

**EXAMINING ADOLESCENT DRINKING AND ADOLESCENTS' PERCEPTIONS OF
PARENTAL MONITORING, COMMUNICATION, AND PARENTING STYLE IN A
RURAL SETTING**

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ABSTRACT

Research has found that adolescent substance use is highly prevalent in both urban and rural populations and that parenting processes can affect adolescent substance use. The majority of the research pertains to adolescents in urban populations, however. This study explores how adolescents' perceptions of parental monitoring, parent-adolescent communication, and parenting style are related to adolescent frequency of alcohol consumption and binge-drinking in a rural population in Virginia. A sample ($n = 3,472$) of 7th-12th grade males and females from six counties were examined via secondary data analysis.

Bivariate correlations revealed significant correlations between parental monitoring and communication with both types of drinking in that those reporting higher levels of perceived monitoring and communication reported lower levels of alcohol consumption and binge-drinking. Authoritative parenting was only significantly correlated with frequency of alcohol consumption. Linear regression analyses revealed that parental monitoring accounted for most of the variance with both drinking variables. Effects of gender and grade are discussed.

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CHAPTER I

INTRODUCTION

Statement of the Problem

For the past several decades, adolescent alcohol use has become a source of alarm at many levels of society. Researchers have explored both the prevalence and etiology of adolescent alcohol use, concluding that prevalence is high among middle and high school students in the United States. Adolescence is the age period during which alcohol and drug use are typically initiated. Community survey data (i.e. *Monitoring the Future*: Johnston, O'Malley, & Bachman, 2001) indicate that most adolescents have tried alcohol (e.g. 51% in 8th grade, 80.3% in 12th grade). Heavy episodic drinking (also known as binge drinking), defined as five or more drinks in one episode, is reported by over 30% of 12th-graders in any two-week period. These statistics have been stable for several years, indicating that alcohol experimentation is normative and binge drinking common among adolescents. However, simply because adolescent drinking is developmentally normative does not mean that it is without clinical or public health significance. Alcohol remains the most widely used substance among adolescents and studies show that the proportion of youth who use alcohol increases during adolescence (Bahr, Anastosios, & Maughan, 1995; Duncan, Duncan, & Strycker, 2006). Alcohol use among adolescents follows a sequential pattern, with experimentation beginning in early adolescence and progressing to peak use in the late teens and early 20s, followed by a leveling off of usage after that.

According to the 2005 Youth Risk Behavior Surveillance (Centers for Disease Control, 2006), which monitors six categories of priority health-risk behaviors among youth and young adults nationwide, 74% of students had had at least one drink of alcohol on one or more days

during their life. In the same study, 43% of students had at least one drink of alcohol on one or more days of the 30 days preceding the survey. Nationwide, 26% of students engaged in heavy episodic drinking on one or more days of the 30 days preceding the survey. The current study pertains to students from 2001 and 2002. According to the 2001 YBRS (Centers for Disease Control, 2006), 78% reported they had at least one drink of alcohol on one of more days during their life. Forty-seven percent of students reported having had at least one drink on one or more of the 30 days preceding the survey, while 30% reported engaging in heavy episodic drinking on one or more of the 30 days preceding the survey.

Given the prevalence of alcohol consumption among adolescents and the potential serious consequences stemming from the misuse of it, it is important to identify and understand the factors that put adolescents at risk for engaging in this behavior. The purpose of this current study is to examine the relationship between parental monitoring, parent-adolescent communication, and parenting styles and adolescent alcohol use in a rural setting. Families are considered to carry substantial weight for the introduction of risk and/or protective factors into an adolescent's life; hence, the context of the adolescent's family is considered the primary social influence in this study. Although peers are a vital part of an adolescent's life, the family continues to influence the decisions made throughout adolescence as the primary provider of nurturance (Youniss & Haynie, 1992).

Alcohol and Risk Behaviors

The age at which one first drinks alcohol or tries other substances is predictive of later problems with these substances, with earlier use placing individuals at greater risk for later abuse (Chassin, Pitts, & Prost, 2002; Chou & Pickering, 1992; Gruber, DiClemente, Anderson, & Lodico, 1996; Hawkins, Catalano, & Miller, 1992; Kandel & Yamaguchi, 1993). Age at which

an individual initiates alcohol use has been strongly linked to later alcohol misuse (Hawkins et al., 1997). For those who begin drinking at age 14 or earlier, approximately 40% experience problems with alcohol dependency at some point in their lives (Grant & Dawson, 1997). Furthermore, studies have demonstrated that alcohol and marijuana use are important precursors to the use of other drugs (Ellickson, Hays, & Bell, 1992; Kandel, Yamaguchi, & Chen, 1992). Kandel, Yamaguchi, and Chen (1992) reported that age at onset of alcohol use is a strong predictor of progression to other drugs. However, this gateway hypothesis has led to controversy among researchers in questioning the transition from licit to illicit drug use. Tarter et al. (2006) found that the gateway sequence (licit drugs before illicit) is not invariant in drug-using youths.

Adolescent alcohol use (particularly heavy use) is associated with many negative outcomes. Brown and Tapert (2004) found that alcohol dependent adolescents have poorer neuropsychological performance and are more sensitive to learning and memory impairments produced by alcohol exposure. Adolescent alcohol use may interfere with the development of social, coping, and related skills needed for effective social functioning in late adolescence and early adulthood (Brook, Whiteman, Finch, & Cohen, 1996; Wechsler et al., 2002). There is little research about the medical consequences of alcohol abuse in adolescents; however, a few studies have produced evidence that describes such effects. In general, the existing evidence suggests that adolescents rarely exhibit the more severe chronic disorders associated with alcohol dependence such as liver cirrhosis, hepatitis, gastritis, and pancreatitis. Adolescent who drink heavily, however, may experience some adverse effects on the liver, bone, growth, and endocrine development (Aarons et al., 1999; Brown & Tapert, 2004; Clark, Lynch, Donovan, & Block, 2001). Elevations in liver enzymes have been shown in adolescent alcohol abusers, which is an early indicator of liver damage (Arria, Dohey, Mezzich, Bukstein, & Van Thiel, 1995).

Use during adolescence directly increases risk for other adverse outcomes. Physical injury, aggression, offences for violence or driving while intoxicated, and high-risk sexual behavior have been consistently identified as outcomes connected to adolescent alcohol use (Halpern-Fisher, Millstein, & Ellen, 1996; Lynskey & Horwood, 1995; Peterson, Hawkins, Abbot, & Catalano, 1995). According to the Youth Risk Behavior Surveillance (2006), 10% of students nationwide had driven a car or other vehicle one or more times when they had been drinking alcohol during the 30 days preceding the survey.

The association between adolescent alcohol consumption and risky sexual behavior is also of public health importance. Adolescent alcohol use is linked with earlier initiation of sexual activity, more frequent sexual activity, and less frequent condom use (Cooper, Peirce, & Huselid, 1994). According to the YRBS (Centers for Disease Control, 2006), 34% of students nationwide reported being sexually active currently. Of those students, 23% had drunk alcohol or used drugs before last sexual intercourse. For many adolescents, the adverse sexual consequences that occur while drinking include unplanned sexual intercourse, multiple partners, and inconsistent condom use (Bonomo et al., 2001; Poulin & Graham, 2001).

Theoretical Framework

Family Systems Theory

This study is guided by the framework of family systems theory. In this theory, the family is conceived as a collective whole entity made up of individual parts and the way they function together (Nichols & Schwartz, 2004). The theory holds that individuals are intertwined and cannot be understood in isolation from one another or from the system. Scientist Ludwig von Bertalanffy promoted the notion that a family, or any system, is greater than the sum of its parts while Kurt Lewin distinguished that the whole is different from the sum of its parts. In

thinking about family process, this foundation in systems theory aids scientists and clinicians in recognizing that a family system should be viewed as more than just a collection of individuals, but also as individual members who influence one another in various ways. Family systems theory focuses on family behavior rather than individual behavior.

Broderick (1993) asserts that “the family is an example of an open, ongoing, goal-seeking, self-regulating, social system, and that it shares the features of all such systems”; and at the same time the family system is also set apart from other social systems by its distinctive nature and traits. The theory considers communication and interaction patterns, separateness and connectedness, loyalty and independence, and adaptation to stress in the context of the whole as opposed to the individual in isolation (Fingerman & Bermann, 2000). Family systems theory can explain why members of a family behave the way they do in a given situation. According to Broderick (1993, p. 37), an “open” family system is characterized by information flowing back and forth among the boundaries of the family system, its individual parts, and the outside larger systems. Family systems develop their own unique set of rules which direct its interactive processes, degrees of openness, and structure pertaining to the information flow within and beyond the system. In systems terminology, adolescence induces a process of change in family rules and roles marked by a shift toward openness to systems outside the family such as peer groups, school, and work (Spring, 1999).

In recent years the role of family factors in adolescent substance use has received increased attention (Bray, Adams, Getz, & Baer, 2001). Since the behavior of family members is viewed as intertwined according to the systems perspective, individual behavior, such as adolescent substance use, is best understood in the family context (Becvar & Becvar, 1982; Levine, 1985). Since family systems develop qualities that may encourage or support substance

use among adolescents, there is an interrelation between the qualities of family systems and adolescent substance use. Such family system characteristics serve as important variables in understanding the initiation, maintenance, cessation, and prevention of substance use by adolescents (Needle et al., 1986). It is important to recognize that the parent-adolescent system may be bidirectional in terms of influence processes (Belsky, Hertzog, & Rovine, 1986). Thus, while there is strong evidence that parental factors are critical in the development of adolescent behaviors, it must also be taken into account that some children may initiate problem behaviors which lead to negative parental socialization practices and negative family environments. Family systems theory will guide the examination of the influence of behaviors of subsystems (i.e., the parents, their monitoring, communication, and parenting styles) on the behaviors of other separate, but connected parts (the adolescent's alcohol use) of the system.

Rationale

This study makes use of previously collected data through the Virginia Adolescent Resiliency Assessment (VARA). Secondary data analysis lends itself to the purpose of this study in that the VARA data offers information from a large sample of rural adolescents, which is often difficult to obtain. Data from six identical surveys conducted in separate, yet similar, rural counties in Virginia was aggregated together for a large rural sample size ($n = 3,472$). This large data set is rich with information concerning the many aspects of adolescent life, including information regarding the variables being examined in this current study. Although secondary data analysis has its limitations, it is useful for providing rich profiling data, which is appropriate for the scope of this study.

Rural Setting

Rural areas are distinctive and unique in their social, cultural, and economic characteristics. Doebler (1998) holds that the rural lifestyle can be quite isolating. Furthermore, adolescents living in rural areas in America are not only challenged to be socially connected to others, but are also isolated from economic centers of activity and recreational amenities. Even though rural adolescents may be physically isolated from a network of casual acquaintances as compared to their metropolitan counterparts, they are often uniquely surrounded by more extended family members. In addition, parents in rural America are often required to work greater distances away from the home, making it more difficult to monitor their teenager's activities. For these reasons, rural adolescents may have a different experience than those in urban areas of parental monitoring and other different choices of recreational and after-school activities.

Much of the research concerning adolescents and alcohol focuses on urban youth. There is evidence of higher prevalence rates for alcohol use among rural adolescents relative to urban adolescents. Gibbons, Wylie, Echterling, and French (1986) examined patterns of rural adolescent alcohol use and factors associated with such use. Of their 650 participants in grades 7-12 in a small rural area, 83% indicated that they had drunk alcohol and 57% had had their first drink by age 12. Gender and grade in school were significant predictors of alcohol. Many factors have fueled the growth of substance use in rural adolescents. A lack of targeted and universal prevention programs for rural areas have contributed to the growth of adolescent alcohol and substance abuse (Scaramella & Keyes, 2001).

Considering the Gender and Grade of the Adolescent

The proportion of youth who use alcohol increases during adolescence (Bahr et al., 1995). Fournet, Estes, Martin, Robertson, and McClary (1990) found that a number of children start using alcohol before they reach their teens. In their study examining the dynamics of alcohol and marijuana initiation, Kosterman et al. (2000) found that the risk of initiation spans the entire course of adolescent development and that young people exposed to others who use substances are at higher risk for early initiation. Specifically, they found that alcohol initiation rose steeply up to the age of 13 years and then increased more gradually. Most participants in the study had initiated by 13 years of age. In Duncan, Duncan, and Strycker's longitudinal study (2006), they used a cohort-sequential latent growth model that showed that proportions of alcohol users increased steadily from ages 9-16 years.

Studies of gender differences in alcohol use among adolescents have consistently shown that males consume alcohol more frequently and in higher quantities than females and are prone to experience more alcohol-related problems (Barnes & Welte, 1986; Robins & Martin, 1993; Thomas, 1996). Studies show that boys appear to be at greater risk for early initiation than girls (Liu & Kaplan, 1996).

In the current study, gender and age of adolescents will be examined as moderators as related to parental monitoring, parent-adolescent communication, and parenting style as to how they are related to both the frequency of adolescent alcohol use and binge drinking.

Research Questions

This study aims to answer the following research questions:

- 1) How are the adolescents' perceptions of parental monitoring, parent-adolescent communication, and parenting style related to the frequency of adolescent alcohol consumption?

2) How are the adolescents' perceptions of parental monitoring, parent-adolescent communication, and parenting style related to the frequency of adolescent alcohol binge drinking?

3) How does the gender and grade of the adolescent interact with the relationships between the adolescents' perceptions of parental monitoring, parent-adolescent communication, and parenting style and the frequency of adolescent alcohol consumption?

4) How does the gender and grade of the adolescent interact with the relationships between the adolescents' perceptions of parental monitoring, parent-adolescent communication, and parenting style and the frequency of adolescent binge drinking?

CHAPTER II

LITERATURE REVIEW

Adolescence

Adolescence is a particularly compelling period of development. Over the lifespan, adolescence is characterized by a rather lengthy transition phase in which the individual is neither a child nor an adult. This transition involves biological, social, and psychological changes marked by the development of mature forms of thought, emotion, and behavior (Montemayor, 1983). In the past, adolescence has been portrayed as a period of “storm and stress” (Hall, 1904), and the extreme problems in adjustment shown by a few were generalized as normative experiences for all adolescents (Freud, 1958). However, the storm and stress of adolescence is neither universal nor inevitable. Most adolescents cope successfully with the demands of development during this time period and do not show extreme maladaptation (Cicchetti & Rogosch, 2002). Nevertheless, adolescence typically does generate more turmoil than either childhood or adulthood (Resnick et al., 1997).

Adolescent developmental tasks include challenges of identity, autonomy, sexuality, academic functioning, and peer relationships (Cicchetti & Rogosch, 2002; Erickson, 1968). While developing attachments with peers in preparation for increased independence from the family of origin is an important developmental process, parents remain important to adolescents and to adults throughout their lives according to Williams (2003). There is typically a greater expression of risk taking and exploration of new behaviors during adolescence, which are part of the developmental processes that contribute to autonomous identity formation and functioning. These risk-taking behaviors have been considered to be part of the normal experimentation with perceived facets of adult life, such as alcohol use (Bray, Getz, & Baer, 2000; Jessor, 1987; Johnston, O'Malley, & Bachman, 1991).

Adolescent Alcohol Use

For several decades, researchers have explored both the prevalence and the etiology of adolescent alcohol use, concluding that prevalence is high among middle and high school students in the United States (Johnston et al., 1991; Johnston, O'Malley, & Bachman, 2001) and that alcohol use is regarded by many researchers to be statistically normative (Windle, 1999). An important conceptual focus has been the qualitative distinction among stages of alcohol use, such as initiation, experimentation, regular use, heavy use, and binge drinking (Kandel, 1975, 1980; Windle, 1996). Various typologies or stage-process models of alcohol involvement have been used by researchers without a strong consensus that one particular model has greatest utility for all research purposes. Knupfer (1989) proposed an eight-stage model ranging from lifelong abstainer to frequent drunk. Werch and DiClemente (1994) suggested a five-stage motivational model ranging from precontemplation (seriously considering initiating) to maintenance (continuing usage). Windle (1996) suggested a five-stage model ranging from abstainers to problem drinkers. Many adolescents use alcohol to experiment, sometimes frequently and sometimes consuming multiple drinks per occasion, without engaging in other problem behaviors or experiencing immediate negative consequences. Windle (1996) asserts it is theoretically important to differentiate between heavy drinkers and those who drink heavily and have experienced personal or social problems associated with drinking.

There are many significant reasons to examine the relationship between parenting processes and alcohol use by children. Many studies have shown a strong relationship between the quality of parenting and the development of relatively high levels of self-esteem, behavioral control, and resistance to peer pressure by children and adolescents (Jackson, Henriksen, & Dickinson, 1997). Cohen, Richardson, and LaBree (1994) concluded that parental behaviors are

significant precursors to disruptive behavior, vulnerability and succumbing to peer pressure, and substance use by children and adolescents.

Parental Monitoring

Parental monitoring of adolescent behavior has emerged as a central factor that influences the occurrence of problem behavior for children and adolescents (Coombs & Landsverk, 1988; Dishion & McMahon, 1998; Steinberg, 1987). The most widely accepted definition of parental monitoring is: parental awareness of the child's activities, and communication to the child that the parent is concerned about, and aware of, the child's activities (Dishion & McMahon, 1998). More specifically, monitoring involves parents being aware of and supervising the multiple areas of an adolescent's life, including friends, school, and behavior at home (Dishion & McMahon, 1998). Parental knowledge of a child's whereabouts, friends, and activities is protective (Romer et al., 1994; Steinberg, Fletcher, & Darling, 1992). As children mature and become more independent, parents adjust their supervision to allow for more freedom and independent decision-making by the adolescent (Dishion & McMahon, 1998). Parental supervisory responsibilities toward adolescents are, in part, focused on reducing opportunities for risky behavior. Research has suggested that open lines of communication and knowledge of an adolescent's whereabouts are important in reducing high-risk behaviors (Barnes & Farrell, 1992; Borawski, Ievers-Landis, Lovegreen, & Trapl, 2003; Chilcoat & Anthony, 1996; DiClemente et al., 2001; Dishion & Loeber, 1985; Li, Stanton, & Feigelman, 2000; Rodgers, 1999).

