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The Influence of Parents and Natural Mentors on Young Adults' Substance Use Behaviours:
Evidence from a National Study

by

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ABSTRACT

This study examines the impact of parenting during adolescence and young adulthood on children's use of alcohol and illicit drugs in young adulthood. The influence of mentoring relationships are also assessed. Longitudinal data from the National Longitudinal Study of Adolescent to Adult Health and ordered and multinomial logistic regression analyses were used to test models predicting young adults' frequency of heavy drinking and illicit drug use. Interaction terms were tested between parent and mentor variables as well as college enrolment. Parental monitoring during adolescence reduced young adults' use of alcohol, but not illicit drugs. Rather, attachment to parents reduced young adults' use of illicit drugs, particularly for illicit drugs other than marijuana. Conversely, increases in communication with parents during adolescence was a risk factor for the use of illicit drugs. The influence of mentors did not protect against alcohol consumption, but significantly reduced the odds of illicit drug use. The findings suggest a multidirectional and substance-specific impact of parenting on young adults' substance use behaviours. Mentors contribute their own positive impacts regardless of young adults' relationships with parents.

Keywords: parent-child relationship, attachment, mentoring, substance use, adolescence, young adulthood, college

INTRODUCTION

A number of diffuse changes in the transition to adulthood throughout North America has significantly altered the ways in which adolescents negotiate early adult life. While several important themes have emerged from recent research seeking to establish exactly how the experiences of young adults today differ from the experiences of their parents, two seem of particular importance to the study at hand. First, entry into adulthood has become more ambiguous and occurs in a more gradual and variable fashion than what was true half a century ago (Settersten, 2007). As jobs become less permanent and work careers become more fluid, a premium has been placed on continued education and more young people are pursuing higher education and for longer periods of time (Fitzpatrick & Turner, 2007). With declining proportions of young adults entering full-time work before their early twenties, it appears less possible for young adults today to achieve economic autonomy as early as previous generations. Second, many families are now responsible for extending support to their young adult children as they attempt to make their way into adult life. Parents are frequently providing significant material and emotional support well past their children's eighteenth birthday in order to facilitate the elongated transition from higher education to career-related work (Schoeni & Ross, 2005). These outlays, both material and non-material, have risen dramatically in the past three decades and continue to redefine the notion of 'childcare' within Western society.

While evidence mounts that financial support is an important mechanism in the intergenerational transmission of socioeconomic status (Fingerman & Cheng et al., 2012), less attention has been paid to examining the effects of emotional support on other aspects of

young adults' lives during major transitional periods. This is surprising given the importance placed on obtaining a higher education as a way of helping to navigate this increasingly complex and destandardized stage of the life course. The transition to college continues to represent an important developmental milestone in the lives of many young adults and their parents, marked by numerous social and contextual changes. While both parties stand to benefit directly and indirectly from the development of a strong emotional support system during the transition to college, feelings of ambivalence may also arise. In other words, while receiving strong emotional support from one's parents is generally associated with positive academic and psychological adaptation (Kenny and Donaldson, 1991), it may simultaneously clash with norms of independence and autonomy in adulthood which life in college often accentuates. In situations where both positive and negative feelings towards one's parents are coextensive, the emotional 'safety net' provided to the young adult may be compromised. The lack of a strong emotional support system can have deleterious effects on one's ability to master their new social environment, giving rise to new strains or intensifying pre-existing ones (Pearlin et al., 1981). As such, young adults may seek out or utilize pre-existing non-parental ties to augment the lack of support from parents. Although the exacerbation of strain can potentially result from many additional factors in the college transition, positive, negative or ambivalent parental attachment stand as important antecedents and mediators to this stress process.

The strains associated with this changing period of the life course may heighten engagement in health risk behaviours, including the use of illicit substances (Miech & Patrick et al., 2017). The current study addresses the following research questions through a life

course perspective: do strong parental and non-parental ties with adults protect against the use of alcohol and a variety of illicit drugs? Is the potential protective effect of these ties moderated by college enrolment?

THE CHANGING TRANSITION TO ADULTHOOD & THE ROLE OF PARENTS

There exists considerable ambiguity regarding when young people have successfully completed the transition to adulthood (Uhlenberg & Mueller, 2002). What it means to ‘be an adult’ is socially determined on the basis of the timing and sequencing of various age-related life transitions, and these same signifiers are inherently fluid and vary across time and space. Nowhere else is the pliable nature of those characteristics deemed crucial to achieving adult status more evident than in contemporary Western culture.

The transitional events focused on in most North American social and demographic research tend to include those that reflect Kohli and Meyer’s (1986) notion of the ‘institutionalized life course’—leaving home, completing education, entering the workforce, getting married, and having children. While a general consensus remains regarding the importance of these transitions in structuring people’s ‘life world perspectives’, that is, the expectations according to which individuals plan their futures (Kohli & Meyer, 1986), the pathways in which these transitions are followed today are much less uniform. Young people living within advanced industrialized nations are generally staying in school longer, combining higher education with employment, delaying family formation, and returning to the parental home, demonstrating greater variability and less adherence to dominant life course pathways (Johnson, 2013).

While an increasingly destandardized transition to adulthood retains the capacity to present those in late adolescence with a wide array of opportunities for their future, it also presents them with new risks. Atypical pathways leave individuals more vulnerable as they begin to navigate their changing social worlds and interact with various institutions and state policies that do not reflect the prevailing ethos of individuality (Settersten, 2007). Leisering (2003) makes the distinction between subsidiary social policies aimed at influencing the life situation of individuals, and life course policies designed with the whole life in mind and which integrate different life periods. Insofar as the former provides the primary infrastructure to a state's social safety net, the risks associated with being a young adult in the modern world are to be assumed by the individual with the cost of failures commonly falling onto one's family (Settersten, 2007). Thus, the family unit in many ways remains a 'safety net' far past children's adolescent and late adolescent years. Familial support is multiple in form, ranging from providing of housing, assisting with living expenses, providing childcare, and giving emotional support and advice (Johnson, 2013). While parents are continuing to provide their children with such supports at later ages (Swartz, 2009), they do not do so independent of holding certain normative expectations regarding their children's social timetables. Research evidence suggests that parents continue to impose developmental expectations onto their children to attain adult statuses in a timely fashion, and to establish themselves as independent and functioning adult citizens (Ryff, Schmutte, & Lee, 1996; Hagestad, 1986).

Despite the inherent difficulties of achieving certain life markers given the current economic climate (such as transitioning smoothly from school to career-related work), the

media has painted the youth of this generation as overly dependent on their parents. More specifically, the media portrays two scenarios of parental over-involvement—that young adults today lack the resources, maturity, or motivation to achieve independence from their parents, and that parents are overly invested in their offspring by virtue of their ‘failure to launch’ (Fingerman & Cheng et al., 2012). Such a negative and monolithic view of young adults’ ties to parents in North America tends to gloss over the considerable amount of variation within these relationships. While certain circumstances undoubtedly exist in which heavy parental involvement may undermine offspring’s development, a growing body of literature continually cites close and supportive relationships as enhancing children’s well-being in many respects. Taking the positive outcomes first, Johnson (2013) found that youth beginning to occupy adult roles who received financial assistance from either their mother or father experienced positive changes in their feelings of parental closeness. The author concludes that the provision of parent financial support when necessary provides an important material safety net that helps young people avoid financial stress, which is consistently observed to reduce one’s well-being (Pearlin et al., 1981). Research findings that attest to the advantages of strong non-material support from parents indicate that young adults receiving intense support from their parents (defined as receiving multiple forms of emotional support, several times a week) report having both greater goal clarity and higher life satisfaction (Fingerman & Cheng et al., 2012). In the same study, intensive parental support appeared most salient for those young adults occupying roles that require a greater range of needs be met, namely students. These findings appear consistent with additional research evidence indicating that a strong parent-child relationship has a positive association

with academic achievement in high school (Turley, Desmond & Bruch, 2010). Given that academic success in high school is a strong predictor of subsequent college enrolment, strong emotional investments by parents in offspring's early adult life may be crucial in helping to facilitate an overall positive trajectory as they move through the rest of their life course.

