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Do Parental Monitoring Strategies, Parental Knowledge, and Adolescent Risk-Taking
Differ Based on Family Income and Parental Marital Status? The Role of Resiliency.

Shawn M. Golden-Llewellyn

Dissertation submitted to the
College of Human Resources and Education
at West Virginia University
in partial fulfillment of the requirements
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in
Counseling Psychology

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ABSTRACT

Do Parental Monitoring Strategies, Parental Knowledge and Adolescent Risk-Taking Differ Based on Family Income and Parental Marital Status? The Role of Resiliency.

Shawn M. Golden

Adolescents living in low socioeconomic status (SES) are more likely to engage in risk-taking behaviors, such as alcohol and other drug use, sexual behavior, and vandalism. Resiliency theory suggests that protective factors could reduce adolescent risk-taking in low SES families. Parental monitoring, parent behaviors involved in tracking their adolescents' whereabouts and activities, tends to be less evident in low SES families. However, it has also been identified as a protective factor in fostering resiliency in adolescents living in high-risk situations. The current study examined group differences in parental knowledge, parental monitoring strategies, and adolescent risk-taking based on two socioeconomic factors, parental income and parental marital status. Furthermore, it evaluated the group differences in adolescent risk-taking based on the type of parental monitoring strategy utilized. This study surveyed 526 parent/adolescent dyads throughout various counties in the state of West Virginia. A final sample of 518 participant dyads were included in the study. Data analyses revealed no significant differences in adolescent risk-taking or parental knowledge based on family income and parental marital status. Additionally, there were no significant differences in the use of direct, indirect, or restrictive parental monitoring strategies based on family income and parental marital status; however, there was a statistically significant interaction effect. Finally, an exploratory analysis was conducted to examine group differences in adolescent risk-taking based on the use of each parental monitoring strategy and significant group differences emerged. Clinical implications and limitations were discussed as well as suggestions for future research.

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CHAPTER 1

Introduction

The phenomenon and theory of “resiliency” originally sprung from research on risk, specifically children at risk for the development of psychopathology or social incompetence, based on maternal diagnosis (schizophrenia, depression, etc.). According to Masten, Best, and Garmezy (1990), early research identified a subgroup of children demonstrating symptoms of psychopathology and social incompetence, but equally important and more impressive was the subgroup of vulnerable children with few or no indications of pathology. In the early 1970’s, a group of psychologists and psychiatrists illuminated the phenomenon and theory of “resiliency” in children and adolescents at risk for severe behavioral problems and psychopathology based on their life circumstances (Anthony, 1974; Garmezy, 1971, 1974; Masten, 2001; Murphy & Moriarty, 1976, Rutter, 1979; Werner & Smith, 1982). Additionally, Werner & Smith (1982) conducted a 30-year study of children experiencing multiple risk factors (perinatal stress, poverty, daily instability, and parental psychopathology) and found many of the children grew into thriving adults despite poor environmental conditions early in life. From this, several factors of resiliency were identified and countless studies followed. Though the resiliency factors were not consistent across all early studies, it was clear that some children were able to develop normally in the face of abnormal stressors.

According to Masten (2001), professionals argued that research conducted on normally developing children facing risk could inform “theories of etiology in psychopathology and to...[create understanding about] what makes a difference in the lives of children at risk that could guide intervention and policy” (p. 227). Luthar,

Cicchetti, and Becker (2000) indicated that resiliency has been diversely defined by different authors. An operating definition of **resiliency** that can frame the discussion is “overcoming the negative effects of risk exposure, coping successfully with traumatic experiences, and avoiding the negative trajectories associated with risks” (Fergus & Zimmerman, 2005, p. 399). While a consensus on a specific definition has been difficult to establish, there seems to be a general agreement among researchers on the two conditions involved in resiliency: 1) the presence of risk factor(s); and 2) healthy adaptation to the risk (Masten, 2001).

Definition and History of Risk Factors

In order to further understand resiliency in the face of risk, it is important to review the definition and history of risk factors. According to Jessor, Van Den Bos, Vanderryn, Costa, and Turbin (1995), **risk factors** are “those conditions or variables that are associated with a higher likelihood of negative or undesirable outcomes – morbidity or mortality, in classical usage, or, more recently, behaviors that can compromise health, well-being, or social performance” (p. 923).

Masten, Best, and Garmezy (1990) identified risk research as emerging in three phases. The first phase included the “initial identification of a risk factor, often based on retrospective data” (p. 427). An example of this phase is demonstrated by Pasamanick and Knobloch (1960), who noted that various ailments, including mental retardation, reading disabilities, and cerebral palsy tend to be associated with perinatal complications. The authors also recognized that the perinatal complications were related to low socioeconomic status. Thus, perinatal complications and low socioeconomic status were identified as risk factors in the development of the disorders listed previously, in addition

to others. The second phase of risk research was “marked by prospective studies of the potential risk group and often yields rather different conclusions” (Masten, Best, & Garmezy, 1990, p. 427). For instance, Sameroff and Chandler (1975) reviewed numerous studies, including Pasamanick and Knobloch (1960) and declared that, in the absence of physical brain damage, perinatal complications resulted in little to no long-term risk for psychopathology. However, they did further validate low socioeconomic status as a predictor of outcome. Finally, the third phase was characterized as refinement, whereby increased technologies became crucial in providing information about organic damage, etc. In relation the previous example, this phase would include brain imaging technologies to identify brain damage in perinatal complications. This would, in turn, create more evidence to determine the risk such complications would have on future physical development or psychopathology (Masten, Best, & Garmezy, 1990).

While resiliency theory originated in the risk research associated with maternal schizophrenia, low socioeconomic status (SES) is one of the most commonly studied risk factors in modern risk research. The United States Census Bureau does not specifically define low SES, but defines poverty by using a set of “money income thresholds that vary by family size and composition to determine who is in poverty (<http://ask.census.gov>). If the aggregate income of the family is lower than the threshold identified by the U. S. Census Bureau for their family composition they are considered to be living in poverty. Low SES includes variables such as low-status parental employment, low parental education level, low family income, and single parent status (Luthar, 1991). It has been identified as a primary risk factor in a number of wellness and achievement-related issues in childhood and adolescence including physical health (Luo & Waite, 2005; Chen,

Martin & Matthews, 2006a; Chen, Martin & Matthews, 2006b), stress interpretations (Chen, Langer, Raphaelson & Matthews, 2004), psychopathology (Wadsworth & Achenbach, 2005) and school achievement (DeGarmo, Forgatch, & Martinez, 1999), such that all of these areas were negatively affected by low SES living conditions.

Specifically, socioeconomic status was generally positively correlated with child physical health in that lower SES was associated with reduced health (Chen et al, 2006a; Chen et al 2006b). Furthermore, lower childhood SES was associated with poorer health outcomes in adulthood (Luo & Waite, 2005). Additionally, the ability to accurately interpret ambiguous stimuli decreased (Chen et al., 2004) and propensity toward experiencing psychological symptoms such as depression, anxiety, thought disorders, aggression and risky behaviors, increased in adolescents living in lower SES families (Wadsworth & Achenbach, 2005). The low SES risk factors were also identified as placing adolescents at risk for engaging in maladaptive, and potentially harmful, activities such as alcohol and other drug use, sexual activity, and vandalism (Blum et al., 2000; Flewelling & Bauman, 1990; Han & Waldfogel, 2007; Lempers, Clark-Lempers & Simons, 1989; Mancini & Huebner, 2004; Scarinci, Robinson, Alfano, Zbikowski, & Klesges, 2002; Upchurch, Aneshensel, Sucoff & Levy-Stroms, 1999).