Parental monitoring has been identified as an important influence on general adolescent behavior, with some links to the prevention of adolescent alcohol use and abuse. Numerous studies have shown that increased parental monitoring is associated with decreased levels of adolescent alcohol abuse (Barnes & Farrell, 1992; Barnes, Reifman, Farrell, & Dintcheff, 2000;

Beck, Shattuck, Haynie, Crump, & Simons-Morton, 1999; Brown, Mounts, Lamborn, & Steinberg, 1993; Clark, Neighbors, Lesnick, Lynch, & Donovan, 1998; Clark, Thatcher, & Maisto, 2005; Dishion & Loeber, 1985; Epstein, Botvin, & Spoth, 2003; Steinberg et al., 1992; Svensson, 2000; Webb, Bray, Getz, & Adams, 2002).

Dishion and Loeber (1985) reported that parental monitoring and discipline practices remain important correlates of adolescent alcohol consumption even after taking into consideration demographic variables, family structure, and parental alcohol abuse. They found that low parental monitoring has an indirect effect on adolescent substance use by increasing the likelihood that the teenager spends time with deviant peers, which led the authors to conclude that adolescent delinquency and drug use are outcomes of disrupted family processes and exposure to deviant peers. Interviews were conducted with 136 families with sons in the 7th and 10th grades as opposed to just the adolescent. The study is limited, however in that the research only focuses on families with male adolescents.

Supporting these findings, Flannery, Williams, and Vazsonyi (1999) surveyed 1,170 early adolescents in 6th and 7th grade. They found that those spending unsupervised time with peers reported higher levels of aggression, delinquency, substance use, and susceptibility to peer pressure, and lower levels of parental monitoring, than did adolescents at home with parents.

Barnes and Farrell (1992), using a representative general population sample of 699 adolescents and their families to examine the effects of parental support and control on the development of adolescent drinking delinquency, and other problem behaviors. The study used both reports of parents and adolescents to assess parental monitoring. Researchers found parental monitoring to be the best and most consistent predictor of adolescent outcomes of all the control dimensions they examined. The highest levels of parental monitoring were associated

with the lowest instances of drinking, illicit drug use, deviance, and school misconduct. The findings were not only consistent across all outcome measures, but they were consistent for both mother and adolescent reports of monitoring.

In their study examining the interactive effects of individuation, family factors, and stress on adolescent alcohol use, Bray, Adams, Getz, and Stovall (2001) highlight the importance of parental monitoring as a protective factor against increases in adolescent drinking. The researchers first surveyed 7,540 metropolitan students of Texas in their 6th, 7th, and 8th grades and continued to track them for three years. In this study, parental monitoring, which was measured from the perspective of the adolescent, was shown to have an indirect (meditational) effect since the researchers were primarily interested in levels of individuation. However, they did find that parental monitoring was most effective for reducing the negative association between adolescent separation and increased alcohol use and was important for all levels of intergenerational individuation. Furthermore, it appears that adolescents' belief that their parents are maintaining an awareness of their behavior and activities mitigates some of the negative impact of detachment and separation from the family that can lead to increased alcohol use.

In their longitudinal study, Barnes, Reifman, Farrell, and Dintcheff (2000) hypothesized that family factors, particularly parental support and monitoring, would influence individual trajectories in the development of alcohol misuse. Six waves of data for 506 adolescents were collected from 1989 through 1996 in the general population of metropolitan Buffalo, New York. Adolescents (ages 13-16 years) were first interviewed in 1989 and were then interviewed annually until 1996 (ages 18-22 years). In regards to monitoring, participants were asked how often they tell their parents where they are going to be after school and how often they tell their parents where they are really going when they go out evenings and weekends. These questions

seem to put the responsibility of parental monitoring on the adolescent rather than asking what the parent is doing to monitor their child's whereabouts. Results indicated that high parental monitoring resulted in low initial levels of adolescent alcohol misuse, and high parental monitoring also diminished the upward trajectory of alcohol misuse throughout the adolescent years. In regards to gender, the study revealed that boys engaged in more heavy and problem drinking throughout adolescence than their female counterparts. Furthermore, a part of the significant difference in initiation and increase in alcohol misuse for boys is due to their being monitored less than adolescent girls.

Li, Stanton, and Feigelman (2000) conducted a longitudinal study over four years to determine the stability of perceived parental monitoring over time and its long-term effect on health risk behaviors among low-income, urban African-American children and adolescents. Researchers surveyed a total of 383 African-American youth aged 9-15 years at baseline recruited from nine recreation centers serving three public housing communities in an Eastern city. Parental monitoring, unprotected sex, drug use, and drug trafficking were assessed at baseline and at regular intervals over the subsequent four years. Data revealed that the perception of being monitored is consistent over time and that parental monitoring was inversely correlated with all three targeted risk behaviors cross-sectionally and prospectively. Caution should be exercised in the interpretation of the findings owing to attrition.

Baker et. al (1999) studied the independent effects of perceived parental monitoring on substance use and sexual behaviors. Adolescent females at an urban-based adolescent clinic rated the extent to which they were directly and indirectly monitored by their parents via survey. Their sample consisted of 174 females, with 41% being sexually experienced. In regards to substance use, researchers found that direct parental monitoring when with peers was found to be

associated with less use of alcohol and cigarettes. In a similar study, DiClemente et al. (2001) examined the influence of less perceived parental monitoring on a spectrum of adolescent health-compromising behaviors and outcomes. Recruiting from a family medicine clinic, researchers surveyed 522 black females between the ages of 14 and 18 years from low-income neighborhoods. Adolescents perceiving less parental monitoring were more likely to be engaging in sexually risky behaviors and were more likely to report a history of substance use, including alcohol. The findings demonstrate a consistent pattern of health risk behaviors and adverse biological outcomes associated with less perceived parental monitoring. Both studies are limited in that they focus on small samples restricted only to females, in which most were sexually active.

In another clinic study, Beck, Boyle, and Boekeloo (2003) assessed the association between parental monitoring and adolescent alcohol risk. Adolescent managed-care patients completed a survey of their involvement with alcohol and their perception of parental monitoring and of forms of parental influence. The study yielded results for a sample of 344 urban adolescents, ages 12 through 17, with African Americans representing 80% of the sample. Adolescents who reported that their parents monitored their whereabouts most or all of the time were less likely to have engaged in a variety of alcohol-risk behaviors or been involved in situations where they could be harmed (e.g. being with other teens who drink or in places where their parent disapprove). Monitoring, however, was not related to drinking or riding with a drinking driver in the past 30 days, as well as having had five or more drinks in a row in the past three months, and only marginally related to intending to drink in the next three months. Researchers suggested that monitoring may help to reduce risk when adolescents are initially exposed to alcohol or while they are still using it infrequently and experimenting with it.

However, once drinking and being engaged in related risk situations becomes more common, monitoring alone may be insufficient to reduce the likelihood of these very high-risk variables. Thus, parental monitoring may be more effective as a primary rather than a secondary prevention strategy. This study was part of a larger randomized study designed to determine the effects of brief medical clinic-based interventions on reducing adolescent alcohol-risk behaviors. Only half of the participants of the larger study participated in the specific study being reviewed since many parents refused to allow their children participate. The researchers suggest that their sample was biased since parents took such a hands-on approach and such a large number of teens (60%) reported living with a high-monitoring parent. With such a high percentage of actively involved parents, the results may not be generalizable to other samples of adolescents, other than those recruited for similar clinic-based studies.

Borawski, Ievers-Landis, Lovegreen, and Trapl (2003) examined the role of parental monitoring, negotiated unsupervised time, and parental trust in adolescent health risk behaviors. Researchers surveyed 692 adolescent in 9th and 10th grades in six urban high schools. Surveys included assessments of adolescents' perceptions of the degree to which their parents monitor their whereabouts, are permitted to negotiate unsupervised time with their friends, and trust them to make decisions. Dependent variables included sexual activity, sex-related protective actions, and substance use (alcohol, tobacco, and marijuana). The six-item scale used for parental monitoring were asked various questions regarding how often parents take the responsibility to monitor as well as to what degree adolescents inform their parents of their whereabouts. Overall, higher levels of parental monitoring were significantly associated with less risky behavior, including lower rates of alcohol use. In regards to gender, results showed that high parental monitoring was associated with less alcohol use and consistent condom use for males.

Researchers noted that although females reported significantly higher levels of parental monitoring, but parental monitoring had no effect on female behavior. Older students reported significantly less parental monitoring than their younger peers.

The majority of research collects data concerning parental monitoring from the perception of the adolescent rather than the parent (Borawski et al., 2003; Flannery et al., 1999). Although the adolescents' perspective of parental monitoring is important, findings may be strengthened if parental reports are included. However, the majority of studies of behavioral management techniques (control, discipline, limit-setting) that have been considered both have found that adolescent reports, and not parent reports, are more likely to be associated with negative behavioral outcomes (Peiser & Heaven, 1996). Those researchers who have collected information regarding parental monitoring from actual parents have found that parents significantly underestimate the extent to which their youth are engaging in risk behaviors (Stanton et al., 2000). Since adolescence is a time of experimentation and establishment of autonomy from parents (Erickson, 1968), arguably it would not be reasonable to expect that parents be aware of all of the youth's misdeeds according to Stanton et al. (2000). However, because many of these risk behaviors found in their study will simply represent experimentation, parental knowledge of the youth's involvement would afford them the opportunity to guide their youth, through discussion, discipline, and reward, to discontinuation of the risk behavior according to Stanton et al. (2000).

In general, female adolescents report significantly higher levels of parental monitoring and lower levels of unsupervised time (Borawski et al., 2003). Older adolescents report significantly less parental monitoring and more unsupervised time than their younger peers

(Borawski et al., 2003). Studies regarding gender of the adolescent as related to alcohol use yield mixed results.

Webb, Bray, Getz, and Adams (2002), conducted a study examining the relationships among gender, perceived parental monitoring, externalizing behaviors, and adolescent alcohol use. In their 2-wave longitudinal study of adolescents ages 11-17 years, females reported more perceived parental monitoring and less alcohol use than males. Similarly, Epstein, Botvin, and Spoth (2003) examined the relationship of psychosocial factors with alcohol use for 1,637 rural adolescents. Through self-report measures, they found that perceived family management skills, including parental monitoring, were associated with drinking for girls but not boys.

Conversely, Borawski et al. (2003) found that in males, high parental monitoring was associated with less alcohol use, but parental monitoring had no effect on female behavior as mentioned previously. Similarly, a longitudinal study conducted on 416 adolescents ages 11 through 14 and their families in the Netherlands revealed that parental control in the form of monitoring was associated with lower alcohol use, especially among adolescent boys (van der Vorst, Engels, Meeus, Dekovic, & Vermulst, 2006). Cultural variables should be taken into consideration since 95% of this sample was Dutch.

In their study examining the associations between parental monitoring and a variety of indicators of adolescent adjustment (grades, depression, sexual activity, and minor delinquency), Jacobson and Crockett (2000) found that parental monitoring had strong associations with all indicators of adjustment for both boys and girls, with exception of boys' depression. Gender and grade level simultaneously moderated the relations between parental monitoring and adolescent delinquency, with the effect of parental monitoring increasing across grade level for boys, and decreasing with grade level for girls. The sample consisted of 424 students in grades 7 through

12 from a single rural school district in Pennsylvania. All participants were White from predominantly lower to middle class backgrounds. Data were gathered via self-report surveys.

Green (1995) found parental monitoring was the most powerful predictor for both alcohol and drug use for both genders in late adolescence. Her study explored the predictive strength of self-esteem, family relations, parental monitoring, peer relations, and peer pressure in relation to adolescent substance use during early and late adolescence, also examining gender differences. Data were taken from a six-year longitudinal study of rural adolescent development, including 318 subjects (167 male and 151 female), who were surveyed in both their 9th and 12th grade years.

Chilcoat and Anthony (1996) examined whether parental supervision and monitoring in middle childhood might have a sustained impact on risk of drug use later in childhood and adolescence. Their epidemiological sample consisted of 926 urban youths ages 8 to 10. Youths were interviewed every four years. Researchers found that youths in the lowest quartile of parent monitoring initiated drug use at earlier ages. The contrast in risk of initiating alcohol, tobacco or other drug use across levels of parent monitoring was greatest when participants were under 11-years-old. At older ages, there was no difference in risk.

In studying recent high school graduates, Wood, Read, Mitchell, and Brand (2004) investigated the influences of peer and parent variables on alcohol use and problems in a sample of 556 late adolescents. Incoming freshmen of a midsize public university were mailed surveys to complete as part of an orientation packet. They found significant associations between both peer and parental influences and alcohol involvement, and showed that parental influences moderated peer-influence-drinking behavior, such that higher levels of perceived parental involvement were associated with weaker relations between peer influences and alcohol use and

problems. These findings suggest that parents continue to exert an influential role in late adolescent drinking behavior.

Although there is a large body of research pertaining to parental monitoring and alcohol use, there are gaps that this proposed study hopes to decrease. Many of the studies reviewed were conducted using urban samples, with very few examining the rural context. Those studies that do examine the rural population are small in sample size. There is much discrepancy in the literature regarding gender as a moderating variable in that results are quite mixed. Also, it is worth noting the differences in how parental monitoring is measured, be it from the perspective of the family or adolescent and also what exactly is measured.

The current study aims to examine parental monitoring from the perspectives of a large sample of rural adolescents and how it is related to both frequency of alcohol use and binge drinking. It is hypothesized that higher levels of perceived parental monitoring will result in lower frequencies of adolescent alcohol consumption and binge drinking.

Parent-Adolescent Communication

Parental behavior and attitudes are critical components of adolescent socialization. Parent-adolescent communication is consistently identified as an important parenting variable affecting adolescent behavior (Patterson, Reid, & Dishion, 1992). The nature of family communication is influenced by the amount of parent-child interactions but also may be influenced by whom the child interacts with, which may be different for mothers and fathers (Socha & Stamp, 1995). It has been suggested that fathers talk about fewer topics and focus on rules, academics, and instrumental tasks (Stafford & Dainton, 1995) and some studies have found that fathers spend little to no time in one-on-one conversations with their children during middle childhood or adolescence (Buerkel-Rothfuss, Fink, & Buerkel, 1995). On the contrary,

mothers tend to talk with their children more often and talk about a wider array of topics (Miller-Day, 2002; Youniss & Smollar, 1985). Relative to the frequency of parent-adolescent communication, satisfaction with and quality of parent-adolescent communication were more strongly related to adolescent psychological well-being according to Shek, Lee, Lee, and Lam (2006).

There is continuity and change in manifestations of parent-adolescent closeness. For most families, closeness and interdependence decline across adolescence, but the falloff in constructive communication appears to be especially pronounced for those in troubled relationships (Laursen & Collins, 2004).

Considerable research has been conducted on parent-adolescent communication as a factor that influences adolescent risk behavior. In addition to direct links, studies have found that parent-adolescent communication moderates relationships between other variables and adolescent risk behavior. Several researchers hold that positive general communication with mothers is associated with less risky behavior (Friedman, Tomko, & Utada, 1991; Guilamo-Ramos, Jaccard, Dittus, & Bouris, 2006; Hutchinson & Cooney, 1998; Miller, Kotchick, Dorsey, Forehand, & Ham, 1998).

According to Fingerman and Bermann (2000), openness in communication refers to the ability of adolescents and parents to share their needs, feelings, and desires with each other, and it facilitates the abilities of families to respond to changing needs in a supportive manner. In general, openness in parent-adolescent communication is associated with positive adolescent outcomes (Schuster et al., 2001) such as adolescents' academic achievement, self-esteem, and mental health (Hartos & Power, 2000). It seems that open, disclosive relationships between parents and children where children freely volunteer information about themselves and their

whereabouts and so forth are most likely to foster parent trust, which leads to further positive outcomes (Kerr, Stattin, & Trost, 1999).

Miller-Day (2002) interviewed 67 adolescent Caucasian and African American adolescents about their parent-adolescent conversations regarding alcohol, tobacco, and other drug use. She found that fewer than half of the youth interviewed had engaged in a conversation with one or more parent about those substances. Also, significantly more adolescents felt closest to and preferred talking with their mothers about risky topics than to other family members. Furthermore, the results suggested that parental antidrug messages were part of the ongoing discourse of family life rather than structured in an isolated “drug talk.”

Nelson, Patience, and MacDonald (1999) conducted a study demonstrating the role of parental guidance in adolescent risk-taking behavior. They surveyed 215 7th-grade students and their parents about their experience with and attitudes toward adolescent risk-taking behaviors. They found that those adolescents who reported satisfactory relationships with their parents were less likely to engage in sexual activity, to be involved with gangs, or to use tobacco, alcohol, or other substances. Furthermore, when parents effectively communicated their expectations regarding avoidance of certain risky behaviors, there was a significant positive correlation between parental expectations and adolescents’ behavior. When there was a discrepancy between actual parental expectations and adolescent perceptions of those expectations, there was an inverse relationship between parental expectations and adolescents’ behavior.

Some have speculated that good parent-child communication may have greater impact than parental monitoring and control on decreasing delinquency (Cernkovich & Giordano, 1987), reducing substance use (Cohen & Rice, 1995), and improving academic performance (Otto & Atkinson, 1997). Good communication is important for monitoring because more information is

gained about adolescent children's activities from their own willing disclosure than from active surveillance by their parents (Stattin & Kerr, 2000).

The amount of research regarding parent-adolescent communication and adolescent alcohol consumption is slim compared to that of parental monitoring. Most studies include communication as a subset of monitoring, but others view it as its own independent variable. It is clear that parents communicating with their adolescents is inversely related to adolescent consumption of alcohol use. However, few studies pertain to rural populations since many are from urban samples. More information is also needed regarding gender and age as moderators.