Though the time after late adolescence is generally one of improvement for both young people and their parents (Fienberg & McHale et al., 2003; Thornton & Orbuch et al., 1995), certain intrapersonal characteristics of achieving adult status necessarily stand in opposition to heightened levels of parental support. Among these more subjective markers signifying an exit from adolescence, achieving a sense of independence may be considered the hallmark (Arnett, 1997). Other criteria considered essential to being an adult from the perspectives of young adults themselves include establishing a relationship with parents as an equal adult, deciding on personal beliefs and values independent of parents influences, and accepting responsibility for the consequences of actions (Arnett, 1997). All of these subjective markers may be undermined as long as parents' material and non-material outlays remain significant throughout youths' late adolescent years. For example, while continuing to reside in the parental home may alleviate a certain amount of stress associated with housing expenses for emerging adults, it may simultaneously give rise to the stress associated with being unable to achieve relational symmetry with parents. Flanagan, Schulenberg and Fuligni's (1992) study provides evidence of this disparity. The authors found coresidence to have significant negative effects on the parent-child relationship, particularly for male children. Not only did the young adults living with their parents report less independence and lower levels of mutuality in their relationship, conflicts in terms of both minor hassles and

major disagreements increased and were dealt with via avoidance rather than communication. The fact that conflict was more pronounced among males is not entirely surprising as studies also reveal within-family differences in relationship patterns that vary by gender and offspring's birth order. For example, parents' relationships with their same-gender offspring tend to be warmer and more enduring than with their opposite-sex offspring, and parental attachment is generally higher following adolescence for second-born children as parents learn from the negative experiences associated with their first-born (Shanahan & McHale, et al., 2007). Nevertheless, increases in conflict may be attributable to the fact that as adolescents continue aging, changes to both their moral and conventional reasoning cause them to redefine conventional issues (ie. drinking and drug use behaviours) as personal issues in which they should be in charge of deciding (Smetana, 1989). In situations where parents are not accepting of such changes and power relations remain asymmetrical, emotional distancing is a likely result (Nelson & Padilla-Walker et al., 2007). Exacerbating this process are the changing norms surrounding intergenerational ties that have occurred over the past few decades. Though young adults receiving intensive parental support do not always experience direct negative effects per se, they do consistently report the support they receive as being a bit too much (Fingerman & Cheng et al., 2012). In other words, the direct benefits associated with continued parental support may offset the perceived imbalance, leaving parents and grown children adrift in their expectations regarding their relationships; a risk factor for future conflict.

In sum, the parent-child relationship involves significant continuity and change from adolescence into early adulthood, and can produce both positive and negative effects in

young adult's lives with respect to their well-being. While young adults in general seem to value the support they receive from their parents, there is good reason to suppose that the continued involvement of parents might also be detrimental to their well-being. Nevertheless, the media portrayal of overly involved parents having solely diminishing effects on their offspring's transition to young adulthood is grossly oversimplified. Young adults increasing dependency on their parents cannot be considered outside of the larger, macro-level societal changes filtering down to and affecting individual lives. Social factors relating to job opportunity and affordable housing help explain offspring's greater dependency on parents, largely because of increasing enrolment rates in higher education as a way of combatting these structural impediments. The decisions young people make regarding critical periods in their lives such as higher education are likely to have lifelong implications as they structure opportunities moving forward. As such, it necessary to build a greater understanding of the components of effective everyday family dynamics that allow young adults to successfully navigate these critical periods while protecting them against situations that may bring about undesirable outcomes. Additionally, consideration must be given to the ways in which young adults augment their parental ties.

THE ROLE OF MENTORSHIP

Life course theory calls attention to the importance of family members' linked lives, which, like individuals, follow a developmental course (Elder, 1998). Though parents are arguably the most important adults in the lives of most children, young adults are naturally exposed to a broader array of adults throughout the early stages of their life course. Such

non-parental adult ties that may form the basis of youth's extended adult networks include siblings, extended family members, teachers, coaches, work colleagues, community members, or helping professionals. Members of these extended networks are in a position to exert considerable influence over young adult's attitudes and behaviours, and may be considered a mentor when they step outside of their normal social roles in order to provide youth with additional advice, guidance and support (Erickson, McDonald & Elder, 2009). Available theory and research suggests the importance of several characteristics of mentoring relationships. These include the mentor's role in the youth's life, frequency of contact between mentor and youth, emotional closeness in the relationship and relationship duration.

Within a model developed by Rhodes (2002), the frequency of contact between mentors and youth represents an important influence on the extent to which theoretically relevant processes of change have the opportunity to occur in relationships, including role modelling and meaningful dialogue. In accordance with this view, it has been established that greater amounts of time spent with one's mentor is associated with higher reported levels of emotional and instrumental support in these relationships (Herrera, Sipe & McClanahan, 2000) as well as an increased likelihood of youth nominating the mentor as a significant adult in his or her life (DuBois et al., 2002). An additional study by Taylor, Casten, and Flickenger (1993) found that the presence of extended kinship support (measured by proximity of kin and frequency of contact) is negatively related to African American adolescent's involvement in problem behaviours in single-parent families—a context generally regarded as high-risk regardless of youth's ethnicity. As with frequency of contact, the duration of mentoring relationships may have important implications for whether processes of change have

sufficient opportunity to unfold in ways that benefit the lives of youth (Rhodes, 2002). In Grossman and Rhodes' (2002) study of a formal mentoring program for at-risk youth, the authors concluded that mentoring relationships longer than one year in duration were associated with greater improvements in functioning whereas relationships that ended after only a brief period were associated with decrements in functioning. This may be due to the fact that these important yet short-lived relationships leave youth susceptible to feelings of loss and/or rejection. With regard to emotional closeness, Rhodes (2002) contends that the development of an emotional bond characterized by mutuality and empathy is a necessary condition for mentors to have a positive influence on youth. Several studies lend empirical support to this notion. For example, Greenberger, Chen, and Beam (1998) found that, within their sample of lower middle-class high school seniors, those who reported having an important non-parental person who they could count on in times of need were significantly less likely to be involved in misconduct, regardless of the behaviours of their closest friends and family members. This finding attests to the ability of mentors to exert positive influence on youth's beliefs, goals, attitudes and behaviours, and to do so independently of youth's external relationships. This is of considerable importance given that association with delinquent peers is a robust predictor of personal delinquent behaviour (Agnew, 1991).

Because scholarship on mentoring has maintained an almost exclusive focus on the role of mentoring in the lives of disadvantaged youth, little is known about the impact of mentoring in the lives of other youth and young adults. Important here is an emphasis on mentoring considered more informal, that is, mentoring relationships that result from more naturally occurring processes as opposed to designation through programming. The focus on

mentors of disadvantaged youth implies that mentoring helps at-risk youth to catch-up to their more fortunate contemporaries (Erickson, McDonald & Elder, 2009). Yet, it is equally as plausible that informal mentoring actually may be as, if not more, prevalent among advantaged youth. For example, advantaged youth have access to a larger variety of social environments which may facilitate the development of mentoring relationships. In addition to this, significant others are more likely to form relationships with young people with whom they share similar cultural values (Stanton-Salazar & Dornbush, 1995). Without examining mentoring as a component of a larger constellation of social relationships, it is not entirely clear whether informal mentors enable youths to compensate for the lack of available social resources or complement the wealth of resources maintained by the advantaged (Hamilton & Hamilton, 2004). An important study by Erickson, McDonald & Elder (2009) helps to shed light on this important question by investigating whether or not informal mentors have an impact on high school achievement net of other social resources on which youth may draw. The authors conclude that mentors have a strong positive impact on educational attainment overall, demonstrating that mentoring can serve as both a compensatory and complementary resource for young people.

Thus, mentoring relationships may be thought of as contributing to the positive development of young people in general (Rhodes, 2002). Though considerable variation exists in both the characteristics and needs of youth from different backgrounds who are attempting to navigate young adulthood, extra-familial ties provide new knowledge, perspectives and skills that differ from those found in the home. A unique source of knowledge mentors provide youth with that may not be abundant within the parent-child

relationship is knowledge on failure. A qualitative study by Liang, Spencer and colleagues (2008) discovered that an attribute of mentors that youth of various ages seem to place a high value on was imperfection. In other words, when mentors fell short of idealizations or revealed human flaws, not only were youth accepting of this, but digested this information as crucial to helping guide their own life course. One youth interviewee spoke of the importance of not placing ones mentor on a pedestal and, instead, to see them as a human who carries with them their own unique life experiences in which one can learn from and strive to be better than. This unique source of knowledge is likely an overlooked aspect of mentor relationships due to a tendency to conflate mentors with solely positive role modelling. However, knowledge of what not to do is an important part of the learning process that has strong protective effects. Youth routinely cite negative vicarious exposure to various health-risk behaviours as a primary reason for their un-involvement (Johnston & O'Malley, et al., 2009). For example, Fountain, Bartlett and colleagues (1999) found that 'knowledge of the effect on others' and 'fear of the effects' were among the top reasons why youth say no to using various illicit substances including cocaine, ecstasy and amphetamines. Mentors may serve as an important buffer against certain patterns of topic avoidance common within primary family units. It has been documented that, as part of an effort to protect oneself from judgment or relationship de-escalation, youth tend to disclose themselves less to parents regarding subject matter considered socially inappropriate (Guerrero & Afifi, 1995). These same apprehensions are likely to be less daunting within mentor relationships where youth are in greater a position to select themselves out of judgmental relationships (Rhodes, 2002).