Low SES as a risk factor in adolescent risk-taking will be reviewed in depth in the literature review; however, it is important to draw a clear distinction between these two similar terms. For the purposes of this study, the definition for **risk factor** as defined by Jessor et al. (1995) will be utilized, but specifically this term will indicate low SES factors. Risk factor should not be confused with risk-taking (also referred to as adolescent risk-taking). The term **risk-taking** will refer to intentional engagement in

maladaptive and potentially harmful behaviors such as alcohol and other drug use, risky sexual behavior, and vandalism. These particular risk-taking behaviors were identified because they can lead to health problems, substance addiction, or involvement with the legal system. To further clarify these definitions, risk factors can be viewed as contributing to the circumstances of the family, while risk-taking is a potential outcome of the circumstances.

Healthy Adaptation

In addition to the presence of a risk factor, a second condition is identified in the definition of resiliency – a healthy adaptation. This condition has been more difficult to operationalize for the purpose of resiliency research. Much debate continues regarding the proper definition of a healthy adaptation. Investigators in the developmental psychology field traditionally define a healthy adaptation based on the appropriate navigation of various developmental tasks. Others, specifically those involved in substance abuse research, have defined a healthy adaptation by the absence of or minimal presentation of psychopathology/substance abuse symptoms. Furthermore, other researchers utilized a combination of appropriate development and the absence of psychopathology to operationalize a healthy adaptation (Masten, 2001).

A distinct, but similar, issue emerged related to defining a healthy adaptation on the basis of external criteria (i.e. school achievement, absence of delinquent behaviors), internal criteria (i.e. levels of stress, psychological well-being), or a combination of both (Luthar, 1999; Luthar et al., 2000; Masten, 1999; Masten, 2001). For the current study, a healthy adaptation will be identified as minimal or no presence of risk-taking behaviors

in adolescents (including drug use, risky sexual behavior, vandalism, and sneaking behavior).

Qualities of Resilient Children

The impetus of much early literature in resiliency was to identify the conditions which differentiated children demonstrating resiliency (healthy adaptation) in the presence of risk factors from those with less optimal adaptation. This resiliency is fostered by characteristics internal or external to the child, often referred to as protective factors (Luthar, 1991; Tusaie & Dyer, 2004). **Protective factors** operate to protect adolescents in high-risk situations from the negative outcomes of the risk. Early literature placed focus on individual characteristics of the adolescent involved in resiliency, such as high self-esteem and autonomy (Masten & Garmezy, 1985). More recent research has identified external factors that also influence adolescent resiliency. There is now a clear delineation of three sets of factors involved in the development of resiliency. They include: 1) characteristics of the child, 2) family characteristics, and 3) aspects of their social environments, such as school influences (Luthar, Cicchetti & Becker, 2000).

The following review and study will focus solely on the family factors, particularly the influence of parental monitoring/knowledge on adolescent risk-taking. Parental monitoring is an area that can likely be positively influenced by psychoeducation and family interventions, which can, in turn, increase resiliency.

History and Definitions of Parental Monitoring and Knowledge

The historical origin of the parental monitoring construct emerged in early delinquency research (Crouter & Head, 2002). While parental monitoring was not

identified as such at the time, Glueck and Glueck (1950) examined the influence of family characteristics on juvenile delinquency. They identified “awareness of leisure-time activities” as a factor (Glueck & Glueck, 1950, p. 130). In the 1970’s and 1980’s, Patterson and others conducted several research studies emphasizing the important role played by parental monitoring in juvenile delinquency. These studies were paramount to the proliferation of parental monitoring research, as they examined measurement issues, attended to complex issues involved in studying families, utilized longitudinal designs, and embraced a developmental focus (Crouter & Head, 2002). More specifically, Patterson and Stouthamer-Loeber (1984) identified four activities of behavior management: discipline, problem solving, reinforcement, and parental monitoring. In their study, the authors associated low parental monitoring with indifferent tracking of their adolescents’ whereabouts, activities, and peer relationships. This, for the first time, provided a clear conceptualization of parental monitoring as a behavior, rather than a simple awareness (Crouter & Head, 2002).

In the late 1990’s **parental monitoring** was more specifically defined by Dishion and McMahon (1998) as “a set of correlated parenting behaviors involving attention to tracking of the child’s whereabouts, activities, and adaptations” (p. 61). According to the authors, a healthy parent-child relationship enhanced the parents’ motivation to monitor their children, thus facilitating parental monitoring. In turn, the child felt more comfortable to share information with their parents in the context of a healthy relationship. Unfortunately, instruments utilized to measure parental monitoring continued gathering information only about parents’ knowledge of their adolescents, not about the means they used to gather the knowledge (tracking).

Though Dishion and McMahon's definition of parental monitoring clearly encompassed the action of "tracking" the adolescent, it was not until Kerr and Stattin's work in 2000 that monitoring was measured as a parental behavior. The authors identified and examined how parents obtained knowledge about their adolescents. At this time, a clear distinction was drawn between parental monitoring and parental knowledge.

Parental knowledge is simply defined as the information obtained about the child (e.g. about friends, activities and whereabouts) as a result of parental monitoring efforts. While there was no clear delineation between monitoring and knowledge in early literature, it can now be confidently stated that they are separate, yet related constructs (Crouter & Head, 2002) and will be treated as such for the purposes of this study and review. Despite this relationship, many studies review only parental knowledge or parental monitoring in isolation (Capaldi, Stoolmiller, Clark & Owen, 2002; Crouter, Bumpus, Davis, & McHale, 2005; Dishion, Patterson, Stoolmiller & Skinner, 1991; Graber, Nichols, Lynne, Brooks-Gunn, & Botvin, 2006; Pettit, Laird, Dodge, Bates, & Criss, 2001; Sullivan, Kung, & Farrel, 2004). These studies were included in the literature review and proper terminology (knowledge or monitoring) was utilized based on the authors definitions and measures, not on their identification of the construct in their respective studies.

While parental monitoring and knowledge were typically positively correlated with SES, such that lower SES would result in lower parental monitoring/knowledge (Capaldi et al., 2002; Crouter et al., 2005; Pettit et al., 2001), it has also been established as a protective factor in preventing or reducing adolescent risk-taking behaviors (Fergusson & Zimmerman, 2005; Griffin, Scheier, Botvin, Diaz & Miller, 1999; Rai et al., 2003).

CHAPTER 2

Review of Literature

This chapter provides a review of literature of SES factors involved in adolescent risk-taking. Furthermore, the role of SES factors in parental monitoring and knowledge is explored. A focus is placed on the relationship between adolescent risk-taking and parental monitoring. Finally, parental monitoring is explored as a protective factor in resiliency and parental monitoring strategies are identified.

Socioeconomic Factors and Adolescent Risk-Taking

Ensminger et al. (2000) identified three types of capital that encompass the measure of socioeconomic status of adolescents. These measures included: 1) “financial capital,” income and parent employment; 2) “human capital,” parent’s level of education; and 3) “social capital,” marital status (Ensminger et al., pp. 396-397). Four socioeconomic factors, as they relate to adolescent risk-taking behaviors, are examined for the purpose of this review: family income, parental marital status, parental education level, and parental employment status. Foremost, however, a basic review of the socioeconomic status construct as a whole is provided.