This study considers parent-adolescent communication to be its own independent variable, separate from parental monitoring. It is hypothesized that there will be an inverse relationship between parent-adolescent communication and the frequency of alcohol consumption and binge drinking.

Parenting Styles

Parenting styles are important to consider when studying the relationships between parents and adolescents. Four main parenting styles have been identified in early child development research: authoritative, authoritarian, permissive, and neglectful (Baumrind, 1978). Parenting style is a constellation of attitudes communicated to the child that creates the emotional climate in which parents' behaviors are expressed; style conveys to the child the parent's attitude toward the child rather than toward the child's behavior (Barnes et al., 2000). According to Baumrind (1978), authoritative parenting is characterized by high expectations of compliance to parental rules and directions, an open dialogue about those rules and behaviors, and is a child-centered approach with a warm, positive affect. Authoritarian parenting is similar to the authoritative style in that there are high expectations of compliance to parental rules and

directions, but it involves the use of more coercive techniques to gain compliance. There is little parent-child dialogue and the authoritarian style is considered to be a parent-centered approach characterized by cold affect. Permissive parenting is distinguished as having few behavioral expectations for a child and is a child-centered approach with warm affect. Lastly, neglectful parenting is similar to permissive parenting with few behavioral expectations, but is parent-centered with cold affect.

Children who are raised in authoritative homes score higher than their peers from authoritarian, indulgent, or neglectful homes on a wide variety of measures of competence, achievement, social development, self-perceptions, and mental health (Maccoby & Martin, 1983). Building off of Baumrind's framework (1978) and the work of Maccoby & Martin (1983), Lamborn et. al (1991) provided further evidence for the utility in research on parental socialization and adolescent adjustment. In their study, the families of approximately 4,000 14-18-year-olds were classified into one of four groups (authoritative, authoritarian, indulgent, or neglectful) on the basis of adolescents' ratings of their parents on two dimensions: acceptance/involvement and strictness/supervision. They found that adolescents from authoritative homes scored highest, and adolescent from neglectful homes lowest, on the majority of indices of adjustment (psychosocial development, school achievement, internalized distress, and problem behavior). Adolescents in either the authoritarian or the indulgent group showed a mixture of positive and negative traits. Adolescents from authoritarian homes scored reasonably well on measures of school achievement and deviance but relatively poor on measures of self-reliance and self-conceptions. Adolescents from indulgent homes scored relatively poorly with respect to school engagement, drug and alcohol use, and school misconduct, but relatively well on

measures of social competence and self-confidence. In general, these patterns did not vary as a function of adolescent age, gender, ethnicity, or family background.

Steinberg et al. (1994) conducted a follow-up study to determine whether the observed differences in parenting style are maintained over time. An ethnically and socioeconomically heterogeneous sample of approximately 2,300 14-18-year-olds provided information used to classify the adolescents' families into one of the four parenting style groups. That year, and again one year later, the students completed a battery of instruments measuring psychosocial development, school achievement, internalized distress, and behavior problems. They found that differences in adjustment associated with variations in parenting are either maintained or increase over time. However, whereas the benefits of authoritative parenting are largely in the maintenance of previous levels of high adjustment, the deleterious consequences of neglectful parenting continue to accumulate.

The parenting style shown by a child's parents has been found to influence whether he or she will use alcohol according to Cohen and Rice (1997). Williams and Hine (2002) also support the power of this influence. Parenting that is relatively low in warmth and high in hostility predicted greater risk of alcohol and other drug use by adolescents in a longitudinal study conducted by Johnson and Pandina (1991). They surveyed 1,380 students, aged 12, 15, and 18 years, in 1979 and then again in 1981. In contrast to that type of style, positive feedback, encouragement, and physical affection from parents predicted lower risk of alcohol use by adolescents (Jackson et al., 1997). Jackson et al. (1997) surveyed 488 children in 7th grade in a small city and its surrounding rural areas.

Durkin, Wolfe, and Clark (1999) found that adolescents with strong emotional ties to family members are less likely to engage in binge drinking. They surveyed 247 college students.

Specifically, the social bond variables (attachment, commitment, involvement, and belief) were inversely related to the frequency of binge drinking. Respect for authority, acceptance of conventional beliefs, and GPA were particularly important predictors of binge drinking.

In terms of permissive parenting, Hyatt and Collins (2000) found that students in 9th grade who perceived their parents to be highly permissive, relative to their peers who perceived their parents to be less permissive, were 17 times more likely to progress from no use of substances to high use by 10th grade. Similar results have been reported in other studies. For example, Cohen and Rice (1997) surveyed 8th- and 9th-grade students and their parents to determine how parenting styles were associated with academic achievement, alcohol, and tobacco use. Ratings of parenting styles from 386 matched parent-child pairs were analyzed for parent and student classification of parents as authoritative, authoritarian, permissive, or mixed parenting styles. Although agreement on parenting styles between parents and children was poor, child alcohol and tobacco use were associated with child perception of lower authoritativeness, and higher permissiveness while parent perception of style was not associated with child substance use. Results provide evidence that parenting style and adolescents' perceptions of them are associated with substance use. It is likely that parents would benefit from understanding how they are perceived by their adolescents since students perceived parents as less authoritative, less permissive, and more authoritarian than parents considered themselves in this study.

In assessing the association between parenting style and the legitimacy of parental authority regarding alcohol and tobacco of young adolescents, Jackson (2002) found that adolescents under permissive, authoritarian, and indifferent parenting were more likely to deny parental authority with cigarettes and alcohol use. Specifically, when compared with adolescents

from authoritative families, respondents whose parents were reported to be relatively unresponsive and undemanding were six to seven times more likely to deny parental authority regarding substance use. Thus, highly responsive and highly demanding parenting was associated with adolescents who acknowledged parents as a source of influence regarding tobacco and alcohol use. Participants included 1,220 6th- and 8th- grade adolescents from a school district in central North Carolina. Students completed self-report questionnaires. These findings are consistent with studies conducted by Baumrind (1978) and Darling and Steinberg (1993) who hold that authoritative parenting is associated with a generally lower need for emancipation from parental authority during adolescence; hence, lower resistance to parental influence.

In their study of parenting styles (authoritative, authoritarian, and permissive), Patock-Peckham and Morgan-Lopez (2006) discovered the importance of parent-child gender match in the relationship between parenting style and alcohol use involving 421 college students. Specifically, it appears to be the parenting style of the same-gender parent as the student who exerts the greatest influence on the student's alcohol use and consequences experienced. These researchers also found that the more permissive the mothers and fathers, the more impulsive were the daughters and sons, respectively. Furthermore, when fathers are more authoritative, their sons are less impulsive, but when mothers are more authoritarian, their daughters are more impulsive. Although both parenting styles involve high control, authoritativeness includes high warmth, whereas authoritarianism includes low warmth.

Williams and Hine (2002) investigated the possible effects of parents' alcohol consumption and permissiveness on alcohol misuse among a sample of 320 rural Australian high school students via questionnaire. Specifically, they sought to determine whether these effects

were mediated by attitudes toward alcohol use, subjective norms, and perceived behavioral control. Researchers that the three variables fully mediated the effects of parent variables on adolescent alcohol misuse, and that the mediational paths were similar for both male and female adolescents.

Philbin (1996) found mixed results in his study regarding adolescents' daily experience of parenting styles and alcohol use. In his sample of 220 white middle-class high school students, he found that closeness to parents predicted adolescent drinking for the entire sample, with less close relationships between parents and children being associated with heavier alcohol use. However, probes of this finding revealed that intimacy predicted drinking for girls, while parental closeness was unrelated to boys' drinking. Adolescent drinking was not predicted by the linear parental strictness variable for either gender. Rather, moderate parental strictness predicted drinking for boys but not girls. These findings suggest the need for further investigation regarding parenting styles, adolescent drinking, and gender.

Overall, the literature holds that an authoritative parenting style is ideal for adolescents across a broad range of outcomes, more specifically alcohol use. It also appears that the adolescent's perception of the parent's style is more salient than the parent's perception of style. There is a demanding need for more research regarding how parenting styles affect adolescent alcohol use regarding the gender of the child.

This current study uses the perceived parenting style as one of the three independent family system variables. It is hypothesized that authoritative parenting styles will result in lower frequencies of adolescent alcohol consumption and lower frequencies of binge drinking.

Furthermore, there is utmost interest in seeing how all three parenting variables, parental monitoring, parent-adolescent communication, and parenting style, work together to predict adolescent alcohol use and binge drinking.

CHAPTER III

METHODS

Design of the Study

This study examined quantitative data collected through the Virginia Adolescent Resiliency Assessment (VARA). Through secondary data analysis, this study made use of a plethora of profiling data previously collected. Data was combined from six identical surveys collected from six separate but similar rural counties in Virginia.

There are limitations that are coupled with secondary data analysis. The VARA survey was created in hopes of offering a large scale view into the lives of adolescents, including their values, beliefs, thoughts, and behaviors. Because the VARA was designed for a wide angle view of adolescents, the few questions relating to parenting processes and alcohol use had already been determined and could not be expanded for the purposes of this current study.

Study Participants and Procedures

Study participants consisted of 7th-12th grade students from six rural high schools in ethnically diverse rural Virginia counties. These six particular high schools had been previously chosen as part of the larger, VARA study. The study made use of the whole school census procedure in that all students in the schools were invited to participate in the study. Parents were informed of the study and its purpose through a consent form that was sent home with all enrolled students. Parents were given the option to not allow their children to participate and children could also make their own decision not to participate. On the days of the administration of the survey, one classroom period was designated for the completion of the paper and pencil questionnaire. Each classroom was proctored by a teacher or community member, who read the instructions to the students, answered questions, and collected the completed surveys in an envelope. All VARA surveys were completed and collected anonymously.

Data Collection Instruments

The measures for this study were derived from the Virginia Adolescent Resiliency Assessment (VARA), a 174-item survey. VARA is based on a community-based action research process developed by Stephen Small from the University of Wisconsin-Madison/Extension (Small & Kerns, 1993). VARA is also based on the 1998 Youth Risk Behavior Survey, a nationally recognized questionnaire consisting of six categories of priority health-risk behaviors among youth and young adults (Center for Adolescent and School Health, 1999). VARA, in addition to basic participant demographic information, includes several self-report measures addressing an array of topics: how teens spend their time; health care issues; personal safety and violence; mental health; alcohol, tobacco, and drug use; diet and exercise; perceptions of the community, school, and friends; parent-adolescent relations; and sexuality. For this study, only variables regarding alcohol and family were of interest.

Measures

Independent Variables

Parental Monitoring

Eight items within the VARA assess perceptions of parental monitoring. Teens were asked how much each of the eight items were true for them: 1) “My parent(s) know where I am after school”; 2) “If I am going to be home late, I am expected to call my parent(s) to let them know”; 3) “I tell my parent(s) whom I’m going to be with before I go out”; 4) “When I go out at night, my parent(s) know where I am”; 5) “My parent(s) know who my friends are”; 6) My parent(s) know the parents of my friends”; 7) “My parent(s) know what I watch on television”; and 8) “My parent(s) monitor my computer/internet use”. Teens chose one of six possible responses: “0 = never”, “1 = rarely”, “2 = sometimes”, “3 = a lot of the time”, “4 = always”, or

“5 = no adult at home.” Those who chose “no adult at home” were omitted from the analyses since meaning could not be inferred from that information. A parental monitoring score was computed by using the mean from the answer from the eight items. A mean score was used so that the score could be interpreted from the scale it originated from. Cronbach’s alpha for the eight items was .83 (See Appendix A).

Parent-Adolescent Communication

Seven survey items (on seven topics) assessed the degree of parent-adolescent communication perceived by the teenager. The teenagers were asked how often in the past year they communicated with their parents (or the adults they live with) about each of the following topics: 1) drugs and alcohol; 2) sex and/or birth control; 3) job or education plans after high school; 4) personal problems/concerns; 5) teachers or classes in school; 6) dating; and 7) things they enjoy. Responses included: “0 = never”, “1 = rarely”, “2 = sometimes”, “3 = often”, “4 = very often”, or “5 = no adult at home.” Those who responded that there is no adult at home were omitted from analyses since no meaning could be interpreted from that information. A mean score was computed from the seven survey items to produce a communication score. A mean score was used so that the score could be used on the same scale it originated from. Cronbach’s alpha for the seven-item scale was .83 (See Appendix B).

Parenting Style

In the questionnaire, one survey item assessed for the adolescent’s perception of parenting styles by inquiring about decision-making processes in the home. The question is presented as: “In general, how are the most important decisions made between you and your parent(s) or other adults you live with (for example, what time you need to be home at night or where you can go with friends)?” Students selected their choice out of seven possible answers

including: 0) “No parent or guardian at home”; 1) “They tell me exactly what to do” (authoritarian); 2) “They ask my opinion, but they have the final say” (authoritative); 3) “We talk about it and together we come to a decision” (authoritative); 4) “They discuss the decision with me but then let me decide” (authoritative); 5) “They trust me to decide for myself” (permissive); or 6) “They don’t care what I do, so I decide for myself” (neglectful) (See Appendix C). These responses were then recoded into a categorical format for parenting style. Those who responded “1”, “5”, or “6” were recoded as 0 = non-authoritative; and those who responded “2”, “3”, or “4” were recoded as 1 = authoritative for analysis. Those who responded that there was no parent or guardian at home were excluded from the analyses since there was no way of interpreting meaning from that response.

Dependent Variables

Frequency of Alcohol Consumption

Respondents were asked “During the past 30 days, on how many days did you have at least one drink of alcohol?” Seven possible responses included “0 = 0 days”, “1 = 1 or 2 days”, “2 = 3 to 5 days”, “3 = 6 to 9 days”, “4 = 10 to 19 days”, “5 = 20 to 29 days”, or “6 = All 30 days”. Frequency of drinking was a continuous variable in the analyses since it could not be coded into categorized that were supported by research since the majority of studies categorized by the number of drinks consumed rather than days.

Frequency of Binge Drinking

To assess heavy episodic drinking (binge drinking), students were asked: “During the past 30 days, on how many days did you have 5 or more drinks of alcohol in a row, that is, within a couple of hours?” Students chose from 7 possible answers: “0 = 0 days”, “1 = 1 days”, “2 = 2 days”, “3 = 3 to 5 days”, “4 = 6 to 9 days”, “5 = 10 to 19 days”, or “6 = 20 or more days”.

Like frequency of alcohol consumption, binge drinking was also a continuous variable since it could be categorized into drinking levels that were supported by research since most studies measure by amount of drinks consumed.

Analyses

Quantitative analyses were conducted using *SPSS for Windows version 15.0*.

Analyses were conducted to determine descriptive statistics. Correlation analyses were conducted to explore the relationships between variables. T-tests and a one-way analysis of variance were conducted to explore the differences between the three parenting variables by both grade and gender. Linear regressions were used for the whole sample as well as several subsamples to determine the influence of parental monitoring, parent-adolescent communication, and parenting styles on alcohol use. The independent variables, parental monitoring, parent-adolescent communication, and parenting styles, were entered into a linear regression equation as predictors of both frequency of alcohol consumption and binge drinking. Four questions will be examined:

- 1) How does perceived parental monitoring, parent-adolescent communication, and parenting style predict the frequency of adolescent alcohol consumption?
- 2) How does perceived parental monitoring, parent-adolescent communication, and parenting style predict adolescent binge drinking?
- 3) How does the gender and grade of the adolescent interact with the relationships between the three parenting variables and the frequency of adolescent alcohol consumption?
- 4) How does the gender and grade of the adolescent interact with the relationships between the three parenting variables and adolescent binge drinking?

To evaluate the independent variables for multicollinearity, prior to conducting the regression analysis, correlation coefficients of the independent variables in a correlation matrix were examined.

Hypotheses

The hypotheses being tested in this study include:

- 1) Higher levels of perceived parental monitoring, higher levels of parent-adolescent communication and authoritative parenting styles will result in lower frequencies of adolescent alcohol consumption.
- 2) Higher levels of perceived parental monitoring, higher levels of parent-adolescent communication and authoritative parenting styles will result in lower levels of adolescent binge drinking.
- 3) Gender and grade of the adolescent will moderate the effects of the three perceived parenting variables on frequency of adolescent alcohol consumption. Specifically, older adolescents and males will report higher levels of alcohol consumption while perceiving lower levels of parental monitoring, lower levels of parent-adolescent communication, and non-authoritative parenting.
- 4) Gender and grade of the adolescent will moderate the effects of the three perceived parenting variables on adolescent binge drinking. Specifically, older adolescents and males will report higher levels of alcohol consumption while perceiving lower levels of parental monitoring, lower levels of parent-adolescent communication, and non-authoritative parenting.

CHAPTER IV

RESULTS

Profile of the Sample

The sample consisted of 3,472 participants in grades 7-12, 52% of whom were female and 48% were male. Ages varied throughout the sample in that 4% were 12 years of age or younger, 7% 13 years, 14% 14 years, 23% 15 years, 23% 16 years, 19% 17 years, and 10% 18 years or older. The sample is not evenly distributed by grade; 8% were seventh graders, 8% eighth graders, 25% ninth graders, 22% tenth graders, 20% eleventh graders; and 17% twelfth graders. The sample participants reported their ethnicity as 66% “White or Caucasian”, 24% “Black or African-American”, 3% “Mixed race or biracial”, 3% “Other”, 2% “Hispanic or Latino”, 1% “Asian”, and 1% “Native American”.

Participants came from six rural counties in Virginia: 667 (19%) from County #1; 336 (10%) County #2; 252 (7%) County #3; 485 (14%) County #4; 1,333 (39%) County #5; and 371 (11%) County #6. Data was collected during the 2001 and 2002 school years, 680 (17%) from 2001 and 3,248 (83%) from 2002.