THE COLLEGE TRANSITION: A STRESSFUL PROCESS

Given postponements in both marriage and parenthood, life course markers related to higher education seem to be the earliest transition many late adolescents experience moving into their early adult years (Settersten, 2007). Estimates from the Educational Longitudinal Study indicate that three-quarters of high school seniors expect to earn a bachelor's degree or more in their future (Ingels & Dalton, 2008) with most students actively pursuing this desire post-graduation. Over the past few decades, the proportion of high school graduates continuing their education has increased steadily, from 49% in 1980 to 69% in 2008 (National Center for Education Statistics, 2009). The growing prominence of such plans among adolescents is largely attributable to the projected payoffs of obtaining higher education, despite the rising tuition fees and increasing levels of debt incurred in the process (Baum, Ma & Payea, 2010). This is due in part to the fact that the burden of such a financial venture is rarely left to be dealt with by the student alone. Young adults seeking to pursue a higher education generally hold an expectation that their parents will help them pay for the associated expenses (Goldscheider et al., 2001), and parents seem particularly accepting of subsidizing their children's academic endeavours (Aquilino, 2005). Young adult's pursuit of higher education may reinforce the expectations held by their parents in respect to attaining the normative milestones of adulthood. Though the designation of "student" signals continued dependence in many ways, it also signifies a step towards achieving a certain level of independence that is typically absent throughout the adolescent years. Parents appear to be more ambivalent towards their young adult offspring who are not attaining the normative milestones of adulthood in any respect (Birditt, Fingerman & Zarit, 2011), and since

obtaining a post-secondary education represents a pursuit that is likely to foster future success, parents tend to provide more support to offspring they deem high-achieving (Fingerman & Miller et al., 2009). Thus, achieving independence, even in its inaugural stages, is uniquely capable of offsetting both negative and ambivalent feelings between the parent and child. For example, a major decision both parents and students are abruptly confronted with following college enrolment are housing decisions. While most young adults still undergo a transition from residing with at least one parent to residing independently at some point in their life course (Goldscheider, 1997), attending college presents an opportunity for young adults to achieve independence earlier. Though housing decisions are moderated by the geographical distance of the college campus as well as familial discretion regarding costs, at least one third of all college students live on campus or in student housing their first year (Goldscheider, 1997). While Flanagan, Schulenberg and Fuligni's (1992) study described above lends insight into some of the problematic occurrences that may result from continuing to live at home into one's early adult years, Larose and Boivin (1998) present three plausible explanations for why students who live away from their parents while attending college may perceive their relationships with them more positively. First, the increase in stress associated with the new demands of college life may lead to greater needs for parents' support. Second, positive relational changes, such as less conflict, may accompany the physical separation from parents and engender more positive perceptions of parents. Third, leaving home may function as an important developmental marker for students and a more mature and forgiving perception of parents may follow. Putting these hypotheses to the test using longitudinal data, Hiester, Nordstrom and Swenson (2009) found

increases in perceived parental attachment among students living away from their parents across their first year of college. Additionally, positive parental attachment was significantly related to self-competence, psychological distress, and college adjustment. For students continuing to live with their parents while in college however, modest increases in parental attachment were observed for women while significant decreases in parental attachment were observed among men continuing to live at home. These findings lend further support to the notion that students continuing to live at home with parents may unconsciously increase conflict and emotional distance in an attempt to feel more independent, and that this conflict may be more pronounced amongst men. This process may be exacerbated as the semester progresses as commuter students gain knowledge of the increasing opportunities their residential counterparts are afforded, thereby contributing to more negative perceptions of parents for holding them back (Hiester, Nordstrom & Swenson, 2009).

The variety and breadth of ‘stressors’ (external circumstances that in some way obstruct one’s life; Pearlin et al., 1981) stem from multiple contexts of social life from which stress can arise. Wheaton (1994) distinguishes between the micro, meso, and macro levels of the contexts in which stress manifests, demonstrating that virtually every major context in which people are engaged is a potential source of stress. Given that prior research has largely focused on stressors that are overtly adverse in nature, recognizing the college transition as part of a unique stress process is an important application. Attending a post-secondary institution tends to occupy multiple years of one’s life whether they complete their education or not. Thus, college retains the capacity to be an enduring and chronic source of stress for many students and housing decisions are but one example. Many of the unique aspects of life

in college can embody multiple forms of stress simultaneously that range in level. For many young adults, college will be their first experience of a setting that differs dramatically from their milieu experienced up until that point. Beyond adapting to the academic rigour of higher education, many students are faced with new social responsibilities they may be unaccustomed to such as waking themselves up for class, getting along with roommates, making new friends, dating, and confronting choices about drinking and/or using drugs (Bank, Biddle & Slavings, 1992).

Given such profound social and contextual changes, the expectations or understandings parents have for their college-going children may become out of tune with students' desires or actual opportunities (Settersen, 2007). For example, research focusing on the expectancies of college students prior to entering their first semester suggests that an overwhelming majority of students have higher social and personal expectancies for themselves than academic (Bank, Biddle & Slavings, 1992). That is, the majority of students entering college seem more excited and optimistic about the prospect of making new friends, enjoying leisure time, dating, and partying more than succeeding academically. Whether these hopes are realized or not, either outcome may be particularly alarming to parents investing in their child's education as parents' expectations for their children in college likely prioritize academic success. On the other hand, these anticipations may be particularly dangerous for students as well, whether it be through voluntary engagement in health-risk behaviours or heightened depressive symptoms due to an inability to fulfill their social expectations.

An additional circumstance that may foster positive adaptational outcomes, but that is also capable of producing significant stress among students relates to frequency of contact. The frequency and nature of contact between parent and student may wax and wane according to certain discretionary factors such as feelings of affection and interdependence. In other words, those students who experience greater stress in their college transition may require more frequent contact from parents while those adapting more quickly may only require support when needed. Whereas residential students may feel the need to view the relationship with their parents as close and connected in order to help deal with the fear associated with attending college for the first time, commuter students may not share the same need to construct these feelings due to the physical proximity of their parents providing a level of continued connection. Technological advances throughout the twenty-first century have also permitted long-distance communication between young adults and their parents with increasing efficiency at negligible costs (Cotten, McCullough & Adams, 2010). Not surprisingly, research evidence indicates that technological advances have indeed resulted in increased contact between young adult students and their parents (Fingerman & Cheng et al., 2012). In spite of increasing proportions of students reporting daily contact with their parents while at school, students consistently report being satisfied with the frequency of non-physical communication between themselves and their parents (Chen & Katz, 2009). Actually, the frequency at which communication is had between student and parent may actually be more beneficial to the student than they are immediately aware of. A recent study of college students' communication with their parents found that on days when students spent more time communicating with their parents such as weekends, the number of drinks

consumed, heavy drinking, and estimated peak blood alcohol concentration were lower (Small & Morgan et al., 2011). Thus, even non-tangible support in the form of communication can serve as a buffer against poor health behaviours like heavy drinking in college. This is perhaps due to the fact that young adults tend to interpret communication with parents as positive rather than as invasive in the presence of strong attachment (Padilla-Walker & Nelson et al., 2008; Abar & Turrisi, 2008). In fact, students tend to perceive most of their parents' extensions of support as welcome rather than invasive with the notable exception of practical support. Fingerman, Cheng and colleagues (2012) found strong associations between various non-tangible supports (listening about daily events, companionship, emotional support) and higher life satisfaction among students, except for practical support. That is, receiving more practical support from parents was not associated with reports of higher life satisfaction suggesting that when communication takes a notably prescriptive turn, students may feel as though their autonomy is being impeded upon.