Lempers, Clark-Lempers, and Simons (1989) examined the direct and indirect effects of economic hardship on adolescent behaviors and distress via paper-and-pencil questionnaires, including the *Economic Hardship Questionnaire*, the *Parenting Questionnaire*, and four different distress questionnaires. Based on the results of previous empirical studies reviewed in the article, the authors hypothesized that economic hardships would affect adolescents both directly and indirectly as a result of increased inconsistent discipline from parents and decreased parental nurturance. The sample

consisted of 622 participants in grades 9-12 in a midwestern United States community. The participants were 51% female and roughly 87% fell in the working or lower-middle class socioeconomic strata. Participants were administered a number of paper and pencil instruments including an economic hardship questionnaire, a parenting questionnaire, the Beck Depression Inventory, a delinquency questionnaire, a loneliness questionnaire, and a drug use questionnaire. Additionally, students were asked a series of questions to determine the socioeconomic status of their families based on the Hollingshead Index (Hollingshead, 1957) including father's occupation and education level. The authors found that economic hardship had a strong negative correlation with parental nurturance ($r = -.25, p < .001$) and a positive correlation with inconsistent discipline ($r = .20, p < .001$). According to the authors, parental nurturance also had a significant negative relationship with adolescent delinquency and drug use ($r = -.12, p < .05$). Furthermore, inconsistent discipline had a significant positive correlation with adolescent delinquency and drug use ($r = .28, p < .001$). As inconsistent discipline increased, adolescent delinquency and drug use increased as well.

A few procedural limitations exist in this study. Foremost, the demographic information was obtained and questionnaires administered to the adolescents only. The adolescents may not have understood the financial status of their family and, thus, may have given inaccurate reports. In addition, the data was collected during a period of an economic downturn in the community studied, which may have affected the results, as some families may have been experiencing a recent, and possibly temporary, fluctuation in their socioeconomic status.

Mancini and Huebner (2004) also conducted a study exploring the relationship between adolescent risk-taking (substance use, sexual activity, and delinquency), protective factors (use of structured time, interpersonal relationships, and system/individual characteristics) and socio-demographic characteristics (age, gender, ethnicity, family socioeconomic status). The characteristics highlighted for the purpose of this review include: socioeconomic status and adolescent risk-taking factors. Participants included 2,701 students in grades 7-12 in a rural, southeastern state. The sample included 52% female, 58% Caucasian, and 35% African American participants. Measures to assess risk behaviors, structured time-use protective factors (parents providing structured activities for adolescents after school), connections protective factors (time spent with friends and family), individual protective factors (self-esteem and school success), and socio-demographic factors (gender, ethnicity, age and family SES) were administered to participants. The authors reported that socioeconomic status was positively correlated with attachment to school ($r = .060, p < .001$) and grades ($r = .239, p < .001$) and negatively correlated with risk behavior ($r = -.092, p < .001$). Though significant, the correlation between socioeconomic status and risk behavior was not very strong.

The authors noted in their discussion that they were only able to explain approximately 1/5th of the variability in risk, warranting further exploration of contextual factors (Mancini & Huebner, 2004). It may be important to explore socioeconomic factors independently as opposed to considering them as a whole. According to Ensminger et al. (2000), some factors that contribute to socioeconomic status include

family income, parental marital status, parental education level, and parental employment status. Thus, those factors will be explored individually.

Individual Socioeconomic Factors and Adolescent Risk-Taking

Blum et al. (2000) assessed information gathered for the National Longitudinal Study of Adolescent Health to determine if income level was related to risk-taking factors in adolescents ranging from 7th to 12th grade. Specifically, 134 high schools and middle schools were selected for participation and stratified based on location, size of enrollment, type of school, and the racial/ethnic diversity of students. Students participated in a 90-minute interview and a parent participated in a 30-minute interview. Ten-thousand, eight-hundred and three participants remained after some data was removed due to invalid responses or lack of a parental figure. The sample included 71.1% Caucasian, 12.6% Hispanic, 16.3% African American, and 50.3% female participants with proportions distributed equally among all grades 7 through 12. Researchers also gathered information about health-comprising behavior (sexual involvement, cigarette and alcohol use, and suicide risk), race/ethnicity, income and family structure (1 or 2 parent household).

Using bivariate analyses, the authors found an inverse relationship between cigarette use and family income among younger teenagers, while an opposite trend emerged for older teenagers (high school students). Thus, the higher the income, the less likely young teenagers and the more likely older teenagers were to use cigarettes. Alcohol use also increased among older teenagers, as income increased. Suicide risk decreased as income increased for younger teenagers, but no significant differences emerged for older teenagers. Additionally, the risk of weapon-related violence and

sexual intercourse were significantly and inversely related to income across younger and older teenagers. All of the above stated risk behaviors, with the exception of suicidal risk, were significantly increased in single-parent households across both age groups. The results remained even after race/ethnicity and family income level were controlled.

While the results of this study were strong, the interaction of the independent variables (race/ethnicity, family income and family structure) did not account for much of the variance in the dependent variables for younger and older teenagers (4.1% and 7.2% in cigarette smoking, 1.1% and 2.3% in alcohol use, 9.7% and 2.9% in sexual intercourse respectively, 0.5% in suicide attempts and 2.7% in weapon-related violence combined). Similar results were found by Unger, Sun, and Johnson (2007), in that 8th grade participants living in lower socioeconomic status were more likely to use cigarettes.

Blum et al. (2000) assessed income and family structure, while Flewelling and Bauman (1990) reviewed the association between family structure (intact or single-parent) and adolescent risk-taking behaviors. The sample included 2,102 participants between the ages of 12-14 years old from the southeastern United States. The authors did not provide a breakdown of demographic variables. All participants were queried about the following risk-taking behaviors: cigarette use, alcohol use, marijuana use, and engagement in sexual intercourse. The authors reported “a comparison of percentages shows that young adolescents from intact families are consistently less likely to report substance use and sexual intercourse” (Flewelling & Bauman, 1990, p. 175). The authors obtained this result by comparing adolescents living in intact homes with two biological parents to those living in single-parent homes or step-parent situations. Information obtained in 1985 about family structure was found to predict adolescent risk-taking in

1987. Specifically, single-parent and step-parent living circumstances predicted all of the risk-taking behaviors: cigarette use (OR = 1.57 and OR = 1.67), alcohol use (OR = 1.64 and OR = 1.58), marijuana use (OR = 2.26 and OR = 2.60), and engagement in sexual intercourse (OR = 2.27 and OR = 2.30). All of these correlations were significant at the $p < .01$ level. Upchurch et al. (1999) obtained similar results in that adolescents ages 12 to 17 years old living in step-parent or single parent households had significantly higher rates of sexual intercourse than those living with both biological parents ($p < .01$).

The relationship between parental education level and adolescent-risk taking was also worthy of exploration. Scarinci et al. (2002) assessed the association between cigarette smoking and socioeconomic status based on community characteristics, such as mean education level, median income level, and percentage of students receiving free or reduced lunches in a particular geographical location. Individual family characteristics were not gathered, but rather participants were categorized based on the average community characteristics of the zip code in which they lived. The sample consisted of 3,813 participants, averaging 13 years of age (ranging in age from 11 to 19), with 82.3% being African American, 17.7% being Caucasian and 55% being female. Sixty-nine percent of the participants lived in geographical locations wherein the mean education level was a high school diploma, 3.3% lived in areas where the mean education level was less than a high school diploma and 28% came from neighborhoods where the mean education level included some college. The authors indicated that youth from neighborhoods with higher mean education levels (OR = 0.60, $p < 0.01$) and a lower percentage of students receiving free or reduced lunches (OR = 2.92, $p < 0.0001$) were

significantly less likely to smoke cigarettes. There was no overall main effect difference based on neighborhood income.

