	9.32 (8.47)	8.98 (7.79)	0.11	0.00
Substance Use					
Drunkenness	0.66 (1.17)	0.62 (1.22)	0.81 (1.26)	1.40	0.01
Marijuana Use	0.71 (1.51)	0.83 (1.63)	0.66 (1.46)	0.76	0.00
Cigarette, Alcohol, & Marijuana	2.16 (3.26)	2.39 (3.60)	2.15 (3.26)	0.28	0.00
Overall Substance Use	3.05 (4.91)	3.48 (5.80)	3.10 (4.82)	0.30	0.00
Academic Achievement					
Fall GPA	3.26 (0.82)	3.20 (0.77)	3.39 (0.74)	4.56*	0.02

Note: $^{t}p<.10$, *$p <.05$, **$p <.01$, ***$p <.001$

Full sample N=308-362, Low-SES N=117-141; High-SES N=113-130

APPENDIX D

SUMMARY OF LINEAR REGRESSION ANALYSES FOR PARENT FACTORS
PREDICTING COLLEGE FRESHMEN'S SUBSTANCE USE AND GPA SEPARATELY BY
FIRST GEN. STATUS AND SES

Table IV
Summary of linear regression analyses for parent factors predicting college freshmen's substance use and GPA separately by first gen. status and SES

Variable	Overall Use				Cigarettes, Alcohol, Marijuana				Frequency of Drunkenness				Frequency of Marijuana Use				First Fall GPA			
	F. Gen	N. F. Gen	Low SES	High SES	F. Gen	N. F. Gen	Low SES	High SES	F. Gen	N. F. Gen	Low SES	High SES	F. Gen	N. F. Gen	Low SES	High SES	F. Gen	N. F. Gen	Low SES	High SES
	β	β	β	β	β	β	β	β	β	β	β	β	β	β	β	β	β	β	β	β
Sex	.11	-.01	.01	.06	.17	-.03	.06	.02	.02	-.00	.00	.07	.08	-.04	.14	-.04	-.22[†]	-.02	-.06	.06
Peer Deviance	.41[b]	.54[c]	.52[c]	.51[c]	.46[c]	.52[c]	.52[c]	.49[c]	.36[b]	.47[c]	.45[c]	.46[c]	.19	.46[c]	.35[c]	.38[c]	.08	.03	.01	.19[†]
School Affluence	-.04	-.47[†]	-	-	.24	-.40	-	-	.35	-.62[a]	-	-	.49	-.09	-	-	-.54	.76[a]	-	-
School Affluence Sq.	-.05	.50[†]	-	-	-.31	.43	-	-	-.30	.78[b]	-	-	-.60	.10	-	-	.66	-.68[a]	-	-
Cont- Drug	-.02	-.12[†]	-.10	-.17[a]	-.09	-.14[a]	-.13	-.17[†]	.04	-.13[a]	-.10	-.19[a]	-.07	-.14[a]	-.12	-.20[a]	-.07	-.06	-.04	.16
M. Affection	.08	-.12	-.08	-.21	.10	-.09	-.01	-.25[†]	-.14	-.07	-.20[†]	-.08	.19	-.15	.21[†]	-.38[a]	-.23	.08	.01	-.20
F. Affection	-.27[†]	-.03	-.20[†]	.17	-.17	-.07	-.23[a]	.17	-.12	-.04	-.14	.08	-.16	-.01	-.30[a]	.23	.33[a]	.08	.23[†]	.30[†]
M. Antagonism	.27[a]	.04	.13	.09	.27[a]	.06	.15	.08	.08	.04	.06	.08	.28[†]	.11	.23[a]	-.02	-.25	-.27[c]	-.17[†]	-.36[b]
F. Antagonism	.01	.07	.04	.11	-.01	.02	-.04	.12	.12	-.00	.05	.06	-.01	-.03	-.11	.22[†]	.21	.11	.14	.12
R^2	.34[b]	.43[c]	.45[c]	.42[c]	.37[c]	.40[c]	.41[c]	.40[c]	.26[a]	.38[c]	.38[c]	.33[c]	.16	.29[c]	.24[c]	.33[c]	.15	.12	.08	.11[†]

Note. p[†] < .10, p[a] < .05, p[b] < .01, p[c] < .001
F. Gen=First generation college student; N. F. Gen. = Not first generation college student; Low SES = Lowest two quintiles; High SES = Highest two quintiles