THE ROLE OF DRUGS

It is well established that college students are at high risk for engaging in heavy drinking and illicit drug use, and that the initial transition to college presents a significant opportunity to engage in these risk behaviours. In fact, the risk for immediate substance use related issues is generally greater for young adults enrolled in college than their non-enrolled peers (O'Malley & Johnston, 2002). In the late 20th century, young Americans reached extraordinarily high levels of illicit drug use by international standards, and, to a large extent, this high prevalence among youth mirrors the contemporary situation. Data from the

Monitoring the Future study reveals that nearly half of youth have tried an illicit drug by the time they have finished high school (Johnston & O'Malley, et al., 2009). The annual prevalence rate of illicit drug use among youth in high school declines to about 40%, with little variation in these rates among those in higher education. Because marijuana is much more prevalent than any other illicit drug, trends in its use tend to drive the index of any illicit drug use upwards (Johnston & O'Malley, et al., 2009). However, even when indices that exclude marijuana are considered, the pattern of use of so-called 'harder drugs' continue to demonstrate notable increase in recent years. This is particularly alarming given the large improvements made in the drug use behaviours of youth in the 1980s as a result of national efforts to rectify the drug epidemic preceding that decade. Two factors contributing to the end of improvements in the drug situation are the flow of new drugs onto the scene as well as a rediscovery of older drugs by new generations who may not be as readily aware of their adverse consequences. For example, MDMA, a type of ecstasy that is popularly consumed for its hallucinogenic effects, has become a popular drug of choice among the millennial generation (Johnston & O'Malley, et al., 2011). Despite MDMA having a significant resemblance to LSD (one of the earliest drugs that helped fuel the national drug efforts of the 1980s), youth may not be fully aware of the risks involved with its use because of relatively less vicarious exposure and less media coverage. On the other hand, the longstanding and largely negative perceptions surrounding other drugs, like cocaine, is indeed reflected within youths' perceptions. The vast majority of youth attribute much greater risk to using cocaine relative to alcohol or marijuana for instance, strongly disapprove of others using cocaine, and believe their peers would strongly disapprove of their personal use (Bachman et al., 2010).

Such a divergence in the historical trajectories of various drugs over time help to illustrate that the determinants of use are often specific to each drug, and that the protective effect of parents may too be drug specific. Determinants include both the perceived benefits and perceived risks associated with a particular drug. Thus, parents may be better able to protect against the use of those substances that have less ambiguity with regard to their social acceptability at the outset. Unfortunately, word of the supposed benefits of using a drug usually spreads much faster than information about the adverse consequences. The former requires only rumour and few testimonials while the latter takes much longer to cumulate and disseminate. This process is likely exacerbated on college campuses where an increased tolerance to a variety of risk behaviours contributes to a greater experimentation with drugs than is typical in larger society. (Perkins & Mellman, et al., 1999).

Heavy drinking and illicit drug use among college students, as well as the stress of college-life itself, leads to problematic outcomes for many. As such, it is essential to establish more firmly whether relationships with parents protect college students against and attenuate the risk of drug use, even in the face of increasing opportunity. College students who engage in heavy drinking and illicit drug use experience more academic problems through both direct and indirect effects. Some of these effects include experiencing more sleepiness through the day and having lower grade point averages (Singleton & Wolfson, 2009), as well as experiencing impairments in visuospatial abilities, motor function, and attention which all put college students at greater risk for poor performance on academic work that requires high order cognitive functioning (Howland et al., 2010). Beyond academic dysfunction, other serious problems that have been linked to alcohol and illicit drug use among college students

extend into both the physical and psychological realm. Data from the College Alcohol Study, for example, report that physical injuries are directly and linearly associated with the number of substances consumed by college students on a given occasion (Wechsler & Nelson, 2008). An additional study by Wintre and Yaffe (2000) attests to the stress associated with the college transition, finding that incoming undergraduate students appear to be at risk for depressive symptomatology by way of reacting negatively to experienced difficulties. Congruent with this research finding is the establishment of a strong correlation between the depressive symptoms experienced by college students, and substance abuse related issues (Patcock-Peckham & Morgan-Lopez, 2007).

The expectations developed here posit an effect of parental attachment on young adults' drug use behaviours in college, mindful that close non-parental others in young adults' lives may exist as either compensatory or complimentary mechanisms of support that could also exert a protective effect. Life course theory recognizes that relationships at any particular point in time are a manifestation of a trajectory of interactions over the life span (Elder & Johnson, 2003), and so it is important to understand how patterns of mutual support are formed over time as part of an ongoing series of interactions. In other words, the quality of the relationship between a parent and child cannot and should not be isolated as a single state at one point in time. The strength of one's ties to parents, or lack thereof, in adolescence represents the product of a longer history of experiences that carry over into young adulthood and the transitions characteristic of that time such as attending college. However, there is good reason to suppose that this relationship may be spurious. Various problems and exposure to new stressors in young adults' lives as they transition into adulthood and college

could elicit parental support as well as affect their well-being, relationships with important others, and health risk behaviours. Thus, it is necessary to address these possibilities to fullest extent possible in the analyses.

METHOD

Data

This research makes use of publicly available survey data from waves I and III of the National Longitudinal Study of Adolescent to Adult Health (Add Health; <http://www.cpc.unc.edu/projects/addhealth>), accessed via the Inter-University Consortium for Political and Social Research (ICPSR). Add Health is a nationally representative sample of adolescents in grades 7 through 12 in the United States in 1994-1995 who have been followed through adolescence and into adulthood. The sample was obtained by first randomly selecting 80 high schools from a list of all high schools in the United States, stratified to ensure adequate representation with respect to region, urbanicity, school size, school type and ethnicity. The 80 high schools were then paired with 65 middle schools that fed into their student body. From the combined 145 middle and high schools, approximately 200 students from each school were randomly selected for in-depth in-home interviews which resulted in a total sample of 20,745 adolescents at wave I. The wave I in-home survey interviews began during the 1995-1996 school year when respondents were between the ages of 12 and 17. Participants were then reinterviewed in 2001-2002 for the third wave of data collection at which time respondents were between the ages of 18 and 24. Of the eligible respondents from wave I, 76% were re-interviewed, resulting in 15,170 in-home interviews

at wave III. In the interest of confidentiality, no paper questionnaires were used. Instead, in-home interviews were administered using a computer-assisted personal interview which allowed respondents to answer more sensitive questions privately.

The wave III public-use data set contains 4,882 respondents selected randomly from the restricted-use sample. The current study limited the sample to participants who (i) gave valid responses to the outcome variables measured in wave III, and (ii) who had complete data for all covariates. Because the patterns of missing data for each outcome variable were unique, the sample analyzed in various models ranged slightly from 4,464 to 4,482. In each case, the loss of efficiency by ignoring additional data was deemed not appreciable enough to warrant the use of imputation techniques which add additional noise to the estimates (vonHippel, 2007). A list-wise deletion of cases with missing data from the analytic sample was performed instead. All analyses were weighted and utilized Stata's survey analysis commands to adjust for Add Health's complex sample design and to ensure unbiased parameters were obtained.

Measures

Dependent Variables

Respondents' substance use behaviours were measured using three separate wave III outcome variables. The first outcome variable relates to the frequency of respondents' use of alcohol to the point of intoxication. Respondents' excessive drinking was coded as occurring either 'never/very rarely', 'monthly' or 'weekly/daily' according to how they answered the

following survey question, “in the past 12 months, on how many days have you been drunk or very high on alcohol?”.

A second dummy-coded outcome variable indicates whether or not, in the past 12 months, respondents answered ‘yes’ to having used any of the following illicit drugs: marijuana, cocaine (including crack, freebase or powder), LSD, PCP, ecstasy (MDMA), mushrooms, inhalants, ice (methamphetamine), or heroine.

Thirdly, a categorical outcome variable also measuring illicit drug use was generated to separate those respondents who indicated having only used marijuana in the past 12 months from those respondents who have used other illicit drugs in addition to marijuana in the past 12 months. This outcome variable was included to test whether or not the protective effect of either parents or mentors is stronger when considering the use of ‘harder’ illicit drugs.

Independent Variables

Parent-child relationships were measured with respect to three distinct conceptual domains: perceived attachment, monitoring and communication. Each domain was indexed by several theoretically relevant items in wave I. Items that were parallel in their metric (whether a 5-point scale or dichotomous ‘yes’ or ‘no’ response) were combined to form a unique scale, with higher scores indicating higher levels of either attachment, monitoring or communication. Because each scale is different with respect to their range of values, the standardized regression coefficients are reported in all analyses.

Respondents' perceived attachment to parents was captured by the following survey questions (1=not at all, 5=very much; $\alpha = .96$): "how much do you feel that your parents care about you?", "how much do you feel that people in your family understand you?", "how much do you feel that you want to leave home?" (reverse coded), "how much do you feel that you and your family have fun together?", and "how much do you feel that your family pays attention to you?".

The extent to which parents monitor their child's day-to-day activities is reflected within the following survey questions asking respondents whether or not their parents let them make their own decisions about (0=yes, 1=no; $\alpha = .97$): "the time you must be home on weekend nights", "the people you hang around with", "what you wear", "how much television you watch", "which television programs you watch", "what time you go to bed on weeknights", and "what you eat".

Parental communication was indexed according to the following items asking whether or not, in the past four weeks, respondents have talked to either their mother or father about (0=no, 1=yes; $\alpha = .98$): "someone you're dating, or a party you went to", "a personal problem you were having", "your school work or grades", and "other things you're doing in school". Since these items were measured for mothers and fathers separately, respondents' highest score was used when data was available for both parents. If respondents had data for only one parent, that value served as their final score. An additional dummy-coded variable was included indicating whether or not respondents are satisfied with the way they communicate with either their mother or father. This variable was included as it may prove to be an important mediator. For instance, scoring very high on the communication

scale may not have as strong of a protective effect if respondents are unsatisfied with this level of communication or, conversely, a low communication score may not be negative if respondents are satisfied.