Fifty-eight percent of the 3,472 adolescents reported that they had drunk alcohol zero days during the past month, 18% reported drinking 1 to 2 days, 10% 3 to 5 days, 7% 6 to 9 days, 4% 10 to 19 days, 1% 20 to 29 days, and 2% all 30 days. Regarding gender, males generally drank alcohol more often than females (See Figure 1). With grade, the frequency of consuming alcohol generally increased as the grade of adolescents increased (See Figure 2).

Figure 1
Percentage of Frequency of Drinking Alcohol by Gender

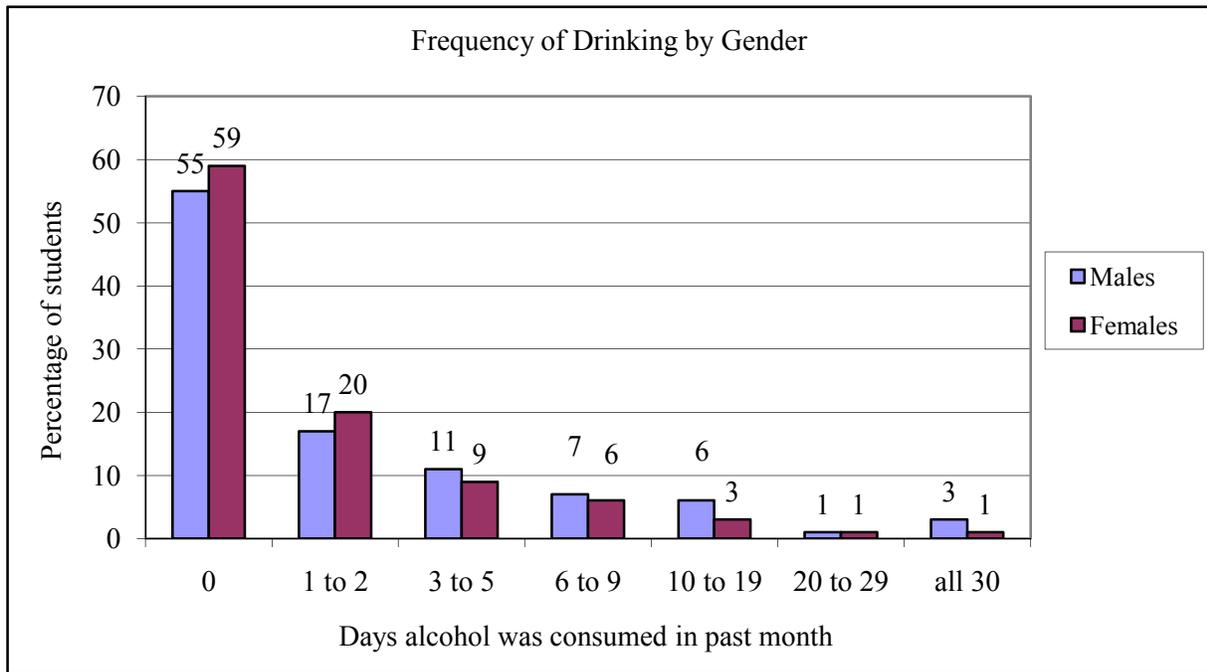
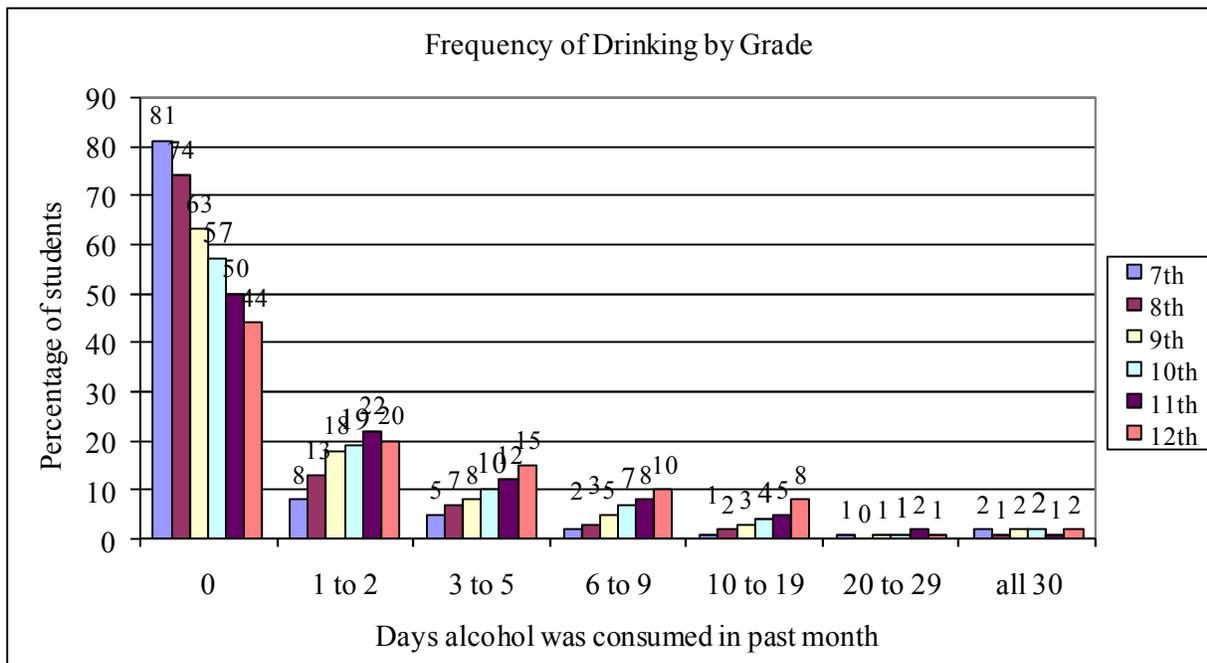


Figure 2
Percentage of Frequency of Drinking Alcohol by Grade



In regards to heavy episodic drinking (binging), 76% of the total sample reported bingeing zero days during the past month, 7% 1 day, 5% 2 days, 5% 3 to 5 days, 3% 6 to 9 days, 2% 10 to 19 days, and 2% 20 or more days. In terms of gender, males engaged in more binge drinking than females in all categories (see Figure 3). With grade, the rate of binge drinking appeared to increase as grade of the adolescent increased (see Figure 4).

Figure 3
Percentage of Frequency of Binge Drinking Alcohol by Gender

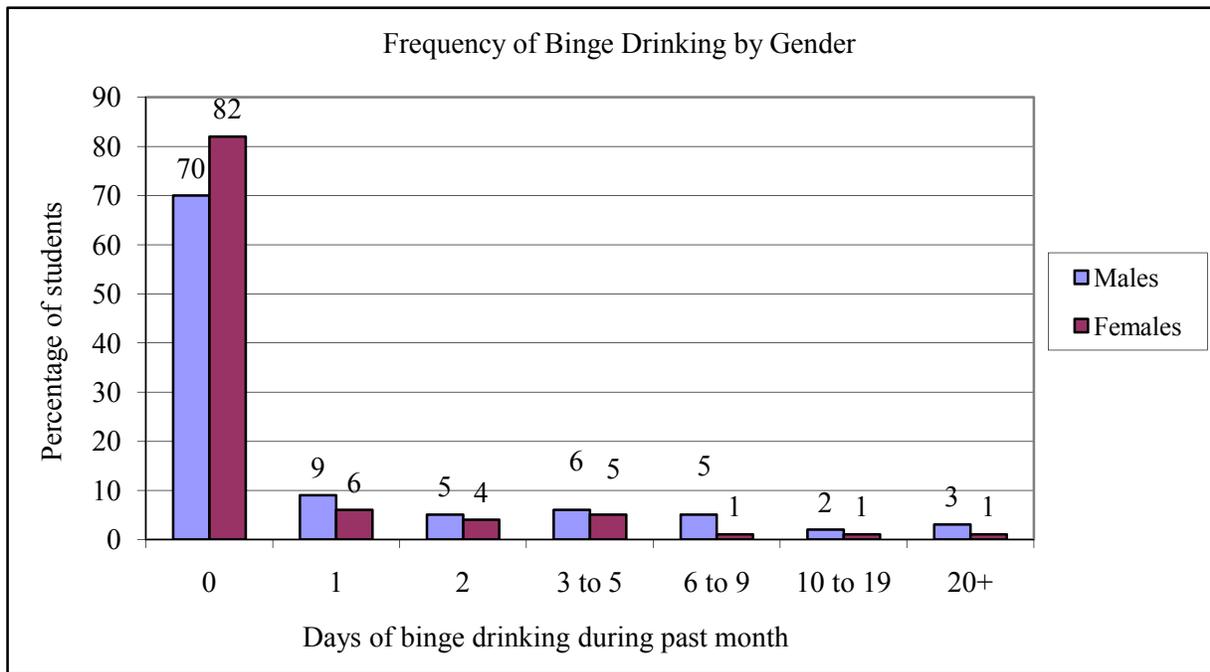
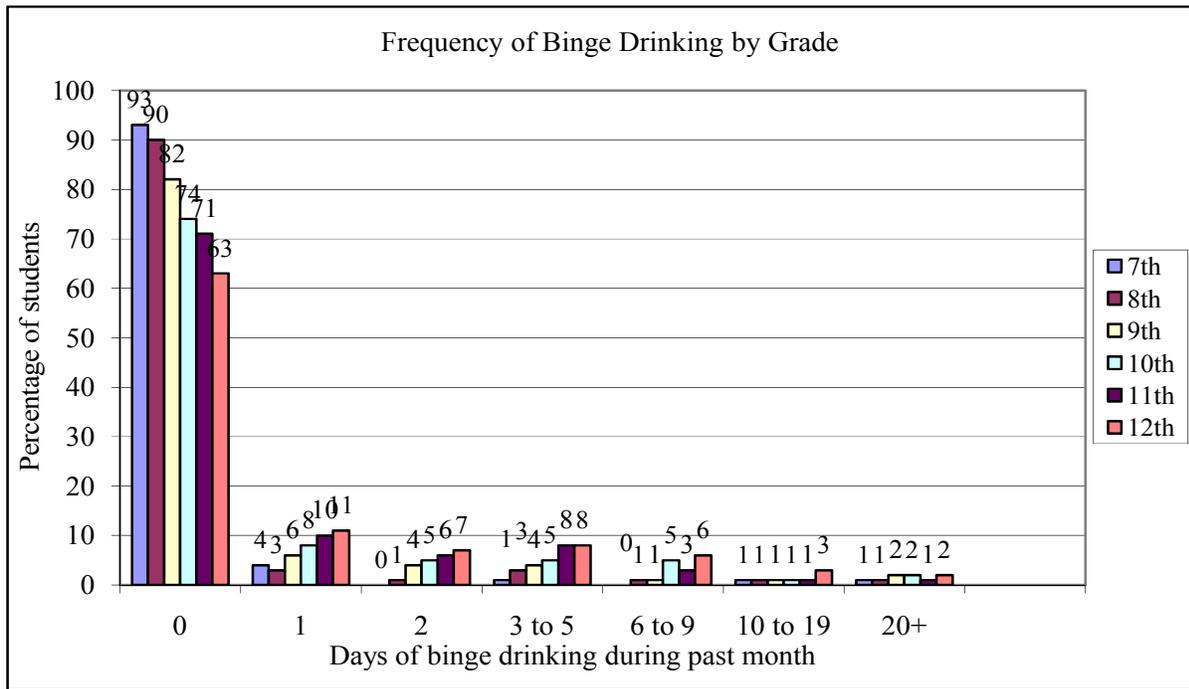


Figure 4
Percentage of Frequency of Binge Drinking by Grade



Regarding how students perceive parental monitoring, 3% of the total sample responded “never” to the eight measures of parental monitoring (See Appendix A for the measures). Eleven percent responded “rarely”; 42% “sometimes”; 40% “a lot of the time”; and 4% “always”. In general, females appear to report perceiving more monitoring than boys (See Figure 5). It also appears that students in lower grades generally report higher perceptions of parental monitoring (See Figure 6).

Figure 5
Perceptions of Parental Monitoring by Gender

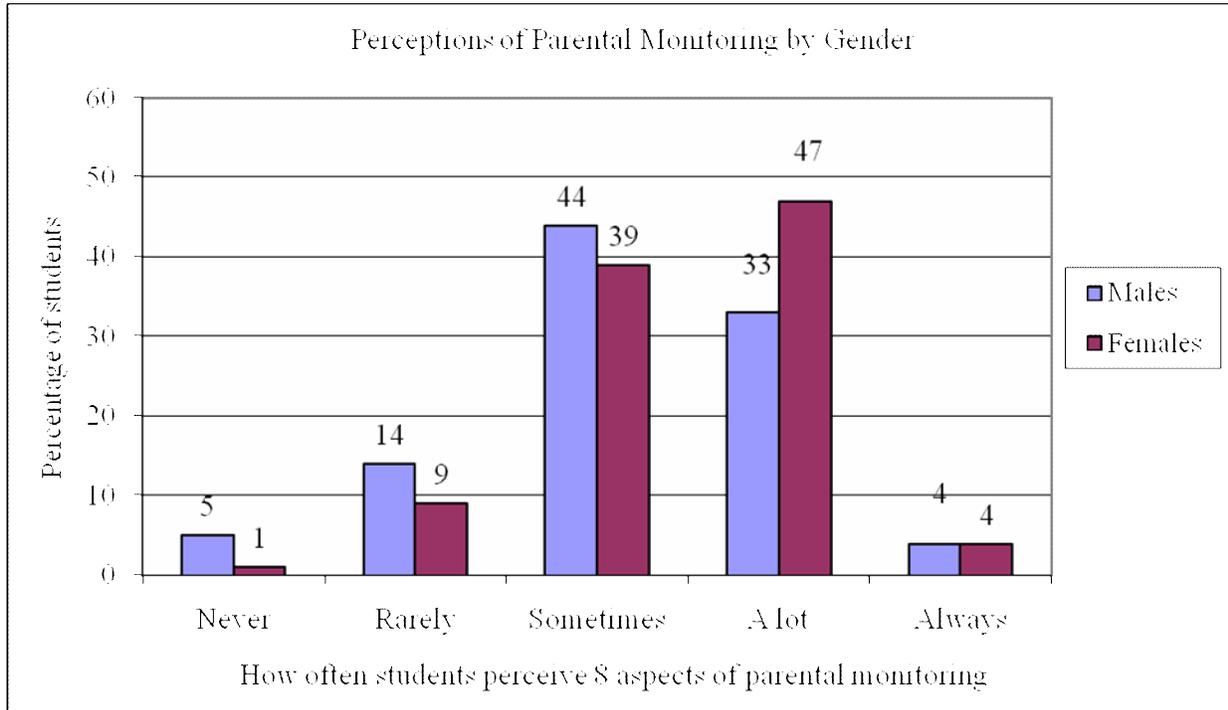
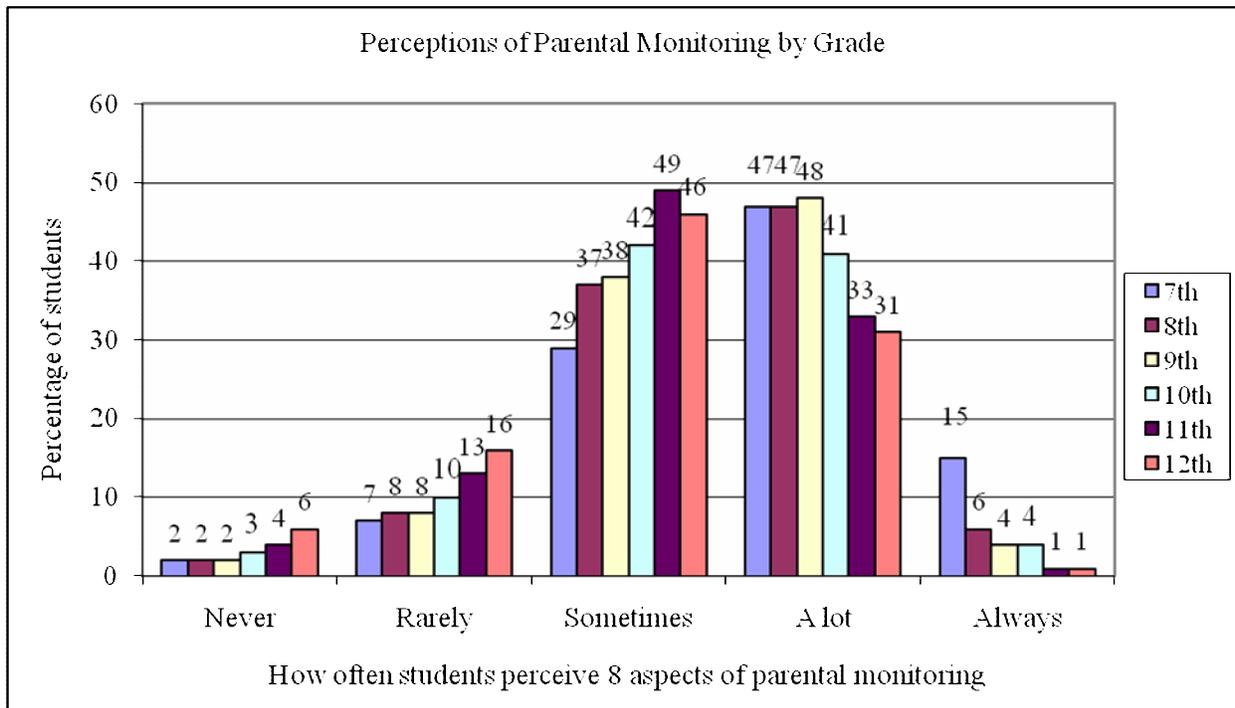


Figure 6
Perceptions of Parental Monitoring by Grade



In terms of parent-adolescent communication, 13% of the total sample responded “never” to how often they have communicated with their parent(s) about the seven measures assessing communication (See Appendix B for the measures). Thirty-three percent responded “rarely”; 37% “sometimes”; 14% “often” and 3% “very often”. Females generally appear to report perceiving higher levels of parent-adolescent communication than males (See Figure 7) and there does not appear to be any pattern between communication and grade (See Figure 8).