Some limitations of this study should be considered. Foremost, the influence of individual family and friend characteristics was not explored in this study, rather neighborhood and zip code mean characteristics were used (i.e. mean education level, median income level, number of students receiving free/reduced lunches). In other words, the median income and mean education level of the zip code in which the participants resided were used instead of the income and education level of each participant. The authors utilized this method of SES identification because the adolescents involved in the study were unable to accurately provide income and parent education information. Additionally, adolescents were asked to endorse the smoking behavior that best identified their use (not a smoker, used to smoke, smoke less than one cigarette per month, smoke more than one cigarette per month, smoke more than one cigarette per week, smoke one to six cigarettes per week, and smoke one or more cigarettes per day). However, when the authors conducted the analyses, they dichotomized the sample into non-smokers and those smoking monthly or more. Exploration of the number of cigarettes smoked may have provided further clarification.

Another socioeconomic factor possibly related to adolescent risk-taking is parental employment. Han and Waldfogel (2007) examined the relationship between parental work schedules and adolescent risk-taking by utilizing data drawn from the National Longitudinal Survey of Youth-Child Supplement (NLSY-CS). The sample included children ages 10 to 14 in the following years: 1988, 1990, 1992, 1994, 1996, 1998, 2000, and 2002. The authors gathered the data longitudinally and it was possible

that the same children were assessed at multiple times. However, for the purposes of the study, each assessment was treated as a separate data set totaling 12,207 participants.

Forty-five percent of the study participants were Caucasian, 34% were African American, 21% were Hispanic, and 48% were female. Considering maternal work schedules, 63% worked standard hours, 5% worked evening shifts, 3% worked cat-eye (night) shifts, 6% had rotating shift work, and 23% worked irregular hours.

The authors assessed risk-taking behaviors including: cigarette use, alcohol use, marijuana use, and other drug use. Additionally, information was obtained and participants were stratified regarding the parental work schedule into one of the following categories: standard, evenings, nights, rotating shift, irregular hours, or not working.

The authors found few significant relationships between parental work schedules (in two-parent households) and adolescent risk-taking. Only one significant relationship occurred: adolescents with mothers working evening hours were more likely to have engaged in criminal behavior. Furthermore, in single-mother families, adolescents whose mothers worked rotating shifts were significantly more likely to engage in disobedient behavior, criminal behavior, and have school-related trouble ($p < .05$, $p < .05$, $p < .01$ respectively). However, substance use was not significant, regardless of work category or family structure.

Han and Waldfogel (2007) also assessed parental monitoring and parent-child closeness based on work schedules. They determined that some non-traditional work schedules were associated with increased parental monitoring. One of the parental monitoring variables (“adult present if the child goes home after school,” p. 1255) was significant to the $p < .001$ level when the mother worked nights, rotating shifts, and

irregular hours. When fathers worked nights and irregular hours, the likelihood of an adult being present after school was significant as well ($p < .01$). While this study did not produce profound results regarding employment status and adolescent risk-taking, there were some indications that employment status was associated with parental monitoring. Thus, it is an important factor to consider for the current study. It will be reviewed in the next several sections, in addition to the other socioeconomic factors already delineated, as it relates to parental monitoring and/or parental knowledge.

Parental Monitoring/Knowledge and Socioeconomic Factors

There is scant literature addressing the relationship between individual socioeconomic factors and parental monitoring/knowledge. An examination of each socioeconomic factor identified by Ensminger et al. (2000) will not be conducted as was done in the previous section due to the limited availability of research in this area. Rather, this writer will provide an overall review of socioeconomic factors, with individual factors examined when present, as they relate to parental monitoring and knowledge. As will be noted, some of the articles also reviewed risk-taking, in addition to socioeconomic status and parental monitoring/knowledge (Capaldi et al., 2002; Crouter et al., 2005; Pettit et al., 2001). Where appropriate, risk-taking will also be briefly examined, though its relationship to socioeconomic variables was provided in the previous section.

Pettit et al. (2001) conducted a longitudinal study examining the effect of proactive parenting in childhood with increased parental knowledge and psychological control in adolescence. The authors also assessed the impact of different demographic characteristics, such as SES, marital status and child gender, on parental knowledge in

adolescence. The participants included families involved in the Child Development Project during their children's kindergarten year. The initial sample consisted of 585 children and follow-up assessments were gathered annually for nine subsequent years (for a total of 10 waves). Four-hundred and forty families participated in the final wave, whereby all data was gathered from the parents and teachers about the adolescent children (now roughly 14 years old). In this final sample of 440 participants, 50% were female, 17% represented ethnic minorities and 27% lived in single-parent households. Pettit et al. (2001) utilized assessments of parental knowledge and psychological control. The authors adapted items from other authors to assess both adolescents and parents in these areas. The authors also assessed anxiety, depression and delinquent behaviors in adolescents, by including parent (Child Behavior Checklist; CBC), teacher (Teacher Report Form; TRF) and adolescent (Youth Self-Report; YSR) reports. Early childhood discipline information, including harsh discipline and proactive parenting, was collected during the first wave of the study, when the children were roughly five years of age. Information about SES and marital status was also gathered during this time.

The results in this study were plentiful; however, only the results related to parental knowledge, SES factors and adolescent risk-taking will be reported for the purposes of this review. According to Pettit et al. (2001), higher levels of mother-reported knowledge was significantly related to higher SES ($r = .18, p < .001$) and two-parent families ($r = 1.17, p < .001$). Additionally, the authors indicated that parental knowledge was significantly and negatively correlated with adolescent-risk taking. Thus, as knowledge increased, adolescent risk decreased according to both mother ($r = -.47, p < .001$) and teacher ($r = -.32, p < .001$) report.

Capaldi et al. (2002) conducted a longitudinal study examining risky sexual and substance use behaviors in male participants from ages 11 to 23 years old. The participants selected for the Oregon Youth Study were in grade four and followed through adolescence. There were a total of 206 families involved in the study; 90% were Caucasian, and 75% were identified as working class. The authors utilized interviews and questionnaires to gather information from parents, teachers and adolescents about family SES, parental monitoring, deviant peer association, substance use and sexual risk behavior. Socioeconomic status was found to be positively related to parental monitoring of adolescents ($r = .33, p < .001$). Additionally, the authors found parental monitoring to be negatively correlated with deviant peer association ($r = -.61, p < .01$), antisocial behavior ($r = -.55, p < .01$), substance use ($r = -.48, p < .01$), and sexual risk ($r = -.39, p < .01$).

Crouter et al. (2005) conducted a study whereby parental sources of knowledge, family background, parents' work hours, personal characteristics of the adolescent, quality of the marital relationship of the parents, parents-adolescent relationship, parental knowledge and adolescents' risky behaviors were assessed. The participants included 179 families living in small, suburban towns. All participants, except for one family, were identified as European American. Average family size was 4.63 members. A cluster analysis, with an agglomerative hierarchical approach, was conducted and three sources of knowledge for fathers emerged. They included relational, relies on spouse, and relies on others (sibling of the adolescent, etc.). Cluster main effects emerged for fathers in education level, $F(2,176) = 7.54, p < .001$. The authors found that fathers in the relational cluster were more highly educated and held more prestigious jobs (and thus

considered to be in a higher socioeconomic bracket). Three clusters emerged from mothers as well, including relational, questioners, and relies on others. A main effect emerged for mothers in education, $F(2,176) = 7.26, p < .001$. Mothers identified as questioners were more highly educated than those in the other two clusters. Relational fathers, and those who relied on spouses were more knowledgeable of their adolescents' activities than those in the cluster relying on others. Furthermore, significantly higher levels of risk-taking were reported from adolescents whose fathers were in the "relies on others" cluster. Cluster membership for mothers was not significantly correlated with adolescent risk-taking. While this study focused on parental knowledge, rather than parental monitoring, it is substantial due to its delineation of different types of knowledge obtaining patterns, which this writer would argue is very similar to parental monitoring strategies. Parental monitoring strategies will be examined in the current study and described in detail later in this review.