Significantly fewer questions were asked of respondents regarding parent-child relationships at wave III. As such, it was not possible to develop separate index measures for the above listed conceptual domains. Instead, the following three survey questions were combined to form a single measure of the parent-child relationship at wave III using data from respondents' current residential mother/father when available, followed by the previous residential mother/father, then non-resident biological mother/father and, last, resident step-mother/father: (1=strongly disagree, 5=strongly agree; $\alpha = .99$): "you enjoy doing things with {HIM/HER}", "most of the time, {HIM/HER} is warm and loving towards you", and "how close do you feel to {HIM/HER}".

Developing a measure of mentoring was essentially twofold. The first step was to identify those respondents involved in a mentoring relationship and their relation to this person. Respondents were identified as having a mentoring relationship according to their response to the following wave III item: "other than your parents or step-parents, has an adult made an important positive difference in your life at any time since you were 14 years old?". Additionally, a closed-ended item asked respondents to identify how their mentor is related to them from a list of 20 possible relations. Respondents with multiple mentors were asked to respond regarding their most influential mentor. Mentor relations were grouped into four categories: older relatives (older brother/sister, grandparents, aunt, uncle), community members (teacher/guidance counsellor, coach/athletic director, religious figureheads,

therapist, social worker), friends (including co-workers and neighbours), and others (spouse/partner, friend's parent, younger siblings).

The second step sought to incorporate the theoretically crucial elements of effective mentoring relationships as outlined by Rhodes (2002). As such, responses to following survey questions were combined to construct a single index of mentoring relationships that incorporates the elements of duration, intimacy and communication ($\alpha = .74$): “for how many years has {HE/SHE} been important in your life?” (1=less than three years, 4=ten or more years), “how close do you feel to {HIM/HER} these days?” (1=not close, 4=very close), and “how often do you see {HIM/HER}?” (1=less than once a year, 4=almost daily). This index was then applied separately to each of the four categories of mentoring relations yielding four separate continuous mentoring variables. Respondents who were not involved in a mentoring relationship or who were involved in any type of mentoring relationship other than the category of interest received a score of zero. For example, all respondents who nominated an older relative as their mentor received an index score for that category, while all respondents who do not have a mentor or have a mentor who is not an older relative were scored as zero.

Controls for respondent's age, gender (0=female, 1=male), race/ethnicity (0=White, 1=Black/African American, 2=Asian/Pacific Islander, and 3='other'), parent's health behaviours (smoking; 0=never smoked, 1=ever smoked), birth order (0=not firstborn, 1=firstborn), respondents' college enrolment (0=not attending college, 1=attending college), residential status (0=living with parents, 1=not living with parents), and wave I alcohol/illicit drug use were included in all models. Additionally, parents' education served as proxy for socioeconomic status and was dummy-coded according to the child's categorical report of

how much education their mother or father has completed (0=high school or less, 1=at least some post-secondary). When data was available on both parents, the highest level of education was used. When data was available for only one parent, their education served as the final value. A wave I measure of whether or not respondents felt that their parent(s) would be disappointed if they did not graduate from college was also included as a control variable because of its potential to mediate the effect of college enrolment on respondents' alcohol or illicit drug use behaviours. In other words, respondents who indicate a high level of expectation to graduate may be less inclined to engage in certain behaviours that could negatively affect their academic performance. Respondents' answer to the following item "do you agree or disagree that you like to take risks?" served as an indicator variable for their inclination to engage in risk behaviours (0=does not like to take risks, 1=likes to take risks). Finally, respondents' wave III depressive symptomatology was measured using nine items from the Centre for Epidemiologic Studies Depression Scale (Radloff, 1977). Respondents indicated the frequency (0=never or rarely, 3=most of the time or all of the time; $\alpha = .79$) at which they experience a variety of depressive symptoms yielding a final scale ranging in value from zero (least depressed) to 25 (most depressed).

Analytic Strategy

Ordered logistic regression analyses were used to test models predicting respondents' frequency of heavy alcohol use at wave III. A non-significant Brant test of the parallel regression assumption ($p = 0.175$) revealed that the proportional odds assumption was satisfied and that the ordered logit model was appropriately fit. Logistic regression analyses

were then conducted to test models predicting respondent's illicit drug use at wave III. Finally, multinomial logistic regression analyses were used to test models that predict the type of illicit drug used (marijuana versus other illicit drugs) at wave III. Interactions were tested between all parent and mentor variables to investigate whether mentoring relationships serve as an important buffer against weaker parenting characteristics. Additionally, interactions were tested between the parenting and mentoring variables and college enrolment. Only significant interaction results are reported.

Despite variability in the statistical techniques used for each dependent variable, the analytic strategy is parallel for each model. First, a zero-order model is tested that includes only the variables measuring the parent-child relationship. The second model adds the variables measuring mentoring relationships with the final model including all relevant covariates.

RESULTS

Descriptive statistics for all measures used in the analyses appear in Table 1. Just over two-thirds of respondents reported little to no alcohol consumption to the point of intoxication in the past year. Similarly, just over two-thirds of respondents have not used any type of illicit drug in the past year. Almost identical proportions of young adults reported monthly binge drinking as did marijuana use, about one in five respondents. Much smaller proportions of young adults occupy the more extreme ends of the spectrum, that is, weekly to daily binge drinking and use of harder illicit drugs. Approximately one in every ten

respondents reported weekly to daily binge drinking (9.8%), while a slightly higher 11.4% of respondents reported having used illicit drugs other than marijuana in the past year.

Of the wave I measures of parent-child relationships, attachment is relatively high with a mean attachment score of 14.88 out of a possible 20. Conversely, parental monitoring appeared to be fairly low. On average, young adults reported the involvement of their parents in only 1.85 items out of a possible seven included in the measure. Young adults' communication with parents fared somewhere in the middle. Despite the average respondent having regular talks with either their mother or father on two of the four items included in the measure, the majority of young adults reported being highly satisfied with this level of communication (84.2%). The index measure of parent-child relationships at wave III suggests that respondents feel quite close to their primary mother or father figure as well, with a mean score of 10.72 out of a possible 12 for this measure. Of the 76.5% of respondents who indicated being involved in a mentoring relationship, average scores on the mentoring index scale are highest for older relatives followed by 'others', friends and lastly, community members. In other words, the type of mentoring relation in which young adults reported the most frequent communication, feelings of closeness and relationship duration are for older relatives and least for community members.

The mean age of respondents is 21.8 years. The majority of the sample is white and roughly split between males and females. About a 40/60 split exists in favour of respondents who are no longer living with their parents. Most young adults in the sample have at least one parent with a post-secondary education or higher (59.9%). However, a large proportion of young adults report high school as the highest educational attainment of either their mother

or father (40%). With respect to respondent's own education, over a third indicated current enrolment at a post-secondary institution with many also reporting that their parent(s) would be very disappointed in them if they were to not graduate (72.6%). The CES-D measure of depression indicated that, on average, depression is fairly low at wave III. Out of a total possible depression score of 25 points, respondent's mean score is 4.43 with a modal score of 2.

Heavy Alcohol Use

Results from the ordered logistic regression analyses predicting frequency of heavy alcohol use are shown in Table 2. Estimates are presented as odds ratios and represent the proportional odds of respondents falling into a higher outcome category of alcohol use (monthly or weekly/daily) than the baseline outcome to which the coefficients are contrasted (no alcohol use). Model 1 shows that higher levels of parental attachment and monitoring at wave I significantly reduce the odds of frequent heavy drinking in wave III. No significant differences in alcohol use were found between respondents who reported higher levels of communication and communication satisfaction with parents, nor among respondents who reported positive relationships with parents at wave III.

In Model 2, which includes the mentoring relationship covariates, the effects of parental attachment and monitoring remain about the same as in Model 1. A one standard deviation increase in either domain of parenting is associated with about a 7% decrease in the odds of drinking heavily on a routine basis. Interestingly, non-parental familial ties did not exert a significant protective effect over respondents' drinking behaviours, regardless of

feelings of closeness and the frequency of contact shared with them. The only significant result among the mentoring variables revealed that respondents who are the mentee of someone they consider a friend are actually at a higher risk of using alcohol more frequently. Spending more time with and feeling closer to a friend-mentor who has been important for several years yields about a 11% increase in the odds of more frequent heavy drinking. The magnitude of this result should be interpreted with some caution however as Model 3 demonstrates that, after controlling for all other relevant covariates, the strength of this association decreases slightly and loses statistical significance at an alpha level of .05. None of the other mentoring variables are significant predictors of alcohol use frequency in Model 3.