Figure 7
Perceptions of Parent-Adolescent Communication by Gender

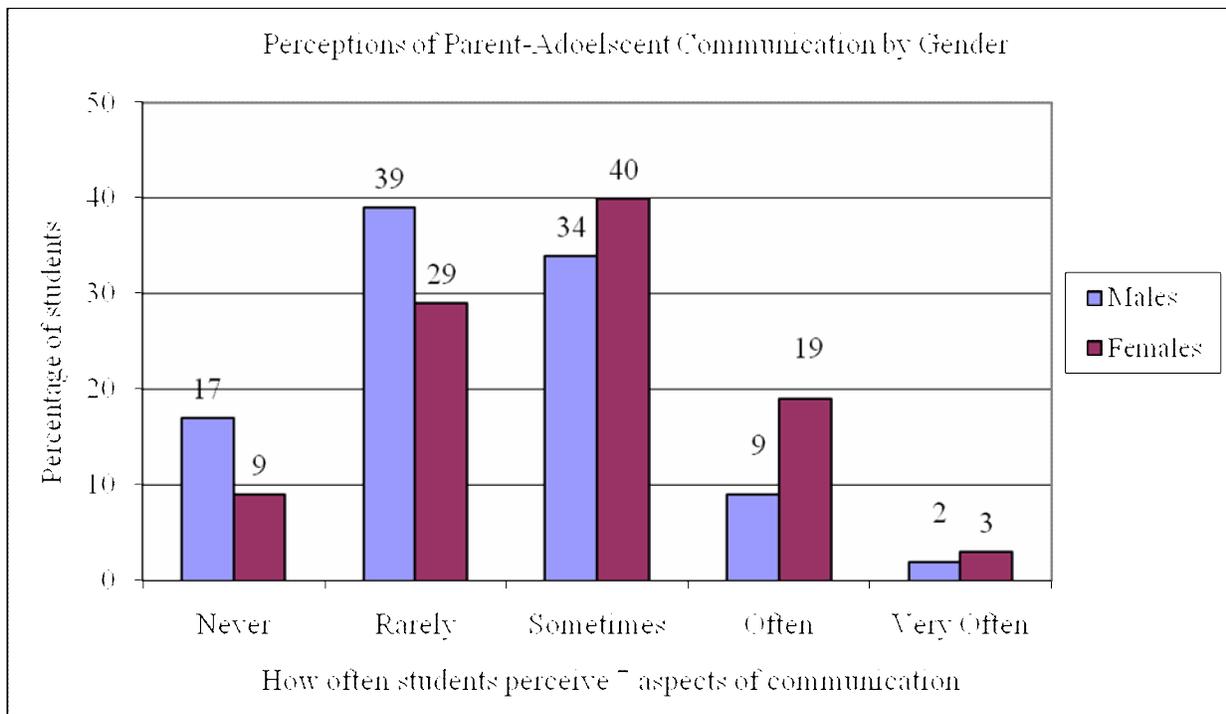
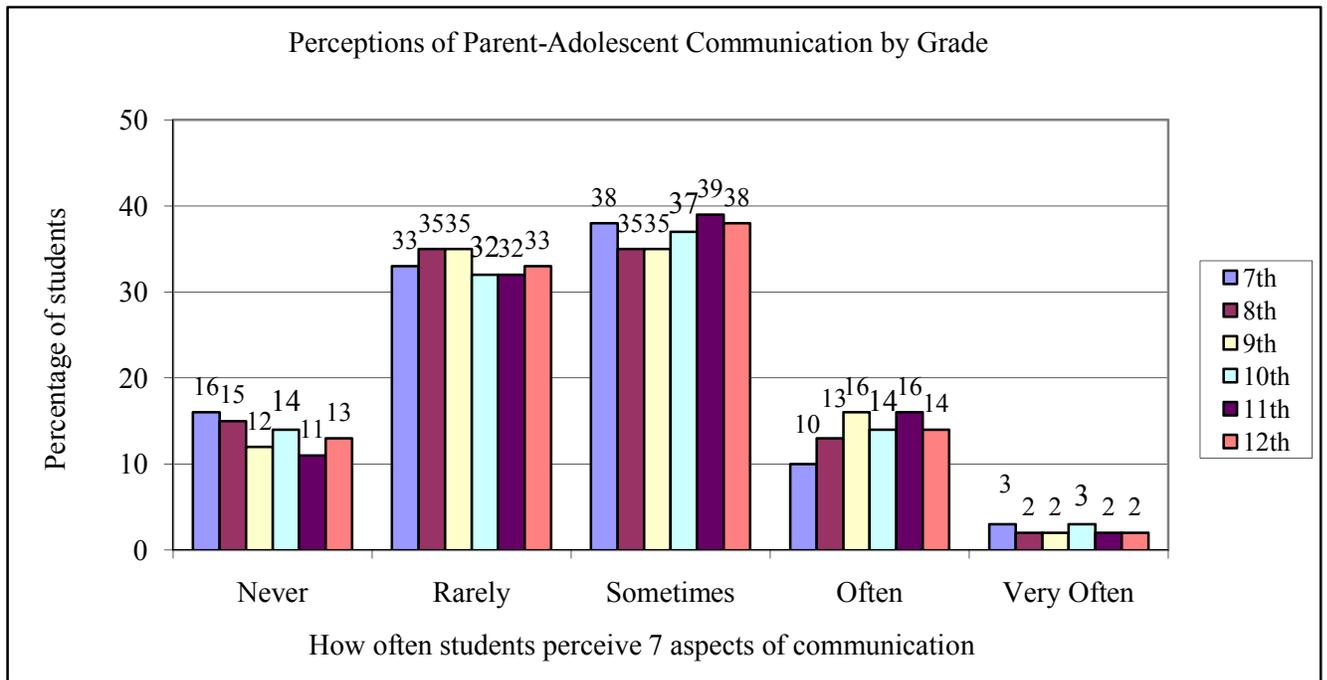
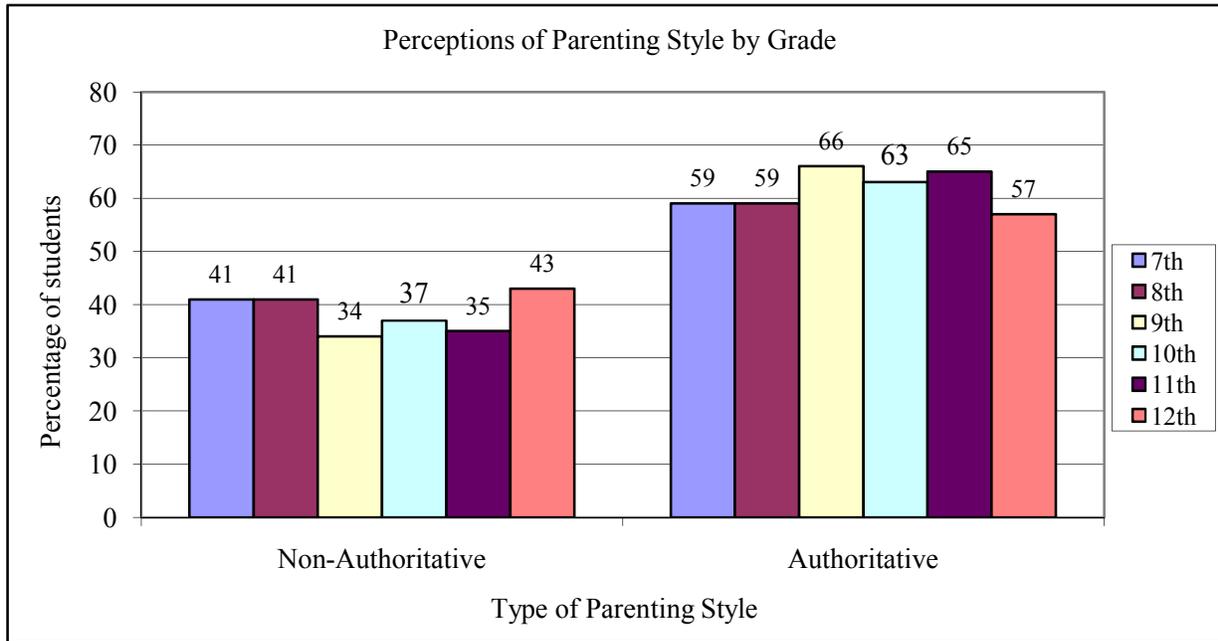


Figure 8
Perceptions of Parent-Adolescent Communication by Grade



Parenting styles was categorized as either authoritative or non-authoritative by means of one survey question (See Appendix C). Sixty-two percent of the total sample reported perceiving authoritative parenting while the remaining 38% reported perceiving non-authoritative parenting. More females (66%) reported perceiving authoritative than non-authoritative parenting. More males (58%) reported perceiving authoritative than non-authoritative (42%). All grades reported more perceptions of authoritative parenting than non-authoritative (See Figure 9).

Figure 9
Perceptions of Parenting Style by Grade



Analyses

Correlation Analyses

Correlation analyses were conducted to determine the correlation of all of the independent variables to the dependent variables and to each other. The independent variables were examined for multicollinearity and it does not appear that multicollinearity was an issue within the variables (See Table 1).

As revealed in Table 1, the frequency of consuming alcohol ($r = .186, p < .01$) and the frequency of binge drinking ($r = .179, p < .01$) were significantly correlated with grade of the adolescent, such that as grade increases so does the reported frequency of drinking and binge drinking. Grade was negatively correlated with parental monitoring ($r = -.234, p < .01$) such that as grade increases, the level of parental monitoring decreases. Parental communication ($r = .021$) and parenting style ($r = -.017$) were not significantly correlated with school grade however.

Gender was also associated with the two dependent variables pertaining to drinking. Being male was correlated with the frequency of drinking alcohol ($r = .113$, $p < .01$) as well as binge drinking ($r = .146$, $p < .01$) such that males were more likely to drink alcohol and binge drink than females (See Table 1). Gender was also associated with all three independent variables pertaining to perception of parenting. Being male was negatively correlated ($p < .01$) with parental monitoring ($r = -.157$), parental communication ($r = -.211$), and parenting style ($r = -.085$). These findings suggest that males experienced less parental monitoring, less parental communication, and were less likely to experience authoritative parenting styles than females.

Regarding the frequency of alcohol consumption and the parenting variables, there were inverse relationships with all three parenting variables. Parental monitoring was negatively correlated with frequency of alcohol consumption ($r = -.327$), parental communication ($r = -.081$), and parenting style ($r = -.044$). These findings suggest that those who are experiencing lower perceptions of parental monitoring, lower perceptions of parent-adolescent communication, and non-authoritative parenting styles are more likely to report consuming more alcohol.

For binge drinking, significant inverse relationships were found with only two of the parenting variables. Parental monitoring was negatively correlated with binge drinking ($r = -.312$), as was parent-adolescent communication ($r = -.077$). These findings suggest that those who are experiencing lower perceptions of parental monitoring and lower perceptions of parent-adolescent communication are more likely to report more binge drinking.

It is important to note that the large sample in the study increases the tendency for the correlations to be significant; therefore, results should be interpreted with caution.

Table 1
Correlations Among Variables

| Variable | Grade | Gender | AlcFrq | AlcBing | ParMon | ParCom | ParStyle |
|----------|---------|---------|---------|---------|--------|--------|----------|
| Grade | 1.000 | | | | | | |
| Gender | -.016 | 1.000 | | | | | |
| AlcFrq | .186** | .113** | 1.000 | | | | |
| AlcBing | .179** | .146** | .806** | 1.000 | | | |
| ParMon | -.234** | -.157** | -.327** | -.312** | 1.000 | | |
| ParCom | .021 | -.211** | -.081** | -.077** | .380** | 1.000 | |
| ParStyle | -.017 | -.085** | -.044* | -.053 | .218** | .267** | 1.000 |

**Correlation is significant at the .01 level (2-tailed).

*Correlation is significant at the .05 level (2-tailed).

Grade = Grade of Adolescent

Gender = Gender of Adolescent

AlcFrq = Frequency of Drinking Alcohol

AlcBing = Frequency of Binge Drinking Alcohol

ParMon = Parental Monitoring

ParCom = Parent Communication

ParStyle = Parenting Style

T-Tests

T-tests were conducted to explore the mean level differences by gender on the parenting variables in order to test hypotheses 3 and 4 (See Table 2). Analyses revealed that females were significantly more likely to report higher perceptions of parental monitoring ($t = 8.86, p < .001$), higher levels of perceived parental communication ($t = 12.16, p < .001$), and authoritative parenting styles ($t = 4.90, p < .000$).

Table 2
T-Tests Results Comparing All Variables between Male and Female Adolescents

| Variable | Males | | Females | | <i>t</i> | <i>P</i> |
|----------|-------|------|---------|------|----------|----------|
| | Mean | SD | Mean | SD | | |
| ParMon | 2.599 | .843 | 2.845 | .702 | 8.864 | .000 |
| ParCom | 1.795 | .907 | 2.185 | .902 | 12.161 | .000 |
| ParStyle | .580 | .494 | .663 | .473 | 4.904 | .000 |

ParMon = Parental Monitoring
 ParCom = Parent Communication
 ParStyle = Parenting Style

One-Way Analysis of Variance (ANOVA)

To explore the mean level differences by grade on the parenting variables (testing hypotheses 3 and 4), a one-way ANOVA was conducted (See Table 3). Table 3 shows the mean scores of the parenting variables. There were significant differences between the school grade means for parental monitoring ($F = 32.42 (6, 3192) p < .001$). Specifically, in perceptions of parenting monitoring, 7th-grade students differed significantly from 9th-graders, 10th-graders, 11th-graders, and 12th-graders in that they reported more parental monitoring. Those in 8th grade were only significantly different from those in 11th and 12th grade. The 8th-graders reported significantly more parental monitoring than those in 11th and 12th grade. Those in 9th grade were significantly different from others in all grades except 8th grade and reported higher perceptions of parental monitoring. Tenth grade students differed significantly from those in 7th, 9th, 11th, and 12th grade. The 10th-graders reported lower perceptions of monitoring than the 7th- and 9th-graders, but more than those in 11th and 12th. Eleventh-grade students differed significantly from all grades in that they reported lower perceptions of monitoring compared to 7th, 8th, 9th, and 10th grades and higher perceptions compared to 12th-grade students. Those in

12th grade differed significantly from all grades as well since they reported lower perceptions of monitoring than all other grades.

There were also significant differences between the school grade means for parenting style as well ($F = 2.86 (6, 3309) p < .001$). Specifically, those in 7th, 8th, and 10th grade did not significantly differ from any other grade. Those in 9th grade differed significantly from those in 12th grade only in that they reported higher perceptions of authoritative parenting. Those in 11th grade only differed significantly from 12th-graders in that they also reported higher perceptions of authoritative parenting. Lastly, those in 12th grade differed significantly from 9th- and 11th-graders in that they reported lower perceptions of authoritative parenting.

Table 3
Mean Scores on Parenting Variables by School Grade

| | 7th | 8th | 9th | 10th | 11th | 12 th |
|----------|--------------------------------|----------------------------|--------------------------------|----------------------------------|----------------------------------|----------------------------------|
| Variable | Mean (SD) | Mean (SD) | Mean (SD) | Mean (SD) | Mean (SD) | Mean (SD) |
| ParMon | 3.06(.79) _{a,c,d,e,f} | 2.92(.75) _{b,e,f} | 2.87(.72) _{a,c,d,e,f} | 2.75(.76) _{a,b,c,d,e,f} | 2.59(.75) _{a,b,c,d,e,f} | 2.45(.80) _{a,b,c,d,e,f} |
| ParCom | 1.93(.94) | 1.92(.94) | 2.01(.92) | 2.01(.95) | 2.03(.91) | 1.99(.93) |
| ParStyle | 0.59(.49) | 0.59(.47) | 0.66(.48) _{c,f} | 0.63(.48) | 0.65(.48) _{e,f} | 0.57(.50) _{c,e,f} |

Note: Means in a row sharing subscripts are significantly different at the .05 level.

ParMon = Parental Monitoring
ParCom = Parent Communication
ParStyle = Parenting Style

Linear Regression Analyses

Linear regression analyses in which all the variables were entered in one step, were used to determine how the perceptions of parental monitoring, parent communication, and parenting style, moderated by school grade and gender predicted drinking behavior (all hypotheses). A separate regression analysis was conducted with each dependent variable (i.e. frequency of alcohol consumption and frequency of binge-drinking). Basic descriptive statistics and regression coefficients are shown in Tables 4 and 5.

Based on these analyses, the independent variables were shown to be statistically significant predictors of the frequency of consuming alcohol ($F = 41.92, p < .001$). The 11-predictor model for predicting frequency of alcohol consumption accounted for 13% of the variance. In this regression model, parental monitoring appeared to be the most significant predictor of the frequency of consuming alcohol ($\beta = -.29, p < .001$). School grade was the second strongest predictor of alcohol consumption ($\beta = .18, p < .01$), and the interaction between parenting style and gender was third ($\beta = .05, p < .05$) (See Figure 10 for interaction effects).