Parental Monitoring/Knowledge and Adolescent Risk-Taking

Crouter and Head (2002) identified a number of areas across the developmental spectrum whereby parental monitoring and/or knowledge was implicated in the parent-child relationship; however, the most heavily studied area was in the risk-taking behaviors of adolescents. Risk-taking for the purposes of this literature review involved intentional engagement in harmful activities such as involvement with delinquent peers, nicotine use, alcohol use, other drug use, promiscuous sexual activity and criminal involvement. These particular risk-taking behaviors were selected because they are maladaptive and potentially harmful, resulting in health problems, substance addiction, and involvement with the legal system.

In an early study conducted by Dishion et al. (1991), parental monitoring, discipline, peer rejection and academic failure were assessed longitudinally over a two-year period. The authors focused on the prediction of delinquent behaviors in boys at age 12 based on information gathered at age 10. The sample consisted of two cohorts of boys with 102 and 104 participants respectively. Parental monitoring was assessed utilizing multiple reporters (interviewer, parent and child). The interviewers made global rating impressions of parental monitoring based on their observations during the interview. The parent gave feedback during a telephone interview about how much time they had spent with their child in the last 24-hour period. The child's perspective of the parental monitoring was assessed during a face-to-face interview using a 6-item scale. In addition to other characteristics, the authors noted that across both cohorts, parental monitoring at age 10 (cohort 1 $r = -.37$ and cohort 2 $r = -.29$) and discipline at age 10 (cohort 1 $r = -.41$ and cohort 2 $r = -.24$) was significantly correlated with antisocial peer involvement in boys at age 12. The researchers highlighted the importance of parental monitoring (or lack of parental monitoring) in the development of deviant peer relationships, which could also lead to risk-taking behaviors. Some design limitations affecting generalizability should be considered. Foremost, the authors utilized only male participants from elementary schools "with the highest density of neighborhood delinquency" (Dishion et al., 1991, p. 173). This may be helpful if a program to reduce the delinquency in these particular areas was to be implemented, but this population selection makes it difficult to generalize the results to other populations (e.g., girls).

Kerr and Stattin (2000) utilized measures of delinquency, deviant friend associations, school behaviors, depressed mood, poor self-esteem, sources of parental

knowledge and parental monitoring to examine the effects of parental monitoring and knowledge on adolescent delinquent behavior. These assessment measures were gathered from three different sources: the adolescents, parents, and teachers (who had taught the adolescents since 5th grade). Participants included 1,186 8th grade students in a Swedish city. All 1,186 adolescent participants completed the adolescent questionnaires, 1,077 parents completed and returned the parent questionnaires and teachers completed 855 questionnaires related to the behaviors of the study participants. The authors identified three sources of parental knowledge of adolescent behaviors which, in turn, informed the parent's monitoring of the adolescent: child disclosure (adolescents' willing and impromptu disclosure of information to their parents), parental solicitation of information (parents asking adolescents for specific information) and parental control (parents controlling adolescents activities, etc.).

Broadly, increased levels of parental monitoring were correlated with better adolescent adjustment. Kerr and Stattin (2000) noted that child disclosure was more strongly correlated with greater parental knowledge of whereabouts and activities, as compared to parental solicitation and parental control. Additionally, the authors noted that a weaker correlation existed between the parent-initiated knowledge sources and adolescent adjustment (delinquency, school problems, and deviant friends), while a strong correlation emerged between child disclosure and adjustment. This finding suggested that adolescents were less likely to engage in delinquent behaviors when child disclosure was the main source of parental knowledge. Child disclosure was also strongly and negatively correlated with depressed mood and low self-esteem. Thus, it was suggested by the authors that different types of parental knowledge were correlated with

varying levels of adolescent delinquency or risk-taking behavior. Spontaneous child disclosure was identified as the source most strongly correlated with reduced risk-taking (Kerr & Stattin, 2000). This study provided a good example of the importance of the relationship, not just the tracking and surveillance, in parental monitoring. Additionally, it was strengthened by the multi-rater model (adolescents, parents, and teachers). However, the study was conducted in a Swedish city making it difficult to generalize the results to a US-based population.

A study conducted by Graber et al. (2006) explored similar variables in 1,174 adolescent participants, including delinquency, aggression, academic achievement, self-esteem, assertion, parental monitoring, friends delinquency, and violent media engagement. Reliability and validity of the measures was not explored by Graber et al. (2006). This study was conducted longitudinally with participation beginning in 6th grade and lasting through the end of 8th grade. In 6th grade, the mean age for the sample was 11.63 years old. Additionally, 53.7% of the participants were female, 48% were African American, 28% were Hispanic and 7.6% were Caucasian. Most participants, 49.7%, came from an intact family structure, 27.9% resided with a single parent and 12.8% lived within blended/step-families. Lower parental monitoring was associated with increased rates of delinquent adolescent behavior and it predicted a decrease in school achievement from 7th to 8th grade. Furthermore, lower parental monitoring predicted a decrease in adolescent self-esteem from 7th to 8th grade.

The longitudinal nature of this study provided a better understanding of the influence of parental monitoring and identified some potential critical points in which parental monitoring should be emphasized. Some study limitations were noted, including

the sample population comprised of urban, minority youth. While information about this population was informative, it limited the generalizability of the results to majority populations. Furthermore, the attrition rate was minimal; however, attrition analyses indicated that it was associated with increased risk. For instance, the participants who dropped out of the study were significantly more likely to engage in risky activities, based on assessment of the data that was gathered prior to their self-omission from the study. Finally, the authors relied solely on adolescent self-report, rather than multiple reporters, potentially leading to more inaccurate results.

A study conducted by Rodgers (1999) examined parental communication (a contributing factor to parental monitoring), parental support and two types of parental control: parental behavioral control and parental psychological control. Parental behavioral control seemed to represent a more pure measure of parental knowledge including the extent to which parents knew the whereabouts and activities of their adolescent, whereas parental psychological control included withholding love and instilling anxiety and guilt. Thus, for the purposes of this review, parental communication will be examined as a factor of parental monitoring and the parental behavioral control measure will be examined as the best representation of parental knowledge. The participants included 375 students in 9-12th grade in a northern Midwestern state. The sample was 51% female, 74% resided in a two parent household (biological or adoptive). Furthermore, 93% of the participants were Caucasian. The participants were asked to complete questionnaires assessing the following areas: monogamy, use of contraceptives, parental support, parent-child communication, behavioral control, psychological control and age. A logistical regression analysis was

conducted to predict sexual risk-taking based upon the four variables identified previously: parent communication, parent support, parental behavioral control and parental psychological control. Results indicated that high parental knowledge of sexually active sons significantly decreased their likelihood of engaging in high-risk sexual behavior, such as minimal use of contraceptives (for males; $B = -.73, p < .01$ and for females; $B = -.69, p < .05$). In fact, the authors claimed that “for each unit increase in parental monitoring [knowledge], the odds of being classified in the low-risk group multiplied by .48” (Rodgers, 1999, p. 105). For daughters, high parental knowledge of sexually active females greatly increased their classification in the low risk group similar to the classification of sons in high parental monitoring groups.