Turning attention to parenting, Model 3 also shows that the included covariates account for the association between parental attachment and protection against more frequent drinking at wave III. However, increases in parental monitoring remain a significant predictor, decreasing the odds of more frequent drinking by about 8% per one standard deviation increase, net of all controls. The parent-child relationship reported at wave III does not significantly predict respondent's alcohol use frequency at wave III. Increases in the frequency of heavy alcohol use share a strong and positive association with respondent's gender (male) and race (White), and a negative association with age. Being enrolled in college and living away from parents are strong, independent risk factors for increased alcohol use. College enrolment alone increases the odds of heavier drinking by 45%.

Results from the included interaction tests in Model 4 indicate that the effect of community member mentors (i.e. teacher/guidance counsellor, coach/athletic director,

religious figureheads, therapist, social worker) in protecting against heavy alcohol use depends on college enrolment. An odds ratio of 0.947 for the product term represents the protective effect of community member mentors compared to college students without mentors (OR = 1.542-.947). Community member mentors do not influence the alcohol use frequency of young adults who are not enrolled in college.

Illicit Drug Use

Table 3 displays the results of the logistic regression analyses predicting whether or not respondents at wave III had used any type of illicit drug in the past year. Model 1 includes only the parent-child relationship variables and shows that attachment at wave I and closeness at wave III are associated with significantly reduced odds of using illicit drugs. Parent-child attachment at wave I has a stronger protective effect than parent-child closeness at wave III (OR = 0.796 and 0.867, respectively). Unlike for heavy alcohol use, parental monitoring does not appear to be a significant predictor of illicit drug use, nor does communication or communication satisfaction. These patterns of association remain similar in Model 2, which includes the mentoring relationship variables. Of the various types of mentor relations, positive increases in mentee's relationships with important older relatives as well as 'others' (ie. spouse/partner, friend's parent, younger siblings) were each associated with about a 7% reduction in the odds of using illicit drugs. In Model 3, which includes all other relevant covariates, increases in positive mentor relationships with community members also became a significant predictor of illicit drug use and even superseded the effect sizes of the older relative and 'others' indices (OR=0.876). Thus, the only type of mentor that

does not exert a protective effect against illicit drug use are those who respondents nominated as 'friends'. It is important to note that no significant interaction effects were observed between the parenting variables and mentoring variables in Model 3, indicating that their protective effects appear to be operating independent of one another. Parental attachment at wave I remained significantly associated with an almost 18% reduction in the odds of illicit drug use per one standard deviation increase and parental closeness at wave III with a 10.7% reduction in odds, net of all included control variables. It is interesting to note that feelings of attachment in adolescence exert a stronger protective effect than more recent reports of closeness. Similar to the sociodemographic associations revealed from the ordered regression analyses of alcohol use frequency (see Table 2), white, male respondents have much higher odds of using illicit drugs. However, college enrolment and residential status do not appear to significantly predict illicit drug use. Parents smoking behaviours (OR=1.469) and respondents' inclination to engage in risky behaviour were uniquely associated with illicit drug use (OR=1.739).

Type of Illicit Drug Use

In multinomial regression estimates of type of illicit drug used by respondents at wave III (Table 4), the contrast group is no drug use, with relative risk ratios representing the increase or decrease in the risk of using either marijuana or other illicit drugs relative to the baseline category. Higher levels of parental attachment in adolescence were significantly associated with a decreased risk of using either marijuana or other illicit drugs relative to no illicit drugs. The protective effect of attachment was slightly stronger for marijuana use than

for other illicit drug use with a relative risk ratio of 0.931 and 0.946, respectively. No other wave I measures of the parent-child relationship significantly predict a reduction in illicit drug use at wave III, regardless of the drug type. Conversely, communication satisfaction at wave I was significantly associated with a large increase in the risk of using marijuana at wave III. Respondents who reported a high level of satisfaction with the way in which they communicate with either their mother or father in adolescence are at a 41% greater risk of using marijuana in young adulthood relative to not using illicit drugs. In addition, parental closeness at wave III was significantly associated with a decreased risk of using either marijuana or other illicit drugs. Whereas wave I attachment has a stronger protective effect against the use of marijuana than for other illicit drugs (RRR = 0.931 versus 0.946), parental closeness at wave III has a stronger protective effect against the use of other illicit drugs than for marijuana (RRR = 0.897 versus 0.937). After including all relevant covariates in Model 2, the effects of parental attachment remain about the same in terms of direction and magnitude as in Model 1. The parent-child relationship measured at wave III, however, remained a significant predictor of illicit drug use other than marijuana only. Communication satisfaction continued to increase in the risk of using marijuana. Interestingly, increases in actual parental communication, not communication satisfaction, became a significant and positive predictor of other illicit drug use for young adults' not in college at an alpha level of 0.1 in Model 2. Though this association should be interpreted with some caution, it does lend additional support to the notion that there may be an emancipatory component of communication with parents that may put some young adults at a greater risk of using illicit drugs.

Results from the included interaction tests in Model 2 also revealed that the effects of communication depend on college enrolment. Whereas a one-unit increase in communication with parents puts young adults not in college at a 10% greater risk for using illicit drugs other than marijuana, the strength of this positive association more than doubles for college students. Turning attention to the mentoring relationship variables, it appears that the effects of different mentor relations are drug-specific. For instance, increases in duration, communication and closeness with a community member mentor yields significant decreases in the risk of using marijuana but not for other illicit drugs. Community members were the only type of mentor relation that were protective against marijuana use. This is interesting considering that relations with community members has the lowest mean index score across all mentor relation types (see Table 1). With respect to the use of illicit drugs other than marijuana, both older relatives and ‘other’ mentors have a significant protective effect against use, but not community members. Whereas a one-unit increase in mentoring relationships with an older relative predicts about a 4% decrease in the risk of using illicit drugs other than marijuana, a one-unit increase on the same scale for ‘other’ mentors predicts about a 7% decrease in risk, but only for young adults’ not attending college. The effect of ‘other’ mentors is moderated by college enrolment which appears to negate their protective capacity. In other words, the direction of the association between ‘other’ mentors and the use of harder illicit drugs is reversed for college students.

The control variables associated with marijuana versus no drug use and other illicit drugs versus no drug use were much the same, differing in magnitude depending on the drug under consideration. For example, males are at a much greater risk of using either marijuana

or other illicit drugs compared to females, but the risk is twice as large when considering the latter. Also, the risk of using illicit drugs other than marijuana decreases more rapidly with age. Children of parents who ever smoked are almost 60% more likely to smoke marijuana than to not use drugs compared to a 28% increase in risk of using other illicit drugs. The risk of using illicit drugs other than marijuana is almost double for respondents experiencing increases in depression. Lastly, a large increase in the risk of using illicit drugs is observed for respondents whose parents report higher levels of education, particularly when considering illicit drugs other than marijuana.

DISCUSSION & CONCLUSION

This study drew on a nationally representative panel of young adults to test whether parent-child relationships prior to and during this major transitional period protect young adults against the use of alcohol and illicit drugs. Though extant literature on parent-child relationships during the transition to adulthood frequently frame relationship qualities in terms of attachment, monitoring and communication, these unique domains of parenting have been seldom tested independently within empirical studies investigating a variety of child-based outcomes. This study attempts to ‘fill in the gap’ in this respect, and has demonstrated the importance of accounting for multiple facets of parenting across time when considering the substance use behaviours of young adults.

This study has also demonstrated the importance of analyzing various illicit drugs separately as they have unique antecedent and mediating variables. While grouping substances together based on legality is indeed logical, it may no longer appropriately reflect

the contemporary drug climate that young adults are experiencing. Recent research evidence points to increasingly divergent social determinants for experimenting with different illegal drugs among adolescence, whether it be through their level of vicarious exposure, perceived risk, or peer and/or parental disapproval (Bachman et al., 2010). Thus, it is crucial to become more receptive to these changing circumstances in studies moving forward.

Broadly speaking, the findings here suggest that positive parent-child relationships during both late adolescence and young adulthood significantly reduce the odds of young adults' heavy use of alcohol and consumption of illicit drugs. More specifically, increases in parental monitoring during late adolescence reduced the frequency of alcohol consumption to the point of drunkenness in young adulthood. The quality of the parent-child attachment in late adolescence or young adulthood, however, was not associated with alcohol use. Conversely, parental monitoring during late adolescence was not associated with illicit drug use in young adulthood. Rather, parental attachment in both young adulthood and late adolescence was negatively associated with illicit drug use. When considering the use of marijuana, attachment during late adolescence, but not during young adulthood, was negatively associated with marijuana use. Attachment in young adulthood was negatively associated with the use of other illicit drugs, and had a stronger protective effect than attachment during late adolescence.