Table 4
Regression Analysis of Independent Variables Predicting the Frequency of Consuming Alcohol

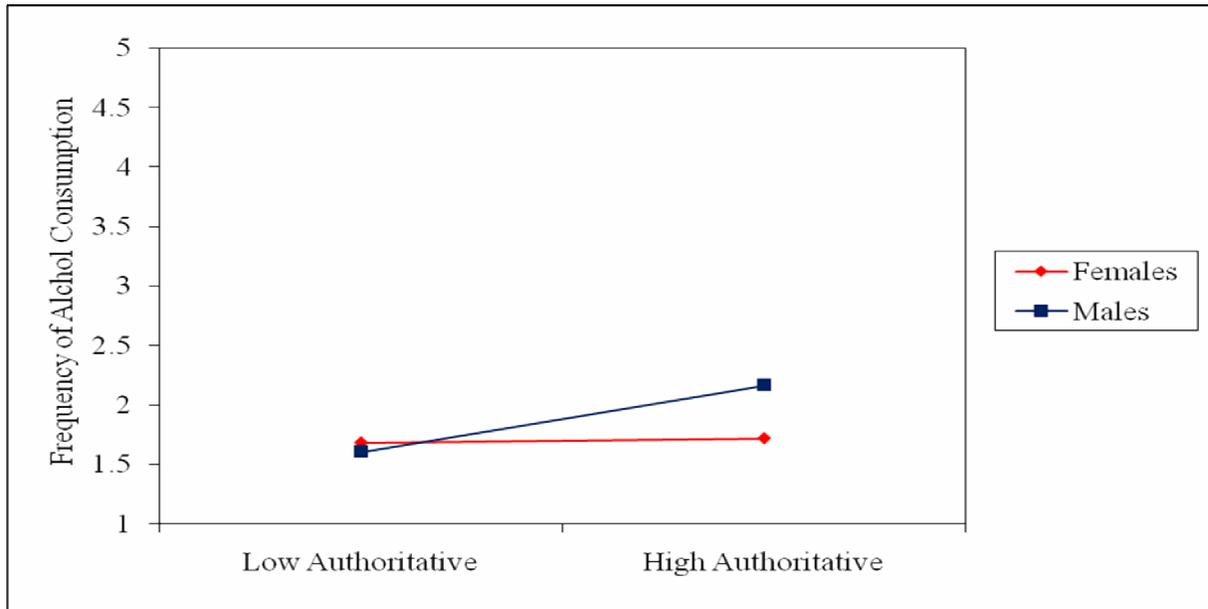
| Variable | B | SEB | β | P |
|----------|-------|------|---------|------|
| Gender | .012 | .175 | .004 | .945 |
| Grade | .163 | .058 | .177 | .005 |
| ParMon | -.507 | .078 | -.292 | .000 |
| ParCom | .077 | .065 | .053 | .239 |
| ParStyle | .013 | .058 | .005 | .823 |
| MonGen | .009 | .064 | .009 | .890 |
| ComGen | .037 | .054 | .030 | .499 |
| StylGen | .196 | .089 | .054 | .027 |
| MonGrd | -.011 | .021 | -.037 | .586 |
| ComGrd | -.013 | .018 | -.040 | .487 |
| StylGrd | .013 | .019 | .016 | .512 |

Note: Adjusted $R^2 = .128, F = 41.922 (N = 3078, p < .001)$

Gender = Gender of Adolescent
 Grade = Grade of Adolescent
 ParMon = Parental Monitoring
 ParCom = Parent Communication
 ParStyle = Parenting Style
 MonGen = Monitoring X Gender
 ComGen = Communication X Gender
 StylGen = Parenting Style X Gender
 MonGrd = Monitoring X Grade
 ComGrd = Monitoring X Grade
 StylGrd = Style X Grade

Figure 10

Interaction Between Parenting Style and Gender Predicting Frequency of Alcohol Consumption



In predicting the frequency of binge-drinking, the independent variables accounted for 12% of the variance ($F = 39.14, p < .001$). Parental monitoring again appeared to be the strongest predictor of frequency of binge drinking ($\beta = -.20, p < .001$). School grade of the adolescent was the second strongest significant predictor in this model ($\beta = .18, p < .01$), gender third ($\beta = .15, p < .05$), the interaction between parental monitoring and gender fourth ($\beta = -.15, p < .05$), and the interaction between parent-adolescent communication and gender fifth ($\beta = .09, p < .05$). (See Figures 11 and 12 for interaction effects).

Table 5

Regression Analysis of Independent Variables Predicting the Frequency of Binge Drinking

| Variable | B | SEB | β | <i>P</i> |
|----------|-------|------|---------|----------|
| Gender | .395 | .172 | .152 | .021 |
| Grade | .164 | .057 | .183 | .004 |
| ParMon | -.330 | .077 | -.201 | .000 |
| ParCom | .013 | .064 | .009 | .834 |
| ParStyle | .023 | .056 | .009 | .679 |
| MonGen | -.135 | .063 | -.147 | .032 |
| ComGen | .112 | .053 | .094 | .035 |
| StylGen | .092 | .087 | .026 | .286 |
| MonGrd | -.024 | .021 | -.078 | .250 |
| ComGrd | .001 | .018 | .003 | .961 |
| StylGrd | .002 | .019 | .092 | .927 |

Note: Adjusted $R^2 = .120$, $F = 39.143$ ($N = 3080$, $p < .001$)

Gender = Gender of Adolescent

Grade = Grade of Adolescent

ParMon = Parental Monitoring

ParCom = Parent Communication

ParStyle = Parenting Style

MonGen = Monitoring X Gender

ComGen = Communication X Gender

StylGen = Parenting Style X Gender

MonGrd = Monitoring X Grade

ComGrd = Monitoring X Grade

StylGrd = Style X Grade

Figure 11
Interaction Between Parental Monitoring and Gender Predicting Binge Drinking

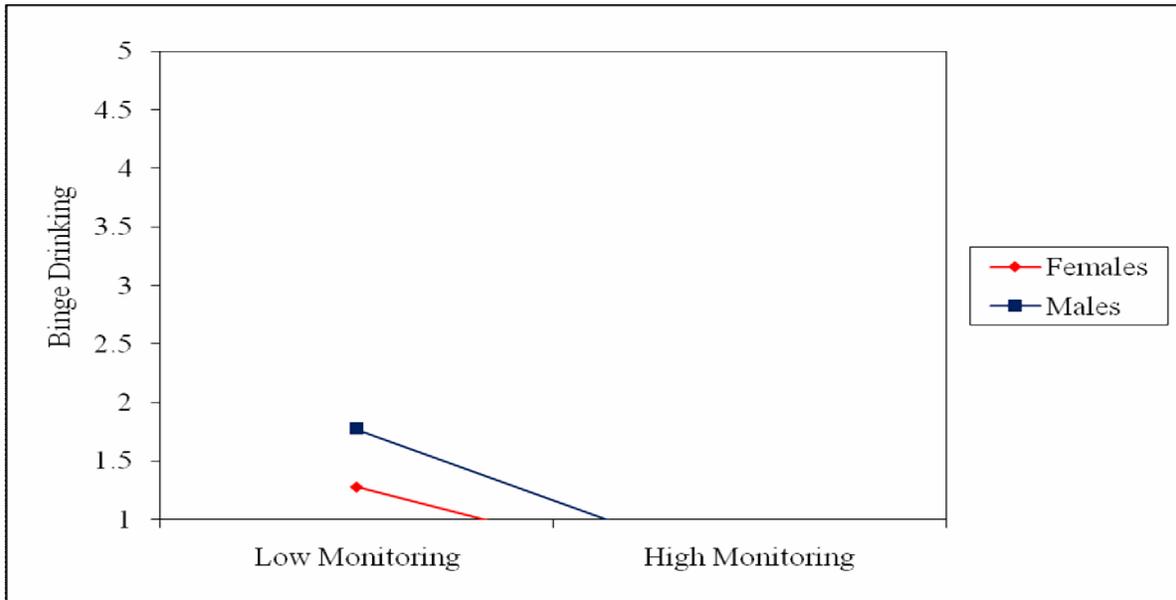
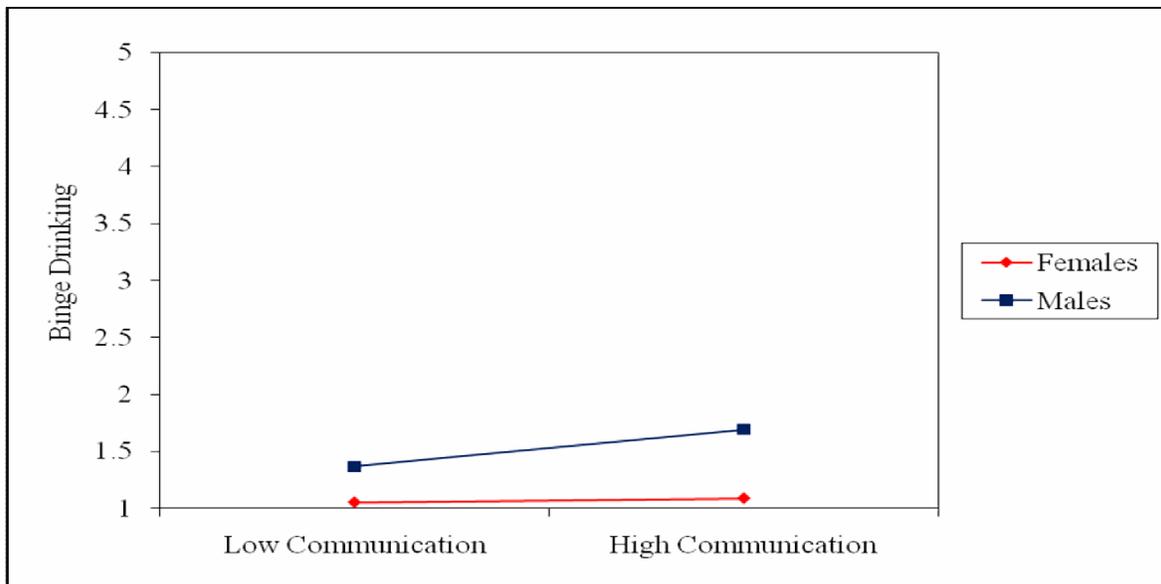


Figure 12
Interaction Between Parent-Adolescent Communication and Gender Predicting Binge Drinking



CHAPTER V

DISCUSSION

The purpose of this study was to explore the following research questions: How are the adolescents' perceptions of parental monitoring, parent-adolescent communication, and parenting style related to the frequency of adolescent alcohol consumption as well as binge drinking? How does the gender and grade of the adolescent interact with the relationships between the adolescents' perceptions of parental monitoring, parent-adolescent communication, and parenting style and the frequency of adolescent alcohol consumption as well as binge drinking? This study made use of family systems theory since behavior of family members is viewed as intertwined and individual behavior is best understood in the family context. The major emphasis of this study is its sample of rural adolescents.

It was hypothesized that higher levels of perceived parental monitoring, higher levels of perceived parent-adolescent communication, and authoritative parenting styles would result in lower frequencies of adolescent alcohol consumption as well as lower levels of binge drinking. It was also hypothesized that gender and grade of the adolescent would moderate the effects of the three perceived parenting variables on frequency of adolescent alcohol consumption and binge drinking. Specifically, older students and males would be reporting more drinking while perceiving lower levels of monitoring lower levels of communication, and non-authoritative parenting styles.

Summary of Findings

Of the 3,472 adolescents in this study, 42% reported consuming alcohol on one or more days during the 30 days prior to the survey. Regarding binge-drinking, 24% of students reported engaging in the behavior on one or more days of the 30 days preceding the survey. These

findings in this current study of rural adolescents show lower levels of drinking than the findings from the nationwide 2001 Youth Risk Behavior Surveillance (Centers for Disease Control, 2006), such that 47% of students reported consuming alcohol and 30% reported binge drinking on one or more days in the past 30 days. Also in line with previous research (Barnes & Welte, 1986; Robins & Martin, 1993; Thomas, 1996), boys reported more consumption of alcohol than girls in the current study. This study also showed that alcohol use increased as grade of the adolescent increased, consistent with previous findings (Bahr et al., 1995; Duncan, Duncan, & Strycker, 2006). In the regression analyses, school grade was a significant predictor for frequency of alcohol consumption and both grade and gender were significant predictors of binge-drinking.

Regarding parental monitoring, adolescent females perceived higher levels of monitoring than boys did, which is consistent with previous findings (Borawski et al., 2003). Also, females reported more perceived parental monitoring and less alcohol use than did males, which corresponds with some previous studies (Epstein et al., 2003; Webb et al., 2002), but not others (Borawski et al., 2003; van der Vorst et al., 2006) in which parental monitoring was linked with lower levels of drinking in adolescent males rather than females. In this study, older adolescents perceived less parental monitoring and reported higher levels of alcohol use and binge drinking. These results are consistent with previous findings as well (Borawski et al., 2003). It was hypothesized that parental monitoring would be inversely related to both frequency of alcohol consumption and binge drinking. Results from the correlation and regression analyses confirmed these hypotheses since parental monitoring was the strongest predictor in both analyses. It was also hypothesized that grade and gender of the adolescent would moderate the effects of perceived parental monitoring on adolescent frequency of consuming alcohol and binge drinking.

In the regression analyses, perceived parental monitoring interacted with gender to predict the frequency of binge-drinking. The interaction showed that reported binge drinking for both boys and girls decreased with higher levels of perceived monitoring. However, boys reported more binge drinking than girls with lower perceived monitoring while girls reported more binge drinking than boys while perceiving higher levels of parenting monitoring. Fortunately, binge drinking levels were low for both high and low perceptions of parental monitoring.

Parent-adolescent communication was considered to be its own independent variable in this study rather than being a subset of parental monitoring as it is in other studies (Stanton et al., 2000). It was hypothesized that adolescents who perceive higher levels of communication will report lower levels of alcohol consumption and binge-drinking. This hypothesis was confirmed in the correlation analysis as a negative relationship was revealed between those variables. Females reported higher levels of perceived communication with parents than did males, but there was no significant difference between communication and grade of the adolescent. In the regression analysis for predicting binge-drinking, the interaction between parent communication and gender was the fifth strongest significant predictor. It was hypothesized that both gender and grade would moderate the effects of communication on drinking behaviors, but only gender moderated the effects of communication on binge-drinking for males. This interaction demonstrates that boys perceiving lower levels of parent-adolescent communication reported less binge-drinking than females perceiving lower levels. Surprisingly, boys perceiving higher levels of communication reported increased binge-drinking as compared to that of lower levels of communication. Girls perceiving higher levels of communication reported no difference in their binge-drinking behavior; therefore, communication does not seem to be a factor for binge drinking with girls. The steeper slope of the line for males in Figure 12 indicates that

communication is more predictive of binge drinking for males than females. Boys reporting higher levels of binge-drinking with higher perceptions of communication is not consistent with previous research (Cohen & Rice, 1995). It is possible that these boys might be expressing rebellion against “anti-drug” messages.

Previous research shows that adolescents who are parented with the authoritative style score higher on a wide variety of measures of adjustment (Maccoby & Martin, 1983). Authoritative parenting has also been found to be linked with lower alcohol use (Cohen & Rice, 1997; Jackson et al., 1997; Johnson & Pandina, 1991). Sixty-two percent of adolescents in the current study reported perceiving authoritative parenting. It was hypothesized that the authoritative parenting style would be linked with lower levels of consuming alcohol and binge-drinking. Correlation analysis confirmed this hypothesis only for frequency of alcohol consumption since there was a statistically significant inverse relationship between frequency of alcohol consumption and parenting style. Specifically, those perceiving authoritative parenting styles reported less consumption of alcohol. Parenting style was not significantly correlated with binge drinking, however. Correlation analyses and t-tests demonstrated that females reported more perceived authoritative parenting than males. There were no significant differences in parenting style according to grade. It was hypothesized that grade and gender would moderate the effects of parenting style on alcohol consumption and binge-drinking. The regression analyses revealed that the interaction between parenting style and gender appeared to be a strong predictor of frequency of consuming alcohol, but not binge-drinking. Specifically, boys perceiving non-authoritative parenting reported slightly lower alcohol consumption than females, but as perceptions of authoritative parenting increased, reported alcohol consumption increased for boys. Reported alcohol consumption remained constant for girls in regards to

perceived authoritative and non-authoritative parenting. The steep slope of the line in Figure 10 for males indicates that parenting style is more of a factor in predicting frequency of alcohol consumption for males than females.

Clinical Relevance

Alcohol, the most widely used drug among adolescents, causes serious and potentially life-threatening problems for this population. Youth drinking requires significant attention by all members of society, especially mental health professionals. Determining which influences are involved in specific youth drinking patterns will permit the design of more potent prevention and intervention programs, especially for those in rural populations.

The results of this study provide clinicians with important information about the drinking behaviors of rural adolescents and also their perceptions of three aspects of parenting. It is important to note that therapists should not only take parent reports of parenting behavior into account, but also the adolescents' perceptions of parenting practices since they have been shown to be significant predictors of adolescent behavior (Peiser & Heaven, 1996). Therapists and other mental health practitioners have both prevention and intervention opportunities to inform adolescent clients and their parents about the impact of adolescent drinking behaviors. Clinicians can discuss how alcohol is tied to many risk behaviors such as use of other substances, physical injuries, long-term damage to health, aggression, high-risk sexual behavior, and even death.

The family systems framework has implications for parents, educators, clinicians, and other who work with rural adolescents. The importance of the impact parents have on adolescent drinking behavior can help parents focus their energy on parent-adolescent dynamics that are shown to have a strong effect. For families seeking therapy, clinicians who have this knowledge

can help coach parents about parenting practices that seem to influence adolescent drinking behavior. Clinicians are encouraged to operate under the systemic tenet that the parents' ability to monitor depends on childrens' willingness to self disclose, and willingness to self-disclose depends on the relationship with the parents. If this relationship consists of openness and being nonjudgmental among many other qualities, children are less likely to feel the need to be dishonest or avoidant.

This study emphasizes the effects that parental monitoring can have on adolescent alcohol use since it was shown to be the strongest predictor of alcohol use. Therapists working with adolescents and their families need to know the significance of teaching parental figures about monitoring, specifically the skill of monitoring an adolescent in an effective way that does not involve being intrusive or damaging to their relationship. Clinicians should note the importance of assessing parental monitoring, communication, and parenting style when working with adolescents and their families to get a sense of how the family system is operating. Possible questions clinicians could ask and also suggest are: "Do you usually know where your adolescent is and what he/she is doing after school and on the weekends? Are you familiar with the people your teen spends time with and their parents as well? What aspects of your teen's life do you know the most about? The least? Is your son or daughter expected to call you if he or she is changing locations or going to be late?" Questions like these advocate the importance of monitoring and permit clinicians to offer help and suggestions in strengthening a parent's monitoring skills.