Rodgers (1999) contributed to the parental knowledge literature with a study indicating that increased knowledge was associated with reduced sexual risk. However, a few considerations should be noted. The study consisted primarily of Caucasian participants living in two-parent households where 94% of parents had earned at least a high school diploma, thus making it difficult to generalize these results.

Sullivan et al. (2004) deviated slightly from the previously reviewed studies by exploring parental monitoring as a protective factor, rather than positively correlated to adolescent risk-taking. Specifically, the researchers examined connections between the witnessing of violence toward others and subsequent drug use. Furthermore, the extent to which parental monitoring acted as a protective factor against the initiation of drug use was also explored. The participants included 1,282 6th grade students in a rural community in the southern United States. The sample consisted of 50% female participants, 51% Caucasians and 17% African Americans. The participants completed

questionnaires assessing drug use initiation, witnessing of violence toward others, parental monitoring and family support at the onset of the second semester (time 1) and at the end of the school year (time 2). The authors found significant correlations between parental monitoring and witnessing violence against others at time one ($r = -.31$) and time 2 ($r = -.26$), drug use (beer, liquor, and cigarettes) at time one (r between $-.20$ and $-.33$) and at time two (r between $-.18$ and $-.25$). Additionally, Sullivan et al. (2004) indicated that increased parental monitoring was associated with reduced rates of drug initiation after witnessing “low levels” of violence toward others (p. 494). However, parental monitoring did not moderate as much when adolescents witnessed “high levels” of violence toward others (e.g. stabbing, murder, p. 495). The authors referred to this phenomenon as the “promotive but reactive effect,” but provided no information about the reasoning for its occurrence.

This study was valuable in exploring parental monitoring as a protective factor; however, caution should be exercised in interpretation due to several limitations. Foremost, the study did not examine the use of other types of drugs beyond cigarettes and alcohol. Additionally, the authors relied upon student self-report to identify substance use. While the authors suggested that the reporting of violent crime and parental monitoring may be more accurate as a result of student self-report, the report of drug use (especially since the questionnaire was administered in a school setting whereby a student may be hypervigilant about reporting illegal activity) may not have been as accurate.

Parental Monitoring as a Resiliency Protective Factor

While there is substantial evidence to suggest a negative relationship between socioeconomic factors, such as low income and single/divorced parenting, and reduced

parental monitoring, there is also evidence to support parental monitoring as a resiliency factor. Fergus and Zimmerman (2005) identify several types of resiliency factors contributing to adolescent coping in the face of adversity, assets and resources. Assets are personal factors residing within the adolescent, such as intelligence and self-efficacy. Resources are external factors that contribute to overcoming risk, such as community education organizations and parental monitoring. Some researchers (Tarter & Vanyukov, 1999) assume resiliency to be a static trait; however, Fergus and Zimmerman (2005) indicated that resiliency is defined by “context, the population, the risk, the promotive factor, and the outcome” (p. 404).

Griffin et al. (1999) examined the effect of perceived environmental factors, including parental monitoring, on the risk behaviors of adolescents. The sample consisted of 452 sixth-graders attending public school in New York City. The sample was 51% male, 90% African American, 4% Hispanic, and 1% Caucasian. Fifty-three percent lived in two-parent households, while 31% lived in single parent homes. The participants completed several self-report questionnaires measuring parental monitoring, friends' delinquency, neighborhood risk, anger control skills, risk-taking, and interpersonal aggression. The results of this study were vast; however, only those related to parental monitoring are reviewed. Parental monitoring was negatively correlated with risk-taking ($r = .16, p < .01$), suggesting it acts as a protective factor. Using structural equation modeling, parental monitoring was also found to be a protective factor against interpersonal aggression ($\beta = -.15, p < .05$). Several study limitations should be considered when interpreting the results. The cross-sectional design does not allow the

reader to infer causality. Additionally, the data was gathered via student self-report only, when multiple reporters would have been more accurate.

Rai et al. (2003) assessed the impact of parental monitoring on low-income African-American adolescents across six different cohorts. The entire sample included 1279 adolescents between the ages of 13 and 16 living in an eastern urban area. Paper-and-pencil measures of parental monitoring (using the Parental Monitoring Scale), perceived peer risk-involvements, and adolescent risk behaviors over the previous six months were gathered. The authors found that parental monitoring acted as a protective/resiliency factor in reducing risk behaviors. Odds ratios are typically calculated to assess the likelihood of achieving a particular outcome if a certain risk factor is present. In other words, “the odds ratio is a relative measure of risk, telling us how much more likely it is that someone who is exposed to the factor under study will develop the outcome as compared to someone who is not exposed” (Westergren, Karlsson, Andersson, Ohlsson, & Hallberg, 2001, p. 268). Significant odds ratios were found between parental monitoring and decreased use of cigarettes (OR = .57 $p < .001$), alcohol (OR = .65, $p < .0001$), and marijuana (OR = .59, $p < .0001$). Additionally, parental monitoring provided a protective factor for violence related behaviors (OR = .70, $p < .0001$) and sexual engagement (OR = .56, $p < .0001$). This study was remarkable because the researchers gathered data across the span of 10 years in the same cities and included participants from similar socioeconomic backgrounds. However, the adolescents in the study were primarily African American making the generalizability of the results to other ethnic groups difficult.

Parental Monitoring Strategies

Many research studies have been conducted to explore the concept of parental monitoring as it relates to adolescent-risk taking (Crouter & Head, 2002; Dishion et al., 1991; Graber et al., 2006; Kerr & Stattin, 2000; Rodgers, 1999; Sullivan et al., 2004) and resiliency (Fergus & Zimmerman, 2005; Griffin, 1999; Rai et al., 2003) however, few validated instruments have been developed to assess parental monitoring (Cottrell, Branstetter, Cottrell, Stanton, & Harris, 2007). The goals of the study conducted by Cottrell, Branstetter, Cottrell, Stanton, and Harris (2007) were to develop a parental monitoring instrument, modify a behavioral parent-adolescent program, and test the efficacy of the program. Foremost, Cottrell et al. (2007) designed and validated the Parental Monitoring Instrument (PMI) by utilizing advisory boards and focus groups to identify parental monitoring assessment items. The groups were composed of adolescents and parents. After designing the PMI, the authors recruited participants through personal and professional contacts in various West Virginia counties. The recruitment was initiated through school superintendents, school principals, or community groups. See Appendix A for a map of the West Virginia counties involved in the study and the methods of recruitment. After approval was given through the various recruitment sources in each county, all school students meeting the following criteria were eligible to participate: (1) one or more parents/legal guardians agreed to participate in this longitudinal study, (2) adolescents were no younger than 12 years old and no older than 17 years old, and (3) adolescents resided in the same household with the participating parent for at least 6 months of the previous year. In total, 523 (39% of eligible participants) families agreed to participate in the study by returning the

information packet and proper consent and assent forms. Five of the families were omitted due to missing data in the information packet from the adolescent and/or caregiver, resulting in 518 total adolescent-parent dyads. The data for the Cottrell et al. (2007) study was derived from the baseline questionnaire responses in the longitudinal study examining parental monitoring, parental knowledge, adolescents' and parents' perceptions of parental monitoring, and adolescent risk-taking. See Cottrell et al. (2007) for more details.