That parental monitoring in adolescence was protective against young adult's heavy use of alcohol is consistent with prior findings, but that the effect of monitoring appears unimportant with respect to the use of illicit drug adds interesting nuance to the picture. The argument made in favour of the protective capacity of parental monitoring is that it provides

a more direct form of control over adolescents whose power relations with parents are generally more asymmetrical than what is true in young adulthood (Oxford & Harachi et al., 2000). Though unable to be directly tested in this study, the literature suggests that both content and timing with respect to parental monitoring may be important elements to consider. Because parental knowledge of children's activities is commonly referred to as parental monitoring, the concept may be capturing what parents know rather than what they actively do to obtain information about their children's activities (Padilla-Walker & Nelson, 2008). Thus, net of the level of perceived attachment, which has been shown to increase information sharing between parent and child (Abar & Turrisi, 2008), parental monitoring may be more effective in protecting against alcohol use because initiation tends to be considered somewhat normative in the lives of adolescents, relative to the use of illicit drugs. In other words, because experimentation with alcohol is so common during adolescence, parents may be more favourably situated when it comes to their ability to gain information about children's use of alcohol. If parental knowledge regarding children's drinking behaviours increases, then parent's may be better situated to make *reasonable limitations* against the use of alcohol which may itself be the effective element of the monitoring component. Evidence from this study lends some support to this notion as the parenting variable coefficients included in the ordered logistic regression analyses (see Table 2) represent the *reduction in odds of young adults' drinking alcohol more frequently*, not abstaining from drinking altogether.

Attachment to parents, which is generally described as feelings of closeness and/or warmth with parents, operates on adolescence and young adults in a more indirect fashion.

The very factors that adolescents tend to value and that generally accompany the transition to adulthood, such as increased autonomy and relational symmetry, have been shown to improve the quality of the parent-child relationship (Flanagan, Schulenberg & Fuligni, 1992). The more positive perceptions of parents and less conflict that typically accompanies an overall positive adjustment to young adulthood promotes an internalization of prosocial beliefs that later guide behavioural decisions (Oxford & Harachi et al., 2000). Children who are strongly attached to parents, for example, do not want to jeopardize their relationship or disappoint their parents by involving themselves in problem behaviours such as drug use. Because alcohol and marijuana use is relatively more normative than illicit drug use, it is plausible that attachment to parents has a stronger protective effect on the use of harder illicit drugs. The evidence here supports this line of reasoning. Whereas no significant differences in marijuana use were found between respondents who reported strong attachment to parents in young adulthood versus those who did not, strong attachment in young adulthood significantly reduced the odds of using other illicit drugs.

Whilst we can be quite confident that parental attachment as well as parental monitoring appear to be conducive to reducing young adults' substance use behaviours, communication with parents depicts somewhat of a different story. This study's findings suggest that the child's account of being satisfied with the level of communication with their parents, net of the actual amount of communication, was associated with an increase in the risk of using marijuana. Again, it may be the case that the knowledge parents are able to obtain about their children via communication may be determined by the child's willingness to share information with them. Thus, disclosure may conceivably mediate the protective

capacity communication has against young adult's substance use behaviours, regardless of the actual amount of conversation had between parent and child. For example, young adults may be satisfied with lower levels of self-disclosure in communication because it reduces parental censure against certain behaviours (Guerrero & Afifi, 1995). On the other hand, higher levels of self-discourse may provide an emancipatory function for young adults who are comfortable and willing to discuss with their parents their personal use of various substances. The results of this study also suggest that greater communication between parents and their college enrolled children has a considerable positive association with the odds of using illicit drugs other than marijuana (ie. cocaine, LSD, ecstasy). These findings are largely inconsistent with most other research evidence citing the positive effects of parental communication on young adults' substance use behaviours (ie. Small & Morgan et al., 2011). The argument made in support of the protective capacity of parental communication is that, much like monitoring, regular conversation (across a variety of mediums) allows parents and children to provide/receive emotional support, share experiences, reinforce expectations, and voluntarily disclose activities (Padilla-Walker & Nelson et al., 2008). However, if communication becomes perceived as encroaching on one's college experience and new freedoms, spare time, lack of supervision and party culture associated with it, then young adults may be responding rebelliously by engaging in the very behaviours their parents are trying to prohibit. One study even found evidence that some adolescents react to parents' attempts to control the use of one substance by initiating the use of other substances (Andrews & Hops et al., 1993). This helps to understand why increases in communication between parents and college students was specific to increases in the risk of using illicit

drugs other than marijuana. Nevertheless, this finding should motivate future investigation as it demonstrates that perhaps some components of everyday family dynamics may be counterproductive in the effort to reduce the health risk behaviours of young adults.

In addition to parenting, this study acknowledges the complexities of other important non-parental relationships by making a concentrated effort to incorporate all theoretically crucial elements of mentor relationships into the analyses. The results suggest that both type and quality (measured according to relationship duration, intimacy and frequency of contact) of mentor relationships have clearly important implications in protecting young adults against the use of various substances, but perhaps only for illicit ones. Unlike parents, who appear to retain some protective capacity against their children's use of alcohol in young adulthood, mentors appear to have a negligible influence over alcohol use. Other studies examining the influence of mentoring relationships on adolescent well-being have yielded similar results (ie. DuBois & Silverthorn, 2005). While monitoring by parents is an important factor in preventing substance use, mentors, in comparison, are not likely able to provide a high level of monitoring if they have only periodic contact with young adults. This study did find an important exception to this pattern, however—community member mentors significantly reduced the odds of heavy drinking for those young adults who are enrolled in college. Given that the community member mentor category includes non-parental adults that have important roles in the activities salient to the lives of college students (ie. teachers, guidance counsellors, coaches), increases in accessibility to these mentors' and their value as sources of support may foster positive attachment to larger groups and institutions in ways that promote favourable health outcomes. The importance of strong mentor relationships

quickly becomes evident when considering young adults' use of illicit drugs, however. Increases in relationships with community member mentors was negatively associated with marijuana use but not for the use of other illicit drugs. Instead, relationships with older relative mentors as well as 'other' mentors were negatively associated with the use of other illicit drugs. The lack of significant interaction terms between the parenting and mentor variables suggests, quite importantly, that naturally occurring mentoring relationships may exist more as complimentary than compensatory mechanisms in terms of protecting against drug use. Since the effectiveness of mentoring does not depend on the characteristics of the parent-child relationship, then those young adults with multiple important others in their lives may foreseeably be at the lowest risk of using illicit drugs relative to those with fewer important others in their lives. Because the Add Health data only includes information on young adults most influential mentor, this particular hypothesis could not be tested here but is worthy of future investigation.

This study was not immune to limitations and several are worthy of note. First, the measure of parent-child relationships at wave III were not as detailed as desirable. Though similar conceptually to the attachment measure at wave I, the results produced by these two variables do not warrant direct comparison across time. In other words, parental attachment in addition to monitoring and communication provide a snapshot of their protective capacity only in late adolescence and the wave III measure of parental attachment only in young adulthood. Parallel measures of the parent-child relationship across each wave would certainly assist in our understanding of how continuity or change in domains such as monitoring or communication affect young adults' substance use behaviours. Second, the

categorical drug use variables included in the multinomial regression models were not completely mutually exclusive. For example, many respondents have only used marijuana while virtually no respondents have only used harder illicit drugs but not marijuana. Because of this, many of the respondents included in the 'other illicit drugs' category have used marijuana in addition to harder drugs. The results, nonetheless, demonstrated that these categories are uniquely predicted.

Growing enrolment rates at post-secondary educational institutions reflect a dominant life course pathway of many young adults. As such, parents are involved in children's lives much later than what has historically been the case. The continued involvement and ongoing provision of both material and emotional support by parents facilitates academic engagement and overall positive adaption to college, as well as feelings of closeness to parents and increased communication (Kenny & Donaldson, 1991; Johnson, 2013; Fingerman & Cheng et al., 2012). However, less attention has been given to the potentially protective effects of the parent-child relationship on risky health behaviours. That the findings demonstrated that multiple characteristics of the parent-child relationship in adolescence remain important into young adulthood in protecting against the use of various popular substances is an important contribution, especially given that college attendance has recently grown as a risk factor for fostering substance use initiation beyond the well-established increased risk of alcohol abuse (Miech & Patrick et al., 2017). This important health issue has not been extensively examined to date and the need for more elucidating evidence examining the link between parenting practices and young adults' use of illicit drugs persists. Trends in drug use among young adults are primed to grow as an increasing tolerance in the public's perception of drug

use continues to develop alongside the less restrictive changes made to state legislation, most notably with respect to marijuana. Health promotion and prevention programs may benefit from the use of strategies that identify specific relationship qualities with parents (ie. monitoring, communication) that promote positive health-related outcomes, and that also cultivate ties between young adults and others who have the potential to serve as effective mentors.