Therapists also have the perfect opportunity to assess how parents and adolescents communicate with one another. Clinicians are able to observe what parents and teens talk about, what subjects they avoid, and also how they are conversing with each other. Therapists can also

encourage and model proper communication skills for families. During family sessions, clinicians will be able to learn important information about family, both content- and process-oriented, which will also help a clinician assess parenting style. Those parents that present themselves as having a balanced combination of limitations and rules for their teen as well as readiness to support individuation will identify themselves as authoritative. Lastly, therapists are encouraged to account for how grade and gender of their adolescent clients fits into the family process. Research shows that parents tend to adapt their parenting practices as their child evolves (Dishion & McMahon, 1998). For instance, as children mature, parents become more authoritative and gradually lessen monitoring as children age to foster autonomy and good decision-making skills.

Study Strengths

This study adds to the existing wealth of literature on adolescent alcohol use and parenting processes. Because the majority of previous research has been conducted with urban adolescents, it is still unclear as to whether or not these findings are applicable to adolescents in rural areas. These results from this study of a large, ethnically diverse rural sample offer the opportunity to better understand the unique characteristics of adolescents in one rural region with regard to alcohol consumption and perceptions of parenting. Rural communities may be more closely-knit due to geographic isolation (Doebler, 1998a, 1998b) and a deeper understanding of how parenting processes can influence the drinking behavior of adolescents may aid in the prevention or lessening of alcohol use. This study also utilizes family systems theory, which allows for a process-oriented way of viewing how perceived parenting aspects affect adolescent drinking behavior.

Study Limitations

This study made use of previously collected data. Although secondary data analysis has its many benefits, it does have its disadvantages. Because the survey questions used to collect the data cannot be altered, this study is only limited to those variables the questionnaire assessed and to the way those variables were measured. Other variables that were unavailable in the data include parent perspectives of monitoring, communication, and style. Only one survey item was used to assess perceptions of parenting style, while several items were used to assess monitoring and communication. It would be ideal in future studies to incorporate more measures of parenting style.

Additionally, the results of this study can only be interpreted to represent adolescents in this rural Virginia setting. These results cannot be interpreted as representative of adolescents in all rural settings. It cannot be assumed that those students who chose not to participate, were absent from school that day, who completed unusable questionnaires, or were not enrolled in public school were comparable to those included in the study. It is important to note, however, that the majority of participating schools reported a minimum of 90% student participation rate.

This study relied solely on self-reports from the adolescents for independent and dependent variables and did not assess other family members. Thus, these data reflect internal perspectives of the adolescents and not family relationships or process-level data (Bray, 1995). However, as mentioned previously, the adolescent's perceptions of parenting processes are the most influential components of behavior change (Peiser & Heaven, 1996). Although data from the parents' perspective would be interesting, it might be unnecessary. Also, the survey only used the term "parent(s)" to unify, rather than individuate the adolescent's perceptions of their

mothers and fathers. This assumes continuity in parenting between parents and this may not be the case in reality (Buerkel-Rothfuss, Fink, & Buerkel, 1995; Miller-Day, 2002).

This study made use of a very large sample size. Although this is also a benefit with rural populations, readers should use caution in interpreting results since large samples are inclined to increase the tendency for results to be significant.

Lastly, in the regression analyses, the model only predicted 13% of the variance for frequency of alcohol consumption and 12% for binge drinking. This means that 87% and 88% of the variance is unaccounted for regarding alcohol consumption and binge drinking, respectively. This shows that there is still a long way to go with research pertaining to adolescent drinking behavior before we can accurately predict what contributes to it.

Suggestions for Future Research

Progress in the reduction of alcohol-related harm depends on the availability of high-quality research into the factors that lead to high risk drinking patterns. Further research is needed for rural adolescents and the factors that may show to be protective or harmful to their drinking behaviors. In regard to alcohol, research and evaluation issues are particularly complex as they are grounded in knowledge from many different disciplines, including social science, epidemiology, bio-medicine, economics, social marketing, crime prevention, and law enforcement.

Future research needs to corroborate the multiple perspectives and observations of families to further substantiate the impact of these factors on adolescent alcohol use. Although, considerable data in the literature demonstrate that measures of self-reported substance use have good validity and reliability (Needle, McCubbin, Hamilton, Lorence, & Hochhause, 1983), in order to better develop family interventions, it is essential that we have observations of family

relationships to identify dysfunctional patterns that may be related to increased substance use among adolescents.

Finally, this study highlights the need for conducting longitudinal research when investigating developmental and family processes in adolescent substance abuse (Farrell, 1994). Future studies might make use of designs that include more assessment points to take fuller advantage of the power of growth curve methodology since it is unlikely that the differences in age cohorts and the variations in the impact of parenting processes on alcohol use would be uncovered with cross-sectional designs or examining only one cohort of adolescents.

Summary

The present study examined how parenting processes affect adolescent drinking behavior in a rural population. The parenting variables included parental monitoring, parent-adolescent communication, and parenting style. This study also sought to explore how grade and gender of the adolescent influenced the affect of these parenting variables on frequency of consuming alcohol and binge drinking in a rural setting. When all variables are included, the model predicted 13% of the variance for frequency of alcohol consumption and 12% for binge drinking. Parental monitoring was shown to be most predictive of both alcohol consumption and binge-drinking. Parent-adolescent communication and parenting style were important in this study, but did not predict as much of the variance as parental monitoring alone. Grade and gender of the adolescent proved to be important moderators when interacting with the parenting variables to predict consumption of alcohol and binge drinking. Gender interacting with parenting style was a significant predictor of consumption of alcohol while gender interacting with both monitoring and communication were significant predictors of binge drinking. This information is valuable to mental health professionals working with rural adolescents and their families. Appropriate

therapeutic prevention and intervention strategies can be employed to incorporate gender and grade differences as well. By helping families work through difficult issues such as adolescent substance use, teens can continue to grow with resiliency and be well-adjusted.

REFERENCES

- Aarons, G. A., Brown, S. A., Coe, M. T., Myers, M. G., Garland, A. F., Ezzet-Lofstrom, R., et al. (1999). Adolescent alcohol and drug abuse and health. *Journal of Adolescent Health, 24*, 412-421.
- Arria, A. M., Dohey, M. A., Mezzich, A. C., Bukstein, O. G., & Van Thiel, D. H. (1995). Self-reported health problems and physical symptomatology in adolescent alcohol abusers. *Journal of Adolescent Health, 16*, 226-231.
- Bahr, S. J., Anastosios, C. M., & Maughan, S. L. (1995). Family, educational and peer influences on the alcohol use of female and male adolescents. *Journal of Studies on Alcohol, 56*, 457-469.
- Baker, J. G., Rosenthal, S. L., Leonhardt, D., Kollar, L. M., Succop, P. A., Burklow, K. A., et al. (1999). Relationship between perceived parental monitoring and young adolescent girls' sexual and substance use behaviors. *Journal of Pediatric Adolescent Gynecology, 12*, 17-22.
- Barnes, G. M., & Farrell, M. P. (1992). Parental support and control as predictors of adolescent drinking, delinquency, and related problem behaviors. *Journal of Marriage and Family, 54*, 763-776.
- Barnes, G. M., Reifman, A. S., Farrell, M. P., & Dintcheff, B. A. (2000). The effects of parenting on the development of adolescent alcohol misuse: A six-wave latent growth model. *Journal of Marriage and the Family, 62*, 175-186.
- Barnes, G. M., & Welte, J. W. (1986). Patterns and predictors of alcohol use among 7–12th graders in New York State. *Journal of Studies on Alcohol, 47*, 53-62.

- Baumrind, D. (1978). Parental disciplinary patterns and social competence in children. *Youth & Society, 9*, 239-275.
- Beck, K. H., Boyle, J. R., & Boekeloo, B. O. (2003). Parental monitoring and adolescent alcohol risk in a clinic population. *American Journal of Health Behavior, 27*, 108-115.
- Beck, K. H., Shattuck, T., Haynie, D. L., Crump, A., D., & Simons-Morton, B. (1999). Association between parent awareness, monitoring, enforcement and adolescent involvement with alcohol. *Health Education Research, 14*, 765-775.
- Becvar, R. J., & Becvar, D. S. (1982). *Systems theory and family therapy*. Washington, D.C.: University Press of America.
- Belsky, J., Hertzog, C., & Rovine, M. (1986). Causal analysis of multiple determinants of parenting: Empirical and methodological advances. In M. Lamb, A. Brown & B. Rugoff (Eds.), *Advances in developmental psychology* (Vol. 4). Hillsdale, NJ: Lawrence Erlbaum.
- Bonomo, Y., Coffey, C., Wolfe, R., Lynskey, M., Bowes, G., & Patton, G. (2001). Adverse outcomes of alcohol use in adolescents. *Addiction, 96*, 1485-1496.
- Borawski, E. A., Ievers-Landis, C. E., Lovegreen, L. D., & Trapl, E. S. (2003). Parental monitoring, negotiated unsupervised time, and parental trust: The role of perceived parenting practices in adolescent health risk behaviors. *Journal of Adolescent Health, 33*, 60-70.
- Bray, J. H. (1995). Family assessment: Current issues in evaluating families. *Family Relations: Interdisciplinary Journal of Applied Family Studies, 44*, 469-477.

- Bray, J. H., Adams, G. J., Getz, J. G., & Baer, P. E. (2001). Developmental, family, and ethnic influences on adolescent alcohol usage: A growth curve approach. *Journal of Family Psychology, 15*, 301-314.
- Bray, J. H., Adams, G. J., Getz, J. G., & Stovall, T. (2001). Interactive effects of individuation, family factors, and stress on adolescent alcohol use. *American Journal of Orthopsychiatry, 71*, 436-449.
- Bray, J. H., Getz, J. G., & Baer, P. E. (2000). Adolescent individuation and alcohol use in multi-ethnic youth. *Journal of Studies on Alcohol, 61*, 588-597.
- Broderick, C. B. (1993). *Understanding family process*. London: Sage.
- Brook, J. S., Whiteman, M., Finch, S., & Cohen, P. (1996). Young adult drug use and delinquency: Childhood antecedents and adolescent mediators. *Journal of American Academy of Child Adolescent Psychiatry, 35*, 1584-1592.
- Brown, B. B., Mounts, N., Lamborn, S. D., & Steinberg, L. (1993). Parenting practices and peer group affiliation in adolescence. *Child Development, 64*, 467-482.
- Brown, S., & Tapert, S. (2004). Adolescence and the trajectory of alcohol use: Basic to clinical studies. *Annals of the New York Academy of Sciences, 1021*, 234-244.
- Buerkel-Rothfuss, N. L., Fink, D. S., & Buerkel, R. A. (1995). Communication in the father-child dyad: The intergenerational transmission process. In T. J. Socha & G. H. Stamp (Eds.), *Parents, children, & communications: Frontiers of theory and research* (pp. 63-86). Hillsdale, NJ: Lawrence Erlbaum.
- Centers for Disease Control and Prevention (2002). Youth Risk Behavior Surveillance--United States, 2001. *MMWR, 51* (SS-04).

- Centers for Disease Control and Prevention (2006). Youth Risk Behavior Surveillance--United States, 2005. *MMWR*, 55 (SS-5).
- Cernkovich, S. A., & Giordano, P. C. (1987). Family relationships and delinquency. *Criminology*, 25, 295-321.
- Chassin, L., Pitts, S. C., & Prost, J. (2002). Binge drinking trajectories from adolescent to emerging adulthood in a high-risk sample: Predictors and substance abuse outcomes. *Journal of Consulting and Clinical Psychology*, 70, 67-78.
- Chilcoat, H. D., & Anthony, J. C. (1996). Impact of parent of monitoring on initiation of drug use through late childhood. *Journal of the American Academy of Child and Adolescent Psychiatry* 35, 91-100.
- Chou, S. P., & Pickering, R. P. (1992). Early onset of drinking as a risk factor for lifetime alcohol-related problems. *British Journal of Addiction*, 87, 1199-1204.
- Cicchetti, D., & Rogosch, F. A. (2002). A developmental psychopathology perspective on adolescence. *Journal of Consulting and Clinical Psychology*, 70, 6-20.
- Clark, D. B., Lynch, K. G., Donovan, J. E., & Block, G. D. (2001). Health problems in adolescents with alcohol use disorders: Self-report, liver injury, and physical examination findings and correlates. *Alcoholism: Clinical and Experimental Research*, 25, 1350–1359.
- Clark, D. B., Neighbors, B. D., Lesnick, L. A., Lynch, K. G., & Donovan, J. E. (1998). Family functioning and adolescent alcohol use disorders. *Journal of Family Psychology*, 12, 81-92.

- Clark, D. B., Thatcher, D. L., & Maisto, S. A. (2005). Supervisory neglect and adolescent alcohol use disorders: Effects on AUD onset and treatment outcome. *Addictive Behaviors, 30*, 1737-1750.
- Cohen, D. A., & Rice, J. C. (1995). A parent-targeted intervention for adolescent substance use prevention: Lessons learned. *Evaluation Review, 19*, 159-180.
- Cohen, D. A., & Rice, J. C. (1997). Parenting styles, adolescent substance use, and academic achievement. *Journal of Drug Education, 27*, 199-211.
- Cohen, D. A., Richardson, J., & LaBree, L. (1994). Parenting behaviors and the onset of smoking and alcohol use: A longitudinal study. *Pediatrics, 94*, 368-375.
- Coombs, R. H., & Landsverk, J. (1988). Parenting styles and substance use during childhood and adolescence. *Journal of Marriage and the Family, 50*, 473-482.
- Cooper, M. L., Peirce, R. S., & Huselid, R. F. (1994). Substance use and sexual risk taking among black adolescents and white adolescents. *Health Psychology, 13*, 251-262.
- Darling, N., & Steinberg, L. (1993). Parenting style as context: An integrative model. *Child Development, 113*, 487-496.
- DiClemente, R. J., Wingood, G. M., Crosby, R., Sionean, C., Cobb, B. K., Harrington, K., et al. (2001). Parental monitoring: Association with adolescents' risk behaviors. *Pediatrics, 107*, 1363-1368.
- Dishion, T. J., & Loeber, R. (1985). Adolescent marijuana and alcohol use: The role of parents and peers revisited. *American Journal of Drug Alcohol Abuse, 11*, 11-25.
- Dishion, T. J., & McMahon, R. J. (1998). Parental monitoring and the prevention of child and adolescent problem behavior: A conceptual and empirical formulation. *Clinical Child and Family Psychology Review, 1*, 61-75.

- Doebler, M. K. (1998a). Success outcomes for rural young women: A longitudinal investigation of social capital and adolescent development. Pennsylvania State University.
- Doebler, M. K. (1998b). Successful outcomes for rural young women: A longitudinal investigation of social capital and adolescent development. *Dissertation Abstracts International Section A: Humanities and Social Sciences*, 59(8-A), 2867.
- Duncan, S. C., Duncan, T. E., & Strycker, L. A. (2006). Alcohol use from ages 9-16: A cohort-sequential latent growth model. *Drug & Alcohol Dependency*, 81, 71-81.
- Durkin, K., Wolfe, T., & Clark, G. (1999). Social bond theory and binge drinking among college students: A multivariate analysis. *College Student Journal*, 33, 450-472.
- Ellickson, P. L., Hays, R. D., & Bell, R. M. (1992). Stepping through the drug use sequence: Longitudinal scalogram analysis of initiation and regular use. *Journal of Abnormal Psychology*, 101, 441-451.
- Epstein, J. A., Botvin, G. J., & Spoth, R. (2003). Which psychological factors are related to drinking among rural adolescents? *Journal of Child & Adolescent Substance Abuse*, 13, 19-35.
- Erickson, E. H. (1968). *Identity: Youth and crisis*. New York: W. W. Norton & Company, Inc.
- Fingerman, K., & Bermann, E. (2000). Applications of family systems theory to the study of adulthood. *Journal of Aging and Human Development*, 51, 5-29.
- Flannery, D. J., Williams, L. L., & Vazsonyi, A. T. (1999). Who are they and what are they doing? Delinquent behavior, substance use, and early adolescents' after-school time. *American Journal of Orthopsychiatry*, 69, 247-253.

- Fournet, G. P., Estes, R. E., Martin, G. L., Robertson, E. D., & McCrary, J. S. (1990). Drug and alcohol attitudes and usage among elementary and secondary students. *Journal of Alcohol and Drug Education, 335*, 81-92.
- Freud, A. (1958). Adolescence. *Psychoanalytic Study of the Child, 13*, 231-258.
- Friedman, A. S., Tomko, L. A., & Utada, A. (1991). Client and family characteristics that predict better family therapy outcome for adolescent drug abusers. *Family Dynamics of Addiction Quarterly, 1*, 77-93.
- Gibbons, S., Wylie, M. L., Echterling, L., & French, J. (1986). Patterns of alcohol use among rural and small-town adolescents. *Adolescence, 21*, 887-900.
- Grant, B. F., & Dawson, D. A. (1997). Age at onset of alcohol use and its association with DSM-IV alcohol abuse and dependence: Results from the National longitudinal alcohol epidemiologic survey. *Journal of Substance Abuse, 9*, 103-110.
- Gruber, E., DiClemente, R. J., Anderson, M. M., & Lodico, M. (1996). Early drinking onset and its association with alcohol use and problem behavior in late adolescence. *Preventative Medicine, 25*, 293-300.
- Guilamo-Ramos, V., Jaccard, J., Dittus, P., & Bouris, A. (2006). Parental expertise, trustworthiness, and accessibility: Parent-adolescent communication and adolescent risk behavior. *Journal of Marriage and Family, 68*, 1229-1246.
- Hall, G. S. (1904). *Adolescence: Its psychology and its relations to physiology, anthropology, sociology, sex, crime, religion, and education*. Englewood Cliffs, NJ: Prentice Hall.
- Halpern-Fisher, B. L., Millstein, S. G., & Ellen, J. M. (1996). Relationship of alcohol use and risky sexual behavior: A review and analysis of the findings. *Journal of Adolescent Health, 19*, 331-336.