The Cottrell et al. (2007) study included exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) techniques. Exploratory factor analysis “traditionally has been used to explore the possible underlying factor structure of a set of observed variables without imposing a preconceived structure on the outcome” (Suhr, p.1). Additionally, structural equation modeling (SEM) was utilized to conduct a CFA and to test construct validity. “Confirmatory factor analysis (CFA) is a statistical technique used to verify the factor structure of a set of observed variables. CFA allows the researcher to test the hypothesis that a relationship between observed variables and their underlying latent constructs exists” (Suhr, p. 1). Construct validity was assessed by comparing the PMI to two scales with known validity characteristics, the Parental Monitoring Scale (Silverberg & Small, 1991) and the Parent-Adolescent Communication Scale (Barnes & Olsen, 1982), that purport to measure theoretically similar variables.

According to the authors “twenty-three questions of the original 49 questions loaded at least .504 across the seven factors. Coefficient alpha for all factors was $> .69$ ” (Cottrell et al., 2007, p. 4). Based on the exploratory factor analysis, seven parental monitoring strategy factors emerged: direct, indirect, restrictive, school, health,

computer, and phone monitoring. School, health, computer and phone monitoring were collapsed into one factor identified as specific, thus making four distinct, but somewhat related, factors: direct, indirect, restrictive and specific. Furthermore, the 23 items were included in the CFS to verify the structure indicated in the EFA. Cottrell et al. (2007) determined that in both the exploratory (direct $\alpha = .80$, indirect $\alpha = .84$, and restrictive $\alpha = .69$) and confirmatory analyses (direct $\alpha = .81$, indirect $\alpha = .80$, and restrictive $\alpha = .73$), the coefficient alpha was acceptable, suggesting that each has adequate internal consistency. Factor loadings for the following questions on the indirect monitoring factor are: asked to meet child's friends (.632), contacted child's friends parents to talk to them (.693), contacted other parents to find information about child's friends (.624), asked friends about child's activities they did with you (.642), talked to other parents about child's activities (.522), talked to neighbors about child's activities (.654), checked to see if another parent or adult was with child for supervision (.704). Factor loadings for the following questions about the direct monitoring factor are: talked to child about what he/she had planned (.656), asked child about specifics of planned activities (.896), asked child what happened after planned activities (.863). Factor loadings for the following questions about the restrictive monitoring factor are: listened to child's phone conversation (.611), looked through child's drawers or closets (.713), read child's personal notes or diary/journal (.598). Additionally, using a goodness of fit chi-square analysis, the authors compared the PMI to the Parental Knowledge Scale and the Parent-Adolescent Communications Scale, both of which measure similar constructs as the PMI. They found that construct validity was acceptable for adolescent report ($\chi^2 = 687.78$, $df = 366$, $p < .000$, RMSEA = .04 [90% CI = .04 to .05], CFI = .92). RMSEA is an

alternative goodness of fit model. For more detailed information, see Cottrell et al. (2007).

Summary and Statement of the Problem

In sum, the literature indicated a clear relationship between low SES factors and adolescent risk-taking, while also minimally supporting a relationship between parental monitoring/knowledge and SES factors. Additionally, there was some evidence supporting a connection between parental monitoring/knowledge and adolescent risk-taking. Parental monitoring has also been identified as a factor in resiliency. However, there seem to be some gaps in the literature. Foremost, there is scant literature reviewing the connections between parental knowledge/parental monitoring and specific SES factors. Since, Cottrell et al. (2007) only recently identified the different parental monitoring strategies (direct, indirect, specific, and restrictive), there is no literature examining potential connections between different strategies and SES factors, nor the role each strategy plays in resiliency, if any.

This is an important area to evaluate considering the strong adolescent risk-taking/parental monitoring and adolescent risk-taking/SES relationships identified. Cottrell et al. (2007) determined that there were distinct types of monitoring strategies utilized by parents to gain knowledge. Furthermore, they indicated parental monitoring should not be studied as a unitary construct, but would be more beneficial if examined based on the strategies identified. Exploring the different types of strategies used by parents in different levels of SES, in addition to parental knowledge (scantly evaluated in the literature) and adolescent risk behavior (heavily explored in the literature) will allow

family therapists and psychologists to determine specific areas of focus in treating families living in different levels of SES.

Additionally, exploring parental monitoring strategies as potential resiliency factors will provide further information in designing treatment and educational programs for adolescents living in high risk situations related to low SES. The two risk factors of SES that seemed most critical in adolescent risk-taking behaviors were family income and parental marital status, thus these two factors will be explored in the current study. Additionally, this study is secondary and will be utilizing data that was not intended for in depth exploration of SES factors. The only two SES factors available for examination are family income and parental marital status.

Purpose of the Study

Informed by the results of previous research, the current study utilized the same sample assessed in the Cottrell et al. (2007) study to examine the relationships between two SES factors (family income and parental marital status) and adolescent risk-taking and parental knowledge. Additionally, relationships between family income and parental marital status and the three parental monitoring strategies (direct, indirect, and restrictive) were also examined. Direct monitoring strategies involved parental activities such as talking to adolescents about planned activities, and asking about adolescent activities after they have occurred. Some examples of indirect monitoring strategies include: meeting adolescents' friends, contacting the friends' parents, ensuring (with others) that an adult will be supervising activities, and talking to neighbors about adolescents' activities. Finally, restrictive parental monitoring strategies included, listening to adolescents' private phone conversations, reading personal notes/journals, and looking

through adolescents' bedroom closets and drawers. Finally, the parental monitoring strategies were explored as factors of resiliency in the high risk sub-samples. The research questions answered and corresponding hypotheses are as follows:

Research Question 1: Are there significant group differences in parental knowledge, and adolescent risk-taking, based on family income and parental marital status (socioeconomic factors)?

Hypothesis 1a: A significant group difference will exist in parental knowledge based on family income. Lower income groups will exhibit significantly lower parental knowledge as supported by previous literature.

Hypothesis 1b: A significant group difference will exist in parental knowledge based on parental marital status. Single and divorced groups will exhibit significantly lower parental knowledge as supported by previous literature.

Hypothesis 1c: A significant group difference will exist in adolescent risk-taking, based on family income. Lower income groups will exhibit significantly higher adolescent risk-taking as supported by previous literature.

Hypothesis 1d: A significant group difference will exist in adolescent risk-taking based on parental marital status. Single and divorced groups will exhibit significantly higher adolescent risk-taking as supported by previous literature.

Research Question 2: Are there significant group differences in the use of parental monitoring strategies based on family income and parental marital status?

Hypothesis 2a: A significant group difference will exist in the use of parental monitoring strategies based on family income.

Hypothesis 2b: A significant group difference will exist in the use of parental monitoring strategies based on parental marital status.

Exploratory Research Question 3: Are there significant differences in mean adolescent risk-taking based on the use of certain parental monitoring strategies (direct, indirect, and restrictive) among those adolescents identified in research question one to be in a high risk group based on family income? This research question will be examined in exploratory fashion only if a high risk group emerges, thus hypotheses will not be identified. Because this questions is exploratory, it cannot be generalized.

Exploratory Research Question 4: Are there significant differences in mean adolescent risk-taking based on the use of certain parental monitoring strategies (direct, indirect, and restrictive) among those adolescents identified in research question one to be in a high risk group based on parental marital status? This research question will be examined in exploratory fashion only if a high risk group emerges, thus hypotheses will not be identified. Because this question is exploratory, it cannot be generalized.