TABLES

Table 1: Percentage distributions and means (with standard deviations) of respondent's substance use behaviours, parental relationships, mentor relationships and sociodemographic characteristics; (N=4,482)	
Characteristic	<i>M</i> or %
Heavy Alcohol Use (wave III; past year)	
None/very rare	68.9
Monthly	21.4
Weekly/daily	9.7
Illicit Drug Use (wave III; past year)	
None	66.8
Marijuana	21.8
Other illicit drugs	11.4
Parent-child relationship (wave I)	
Attachment (0-20)	14.88 (3.48)
Monitoring (0-7)	1.85 (1.56)
Communication (0-4)	2.02 (1.26)
Communication satisfaction	
No	15.8
Yes	84.2
Parent-child relationship (wave III; 0-12)	
	10.72 (1.70)
Mentoring relationships (wave III; 0-12)	
	8.83 (2.48)
Older relatives	4.97 (2.14)
Community members	6.88 (2.38)
Friends	7.98 (2.49)
Others	
Gender	
Female	53.8
Male	46.2
Age (in years)	
	21.81 (1.85)
Race/Ethnicity	
White/Caucasian	66.4
Black/African-American	24.3
Asian/Pacific Islander	3.7
Other	5.6
First Born	
No	79.4
Yes	20.6

Parent's Education	
High school or less	40.02
Some post-secondary/post-secondary diploma	59.98
Parents Smoke	
No	36.5
Yes	63.5
College Enrolment	
Not enrolled	62.5
Enrolled	37.5
Parent's Graduation Expectations	
Moderate to low	27.4
High	72.6
Residential Status	
Living with parents	39.1
Not living with parents	60.9
Risk-taking	
Does not like to take risks	45.1
Likes to take risks	54.9
Depression (wave III)	4.43 (4.04)
Substance Use (wave I)	
Alcohol	
No	72.8
Yes	27.2
Illicit Drugs	
No	72.6
Yes	27.4
Total	100
Note: means are weighted; percentages are unweighted. Means for the mentoring variables shown here do not include zero scores.	

Table 2: Odds ratios (and standardized regression coefficients) from ordered logistic regression analysis of level of alcohol consumption by respondent's parental relationships, mentor relationships and sociodemographic characteristics; (N=4,464)

Characteristics	Model 1	Model 2	Model 3	Model 4
Parent-child relationship (W1)				
Attachment	0.979 (0.930) *	0.980 (0.933) *	0.995 (0.984)	0.994 (0.982)
Monitoring	0.951 (0.926) **	0.955 (0.931) **	0.947 (0.919) **	0.945 (0.915) **
Communication	0.989 (0.986)	0.988 (0.985)	0.998 (1.000)	0.999 (1.001)
Communication satisfaction				
Yes	1.123	1.113	0.952	0.951
Parent-child relationship (W3)				
	0.989 (0.982)	0.990 (0.983)	0.982 (0.970)	0.984 (0.974)
Mentoring relationships (W3)				
Older relatives	na	0.998 (0.993)	1.008 (1.032)	1.007 (1.030)
Community members	na	1.002 (1.005)	0.980 (0.953)	1.009 (1.019)
Friends	na	1.036 (1.109) ***	1.024 (1.071) †	1.023 (1.069) †
Others	na	1.002 (1.006)	1.001 (1.004)	1.003 (1.006)
Gender				
Male	na	na	2.550 ***	2.561 ***
Age				
	na	na	0.865 ***	0.862 ***
Race				
Black	na	na	0.366 ***	0.367 ***
Asian	na	na	0.467 ***	0.466 ***
Other	na	na	0.672 **	0.673 **
Firstborn				
Yes	na	na	1.028	1.016
Parent's Education				
Post-secondary	na	na	1.671 ***	1.665 ***
Parent's Smoke				
Yes	na	na	1.111	1.118
College Enrolment				
Yes	na	na	1.450 ***	1.542 ***

Parent's Graduation Expectations				
High	na	na	1.186 *	1.191 *
Residential Status				
Not living with parents	na	na	1.325 ***	1.333 ***
Risk-taking				
Yes	na	na	1.487 ***	1.485 ***
Depression	na	na	1.032 (1.133) ***	1.030 (1.127) ***
Alcohol Use (W1)				
Yes	na	na	2.240 ***	2.254 ***
Interactions				
Community member mentor x college				0.947 *
Note: † $p < 0.1$ * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$; W1 = wave I, W3 = wave III				

Table 3: Odds ratios (and standardized regression coefficients) from logistic regression analysis of illicit drug use by respondent's parental relationships, mentor relationships and sociodemographic characteristics; (N=4,482)

Characteristic	Model 1	Model 2	Model 3
Parent-child relationship (W1)			
Attachment	0.936 (0.796) ***	0.937 (0.798) ***	0.944 (0.821) ***
Monitoring	1.014 (1.022)	1.019 (1.029)	0.985 (0.977)
Communication	1.046 (1.058)	1.049 (1.062)	1.058 (1.073)
Communication satisfaction			
Yes	1.186	1.184	1.206
Parent-child relationship (W3)			
	0.920 (0.867) ***	0.922 (0.871) ***	0.935 (0.893) ***
Mentoring relationships (W3)			
Older relatives	na	0.981 (0.925) *	0.976 (0.906) *
Community members	na	0.969 (0.932)	0.944 (0.876) ***
Friends	na	1.024 (1.071)	1.004 (1.013)
Others	na	0.974 (0.937) *	0.964 (0.914) **
Gender			
Male	na	na	1.672 ***
Age			
	na	na	0.807 ***
Race/Ethnicity			
Black	na	na	0.733 ***
Asian	na	na	0.477 ***
Other	na	na	0.696 *
First Born			
Yes	na	na	1.027
Parent's Education			
Post-secondary	na	na	1.563 ***
Parent's Smoke			
Yes	na	na	1.496 ***
College Enrolment			
Yes	na	na	1.128
Parent's Graduation Expectations			
High	na	na	0.931
Residential Status			
Not living with parents	na	na	1.125
Risk-taking			
Yes	na	na	1.739 ***

Depression	na	na	1.037 (1.158) ***
Illicit Drug Use (W1)			
Yes	na	na	2.815 ***
Constant	1.551 ***	4.733 ***	55.573 ***
Note: * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$; W1 = wave 1, W3 = wave 3			

Table 4: Relative risk ratios from multinomial logistic regression analysis of type of substance use by respondent's parental relationships, mentor relationships and sociodemographic characteristics; (N=4,482)

Characteristic	Model 1		Model 2	
	None vs. marijuana	None vs. other illicit drugs	None vs. marijuana	None vs. other illicit drugs
Parent-child relationship (W1)				
Attachment	0.931 ***	0.946 ***	0.940 ***	0.950 ***
Monitoring	1.021	1.013	0.983	0.989
Communication	1.032	1.077	1.036	1.101 †
Communication satisfaction				
Yes	1.413 ***	0.899	1.415 **	0.912
Parent-child relationship (W3)				
	0.937 **	0.897 ***	0.957	0.892 ***
Mentoring relationships (W3)				
Older relatives	0.989	0.965 *	0.981	0.964 *
Community members	0.956 *	0.988	0.932 ***	0.962
Friends	1.035 *	1.001	1.020	0.970
Others	0.985	0.951 **	0.977	0.935 ***
Gender				
Male	na	na	1.505 ***	2.081 ***
Age				
	na	na	0.821 ***	0.780 ***
Race/Ethnicity				
Black	na	na	0.984	0.302 ***
Asian	na	na	0.379 ***	0.624 *
Other	na	na	0.792	0.534 *
First Born				
Yes	na	na	1.030	1.027
Parent's Education				
Post-secondary	na	na	1.425 ***	1.884 ***
Parent's Smoke				
Yes	na	na	1.572 ***	1.286 *
College Enrolment				
Yes	na	na	1.231 †	0.977

Parent's Graduation Expectations				
High	na	na	0.906	0.981
Residential Status				
Not living with parents	na	na	1.131	1.114
Risk-taking				
Yes	na	na	1.512 ***	2.335 ***
Depression	na	na	1.028 **	1.055 ***
Illicit Drug Use (W1)				
Yes	na	na	2.511 ***	3.473 ***
Interactions				
Communication x college			na	1.213 *
'Other' mentor x college			na	1.090 †
Constant	2.313 **	2.562 *	21.616 ***	44.735 ***
Note: † $p < 0.1$ * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$; W1 = wave I, W3 = wave III				

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