- Hartos, J. L., & Power, T. G. (2000). Association between mother and adolescent reports for assessing the relations between parent-adolescent communication and adolescent adjustment. *Journal of Youth and Adolescence*, 29, 441-450.
- Hawkins, J. D., Catalano, R. F., & Miller, J. Y. (1992). Risk and protective factors for alcohol and other drug problems in adolescence and early adulthood: Implications for substance abuse prevention. *Psychological Bulletin*, 112, 64-105.
- Hawkins, J. D., Graham, J. W., Maguin, E., Abbott, R. D., Hill, K. G., & Catalano, R. F. (1997). Exploring the effects of age of alcohol use initiation and psychosocial risk factors on subsequent alcohol misuse. *Journal of Studies on Alcohol*, 58, 280-290.
- Hutchinson, M. K., & Cooney, T. M. (1998). Patterns of parent-teen sexual risk communication: Implications for intervention. *Family Relations: Interdisciplinary Journal of Applied Family Studies*, 47, 185-194.
- Hyatt, S. L., & Collins, L. M. (2000). Using latent transition analysis to examine the relationship between perceived parental permissiveness and the onset of substance use. In J. S. Rose, L. Chassin, C. C. Presson & S. J. Sherman (Eds.), *Multivariate application in substance use research: New methods for new questions*. Mahwah, NJ: Lawrence Erlbaum.
- Jackson, C. (2002). Perceived legitimacy of parental authority and tobacco and alcohol use during early adolescence. *Journal of Adolescent Health*, 31, 425-432.
- Jackson, C., Henriksen, L., & Dickinson, D. (1997). Alcohol-specific socialization, parenting behaviors and alcohol use by children. *Journal of Studies on Alcohol*, 60, 362-367.
- Jacobson, K. C., & Crockett, L. J. (2000). Parental monitoring and adolescent adjustment: An ecological perspective. *Journal of Research on Adolescence*, 10, 65-97.

- Jessor, R. (1987). Problem-behavior theory, psychosocial development, and adolescent problem drinking. *British Journal of Addiction, 82*, 331-342.
- Johnson, V., & Pandina, R. J. (1991). Effects of the family environment on adolescent substance use, delinquency, and coping styles. *American Journal of Drug Alcohol Abuse, 17*, 71-88.
- Johnston, P. B., O'Malley, P. M., & Bachman, J. G. (1991). *Drug use among American high school students, college students, and other young adults: 1975-1990*. Bethesda, MD: National Institute on Drug Abuse.
- Johnston, P. B., O'Malley, P. M., & Bachman, J. G. (2001). *Monitoring the future: National results on adolescent drug use*. Bethesda, MD: National Institute on Drug Abuse.
- Kandel, D. B. (1975). Stages in adolescent involvement in drug use. *Science, 181*, 912-914.
- Kandel, D. B. (1980). Drug use and drinking behavior among youth. *Annual Review of Sociology, 6*, 235-285.
- Kandel, D. B., & Yamaguchi, K. (1993). From beer to crack: Developmental patterns of drug involvement. *American Journal of Public Health, 83*, 851-855.
- Kandel, D. B., Yamaguchi, K., & Chen, K. (1992). Stages of progression in drug involvement from adolescence to adulthood: Further evidence for the gateway theory. *Journal of Studies on Alcohol, 53*, 447-457.
- Kerr, M., Stattin, H., & Trost, K. (1999). To know you is to trust you: Parent's trust is rooted in child disclosure of information. *Journal of Adolescence, 22*, 737-752.
- Knupfer, G. (1989). The prevalence in various social groups of eight different drinking patterns, from abstaining to frequent drunkenness: Analysis of 10 U.S. surveys combined. *British Journal of Addiction, 84*, 1305-1318.

- Kosterman, R., Hawkins, J. D., Guo, J., Catalano, R. F., & Abbott, R. D. (2000). The dynamics of alcohol and marijuana initiation: Patterns and predictors of first use in adolescence. *American Journal of Public Health, 90*, 360-366.
- Lamborn, S. D., Mounts, N., Steinberg, L., & Dornbusch, S. (1991). Patterns of competence and adjustment among adolescents from authoritative, authoritarian, indulgent, and neglectful homes. *Child Development, 62*, 1049-1065.
- Laursen, B., & Collins, W. A. (2004). Parent-child communication during adolescence. In A. L. Vangelisti (Ed.), *Handbook of family communication* (pp. 333-348). Mahwah, NJ: Lawrence Erlbaum.
- Levine, B. L. (1985). Adolescent substance use: Toward an integration of family systems and individual adaptation theories. *The American Journal of Family Therapy, 13*(2), 3-16.
- Li, X., Stanton, B., & Feigelman, S. (2000). Impact of perceived parental monitoring on adolescent risk behavior over 4 years. *Journal of Adolescent Health, 27*, 49-56.
- Liu, X., & Kaplan, H. G. (1996). Gender-related differences in circumstances surrounding initiation and escalation of alcohol and other substance use/abuse. *Deviant Behavior, 17*, 71-106.
- Lynskey, M. T., & Horwood, L. J. (1995). The prevalence and risk factors associated with abusive or hazardous alcohol consumption in 16-year-olds. *Addiction, 90*, 935-946.
- Maccoby, E., & Martin, J. (1983). Socialization in the context of the family: Parent-child interaction. In E. M. Hetherington (Ed.), *Handbook of child psychology: Socialization, personality, and social development*. (Vol. 4, pp. 1-101). New York, NY: Wiley.
- Miller-Day, M. A. (2002). Parent-adolescent communication about alcohol, tobacco, and other drug use. *Journal of Adolescent Research, 17*, 604-616.

- Miller, K. S., Kotchick, B. A., Dorsey, S., Forehand, R., & Ham, A. Y. (1998). Family communication about sex: What are parents saying and are their adolescents listening? *Family Planning Perspectives, 30*, 218-239.
- Montemayor, R. (1983). Parents and adolescents in conflict. All families some of the time and some families most of the time. *Journal of Early Adolescence, 3*(1-2), 83-103.
- Needle, R., McCubbin, H., Hamilton, I., Lorence, J., & Hochhause, M. (1983). Reliability and validity of adolescent self-reported drug use in a family-based study: A methodological report. *International Journal of Addictions, 18*, 901-1012.
- Nelson, B. V., Patience, T. H., & MacDonald, D. C. (1999). Adolescent risk behavior and the influence of parents and education. *Journal of the American Board of Family Practice, 12*, 436-443.
- Nichols, M. P., & Schwartz, R. C. (2004). *Family therapy: Concepts and methods* (6th ed.). Boston, MA: Allyn & Bacon.
- Otto, L. B., & Atkinson, M. P. (1997). Parental involvement and adolescent development. *Journal of Adolescent Research, 12*, 68-89.
- Patock-Peckham, J. A., & Morgan-Lopez, A. A. (2006). College drinking behaviors: Mediational links between parenting styles, impulse control, and alcohol-related outcomes. *Psychology of Addictive Behaviors, 20*, 117-125.
- Patterson, G. R., Reid, J. B., & Dishion, T. J. (1992). *A social learning approach for antisocial boys*. Eugene, OR: Castalia.
- Peiser, N. C., & Heaven, P. C. L. (1996). Family influences on self-reported delinquency among high school students. *Journal of Adolescence, 19*, 557-568.

- Peterson, P. L., Hawkins, J. D., Abbot, R. D., & Catalano, R. F. (1995). Disentangling effects of parental drinking, family management, and parental alcohol norms on current drinking by black and white adolescents. In G. M. Boyd, J. Howard & R. A. Zucker (Eds.), *Alcohol problems among adolescents* (pp. 203-227). Hillsdale, NJ: Lawrence Erlbaum
- Philbin, J. E. (1996). Adolescents' daily experience of parenting styles and alcohol use. . *Dissertation Abstracts International: Section B: The Sciences and Engineering*, 57(3-B), 2181.
- Poulin, C., & Graham, L. (2001). The association between substance use, unplanned sexual intercourse and other sexual behaviors among adolescent students. *Addiction*, 96, 607-621.
- Resnick, M. D., Bearman, P. S., Blum, R. W., Bauman, K. E., Harris, K. M., & Jones, J. (1997). Protecting adolescents from harm. Findings from the National Longitudinal Study on Adolescent Health. *Journal of the American Medical Association*, 278, 823-832.
- Robins, C. A., & Martin, S. S. (1993). Gender styles of deviance, and drinking problems. *Journal of Health and Social Behavior*, 34, 302-321.
- Rodgers, K. B. (1999). Parenting processes related to sexual risk-taking behaviors of adolescent males and females. *Journal of Marriage and Family*, 61, 99-109.
- Romer, D., Black, M., Ricardo, I., Feigelman, S., Kaljee, L., Galbraith, J., et al. (1994). Social influences on the sexual behavior of youth at risk for HIV exposure. *American Journal of Public Health*, 84, 977-985.
- Scaramella, L., & Keyes, A. (2001). The social contextual approach and rural adolescent substance abuse: Implications for prevention in rural settings. *Clinical Child and Family Psychology Review*, 4, 231-251.

- Schuster, M. A., Eastman, K. L., Fielding, J. E., Rotheram-Borus, M., Breslow, L., Franzoi, L. L., et al. (2001). Promoting adolescent health: Worksite-based interventions with parents of adolescents. *Journal of Public Health Management Practice*, 7(41-52).
- Shek, D. T. L., Lee, B. M., Lee, T. Y., & Lam, C. M. (2006). Frequency, satisfaction and quality dimensions of perceived parent-adolescent communication among Chinese adolescents in Hong Kong. *International Journal of Adolescent Medicine and Health*, 18, 259-270.
- Small, S. A., & Kerns, D. (1993). Unwanted sexual activity among peers during early and middle adolescence: Incidence and risk factors. *Journal of Marriage and the Family*, 55, 941-952.
- Socha, T. J., & Stamp, G. H. (1995). *Parents, children, & communication: Frontiers of theory and research*. Hillsdale, NJ: Lawrence Erlbaum.
- Spring, E. (1999). *How parents experience a transition to adolescence.*, Virginia Polytechnic Institute & State University, Falls Church, VA.
- Stafford, L., & Dainton, M. D. (1995). Parent-child communication within the family system. In T. J. Socha & G. H. Stamp (Eds.), *Parents, children, & communication: Frontiers of theory and research* (pp. 3-21). Hillsdale, NJ: Lawrence Erlbaum.
- Stanton, B. F., Li, X., Galbraith, J., Cornick, G., Feigelman, S., Kaljee, L., et al. (2000). Parental underestimates of adolescent risk behavior: A randomized, controlled trial of a parental monitoring intervention. *Journal of Adolescent Health*, 26, 18-26.
- Stattin, H., & Kerr, M. (2000). Parental monitoring: a reinterpretation. *Child Development*, 71, 1072-1085.
- Steinberg, L. (1987). Familial factors in delinquency: A developmental perspective. *Journal of Adolescent Research*, 2, 255-268.

- Steinberg, L., Fletcher, A., & Darling, N. (1992). Parental monitoring and peer influences on adolescent substance use. *Pediatrics*, *93*, 1060-1064.
- Steinberg, L., Lamborn, S. D., Darling, N., Mounts, N., & Dornbusch, S. (1994). Over-time changes in adjustment and competence among adolescents from authoritative, authoritarian, indulgent, and neglectful families. *Child Development*, *65*, 754-770.
- Svensson, R. (2000). Risk factors for different dimensions of adolescent drug use. *Journal of Child & Adolescent Substance Abuse*, *9*, 67-90.
- Tarter, R. E., Vanyukov, M., Kirisci, L., Reynolds, M., & Clark, D. B. (2006). Predictors of marijuana use in adolescents before and after licit drug use: Examination of the gateway hypothesis. *American Journal of Psychiatry*, *163*, 2134-2140.
- Thomas, B. S. (1996). A path analysis of gender differences in adolescent onset of alcohol, tobacco and other drug use (ATOD), reported ATOD use and adverse consequences of ATOD use. *Journal of Addictive Disease*, *15*, 33-52.
- van der Vorst, H., Engels, R. C. M. E., Meeus, W., Dekovic, M., & Vermulst, A. (2006). Parental attachment, parental control, and early development of alcohol use: A longitudinal study. *Psychology of Addictive Behaviors*, *20*, 107-116.
- Webb, J. A., Bray, J. H., Getz, J. G., & Adams, G. J. (2002). Gender, perceived parental monitoring and behavioral adjustment: Influences on adolescent alcohol use. *American Journal of Orthopsychiatry*, *2*, 392-400.
- Wechsler, H., Lee, J. E., Kuo, M., Seibring, M., Nelson, T. F., & Lee, H. (2002). Trends in college binge drinking during a period of increased prevention efforts. *Journal of American Collegiate Health*, *50*, 203-217.

- Werch, C. E., & DiClemente, C. C. (1994). A multi-component stage model for matching drug prevention strategies and messages to youth stage of use. *Health Education Research, 9*, 37-46.
- Williams, A. (2003). Adolescents' relationships with parents. *Journal of Language and Social Psychology, 22*, 58-65.
- Williams, P. S., & Hine, D. W. (2002). Parental behaviour and alcohol misuse among adolescents: A path analysis of mediating influences. *Australian Journal of Psychology, 54*, 17-24.
- Windle, M. (1996). An alcohol involvement typology for adolescents: Convergent validity and longitudinal stability. *Journal of Studies on Alcohol, 57*, 627-637.
- Windle, M. (1999). *Alcohol use among adolescents*. Thousand Oaks, CA: Sage.
- Wood, M. D., Read, J. P., Mitchell, R. E., & Brand, N. H. (2004). Do parents still matter? Parent and peer influences on alcohol involvement among recent high school graduates. *Psychology of Addictive Behaviors, 18*, 19-30.
- Youniss, J., & Haynie, D. L. (1992). Friendship in adolescence. *Journal of Developmental and Behavioral Pediatrics, 13*, 59-66.
- Youniss, J., & Smollar, J. (1985). *Adolescent relations with mothers, fathers, and friends*. Chicago: University of Chicago Press.

Appendix A

Parental Monitoring Measure

INDICATE HOW OFTEN THE FOLLOWING STATEMENTS ARE TRUE FOR YOU.
(REMEMBER: ANSWER ABOUT YOUR PARENTS OR THE ADULTS YOU LIVE WITH.)

OVERALL:

| | Never | Rarely | Some- times | A lot of the time | Always | No adult at home |
|--|-------|--------|----------------|-------------------------|--------|---------------------|
| 102. My parent(s) know where I am after school. | 0 | 1 | 2 | 3 | 4 | 5 |
| 103. If I am going to be home late, I am expected to call my parent(s) to let them know. | 0 | 1 | 2 | 3 | 4 | 5 |
| 104. I tell my parent(s) whom I'm going to be with before I go out. | 0 | 1 | 2 | 3 | 4 | 5 |
| 105. When I go out at night, my parent(s) know where I am. | 0 | 1 | 2 | 3 | 4 | 5 |
| 106. My parent(s) know who my friends are. | 0 | 1 | 2 | 3 | 4 | 5 |
| 107. My parent(s) know the parents of my friends. | 0 | 1 | 2 | 3 | 4 | 5 |
| 108. My parent(s) know what I watch on television. | 0 | 1 | 2 | 3 | 4 | 5 |
| 109. My parent(s) monitor my computer/internet use. | 0 | 1 | 2 | 3 | 4 | 5 |

Appendix B

Parent-Adolescent Communication Measure

HOW OFTEN, IN THE PAST YEAR HAVE YOU COMMUNICATED WITH ONE OF YOUR PARENTS (or other adult you live with) ABOUT EACH OF THE FOLLOWING?

(Remember: answer about the adults you live with.)

| | Never | Rarely | Some- times | Often | Very Often | No adult at home |
|---|--------------|---------------|------------------------|--------------|-----------------------|-----------------------------|
| 112. Drugs and alcohol | 0 | 1 | 2 | 3 | 4 | 5 |
| 113. Sex and/or birth control | 0 | 1 | 2 | 3 | 4 | 5 |
| 114. Your job or education plans after high school | 0 | 1 | 2 | 3 | 4 | 5 |
| 115. Your personal problems/concerns | 0 | 1 | 2 | 3 | 4 | 5 |
| 116. Teachers or classes in school | 0 | 1 | 2 | 3 | 4 | 5 |
| 117. Dating | 0 | 1 | 2 | 3 | 4 | 5 |
| 118. Things you enjoy (for example, movies, video games, clothes, sports) | 0 | 1 | 2 | 3 | 4 | 5 |

Appendix C

Parenting Style Measure

98. In general, how are most important decisions made between you and your parent(s) or other adult you live with (for example, what time you need to be home at night or where you can go with friends)?

0 = No parent or adult guardian at home

1 = They tell me exactly what to do

2 = They ask my opinion, but they have the final say

3 = We talk about it and together we come to a decision

4 = They discuss the decision with me but then let me decide

5 = They trust me to decide for myself

6 = They don't care what I do, so I decide for myself

Appendix D

Alcohol Use Measures

77. During the past 30 days, on how many days did you have at least one drink of alcohol?

0 = 0 days

1 = 1 or 2 days

2 = 3 to 5 days

3 = 6 to 9 days

4 = 10 to 19 days

5 = 20 to 29 days

6 = All 30 days

78. During the past 30 days, on how many days did you have 5 or more drinks of alcohol in a row, that is, within a couple of hours?

0 = 0 days

1 = 1 day

2 = 2 days

3 = 3 to 5 days

4 = 6 to 9 days

5 = 10 to 19 days

6 = 20 or more days