CHAPTER 3

Method

The data utilized in the present study was gathered as part of the 3-year, longitudinal Communication of Parents and Adolescents in Appalachia (COPAA) project, funded by the United States Department of Health and Human Services. The goals of the study were to develop a parental monitoring instrument, modify a behavioral parent-adolescent program, and test the efficacy of the program. Participant recruitment was initiated through personal and professional contacts in various West Virginia counties. The recruitment was initiated through school superintendents, school principals, or community groups. See Appendix A for a map of the West Virginia counties involved in the study and the methods of recruitment. After approval was given through the various recruitment sources in each county, all school students between the ages of 12 and 17 years old were eligible to participate. The data for the current study was derived from the baseline questionnaire responses in the longitudinal study examining parental monitoring, parental knowledge, adolescents' and parents' perceptions of parental monitoring and adolescent risk-taking. The study was conducted by a group of researchers at West Virginia University and Wayne State University including, Dr. Steven Branstetter, Dr. Lesley Cottrell, Dr. Scott Cottrell, Cathy Gibson, Dr. Carole Harris, Tina Shinkovich, and Dr. Bonita Stanton.

Participants

After gaining approval from the Institutional Review Board (IRB), 1350 middle and high school students in 32 rural schools in West Virginia were provided a letter outlining the purpose and procedures of the project to review with their caregivers.

Participants were also informed that they would receive \$15 for their participation in this project. The letter included the appropriate consent and assent forms. The participants were asked to complete and return their forms to the classroom teacher using a sealed envelope provided by the project faculty.

Eligibility for the study was acceptable if: (1) one or more parents/legal guardians agreed to participate in this longitudinal study, (2) adolescents were no younger than 12 years old and no older than 17 years old, and (3) adolescents resided in the same household with the participating parent for at least 6 months of the previous year. In total, 523 (39% of eligible students) families agreed to participate in the study by returning the information packet and proper consent and assent forms. Five of the families were omitted due to missing data in the information packet from the adolescent and/or caregiver, resulting in 518 total adolescent-parent dyads.

Measures

In this section, the measures used in the current study are described (see Appendix B for a copy of the full adolescent questionnaire that was distributed to participants). Please note, data was gathered for the longitudinal COPAA project that extended beyond the scope of this study. Some of the items in the questionnaire will not be assessed, but are included in Appendix B.

Parent and Adolescent Demographic Questionnaire. A demographic questionnaire was completed by parents and/or participating caregivers (see Appendix C), which provided demographic information about themselves including age ($M = 41.28$ years, $SD = 6.78$), and gender (91.3% females), and their family characteristics including the number of children living in the home (80.1% of families with 2 or more children),

the number of adults in the home (82.3% of families with 2 or more adults), parental marital status (66.4% married), and total family income (19.1% of families with an income \leq \$15,000). See Table 1 for full explanation of the participants' demographic characteristics. Parental marital status and family income were the two socioeconomic factors identified as independent variables in the current study. The caregivers also indicated their relationship to the participating adolescent from one of the following: (1) biological parent (91.3%); (2) adopted parent (1.5%); (3) stepparent (2.5%); (4) grandparent (2.1%); (5) aunt or uncle (0.4%); or (6) other (0.4%). Parents also answered questions about their adolescents including, their age ($M = 14.80$; $SD = 1.3$), gender (29.9% male), current rating of grades in school (83.8% with average grades or better), and race/ethnicity (95.9% Caucasian).

Parental Monitoring Instrument. The Parental Monitoring Instrument (PMI) was a scale devised by the investigators working with the COPAA project and a Community Advisory Board (See Appendix D). Parents were instructed to identify how many times they had engaged in certain tracking activities in the past four months. According to Cottrell et al. (2007), "some monitoring strategies were general ways that parents collect information, such as asking the adolescent or talking to other parents about planned activities" (p. 329). Additional general monitoring strategies were identified including direct, indirect, and restrictive. Some examples from the monitoring questionnaire include: "Listened to your phone conversations without telling you," "contacted your friend's parent(s) to talk to them," and "asked you to contact him/her on the phone to tell him/her where, who, and what you were doing." Each item inquires about the number of times the parents utilized the particular strategies in the past four

months. The response possibilities included “0 times,” “1-2 times,” “3-4 times,” and “5+ times.”

Using an exploratory factor analysis of this instrument, Cottrell et al. (2007) identified seven parental monitoring strategies including: direct, indirect, school, health, computer, phone, and restrictive. The three strategies identified as more general monitoring, rather than specific, are analyzed in the current study. They include: direct (Cronbach's $\alpha = .81$), indirect (Cronbach's $\alpha = .82$), and restrictive (Cronbach's $\alpha = .71$). Direct monitoring strategies involve parental activities such as talking to adolescents about planned activities, and asking about adolescent activities after they have occurred. Some examples of indirect monitoring strategies include: meeting adolescents' friends, contacting the friends' parents, ensuring (with others) that an adult will be supervising activities, and talking to neighbors about adolescents' activities. Finally, restrictive parental monitoring strategies include, listening to adolescents' private phone conversations, reading personal notes/journals, and looking through adolescents' bedroom closets and drawers.

Adolescent Risk Inventory. Combined with the Parental Monitoring Instrument were questions related to adolescent risk-taking (See Appendix E). Adolescents were instructed to indicate how many times they had engaged in the risky activity in the past four months. Some examples of risk-taking items included: “drank alcohol,” “used tobacco,” “been suspended from school,” “stolen anything,” and “snuck out of the house.” Possible responses to the items were: “0 times,” “1-2 times,” “3-4 times,” and “5+ times.” In the Statistical Package for the Social Sciences (SPSS) program, they were labeled at 1, 2, 3, and 4 respectively.

Using SPSS 16.0 a factor analysis with varimax rotation was conducted to identify different types of adolescent risk. Factor loading values of .45 were used as criteria for item inclusion in each factor. Four factors were identified including: sneaking (including items such as skipping school, lying about activities, and sneaking out of the house), drug use (including items indicating alcohol, tobacco, marijuana, and other drug use), vandalism (including items indicating stealing and vandalizing property), and risky sexual behavior (including having sex with or without condoms, and using birth control). Cronbach's alphas were calculated for sneaking, drug use, vandalism, and risky sexual behavior. They are $\alpha = .80$, $\alpha = .72$, $\alpha = .60$, and $\alpha = .66$ respectively. A composite including all of these factors was calculated and found to have a Cronbach's $\alpha = .83$. A total of twelve risk-taking items were identified in the factor analysis and included in the adolescent risk-taking composite.

Parental Monitoring Scale. Some questions from the Parental Monitoring Scale designed by Silverberg and Small (1991) were adapted to evaluate parent and adolescent perceptions of the amount of information parents gather about the following: adolescents' whereabouts, the activities completed by adolescents, and the people with whom the adolescents spend time during certain periods of the day. Four time periods were examined for each area of parental knowledge. The time periods included: school afternoons until 5 p.m., school evenings, weekend and holidays during the day, and weekend and holiday evenings. Parents and adolescents were instructed to respond separately to these items using a 4-point Likert scale whereby "1" indicating that parents never knew information and "4" indicating that parents knew the information all the time. A mean composite score (Cronbach's $\alpha = 0.92$ for adolescents' perceptions) was

calculated by adding the total responses to all items and averaging them by the total number of items reported. This instrument is used to assess parental knowledge for the current study (See Appendix F).

Data Collection

Middle and high school students and their families returned the Institutional Review Board (IRB)-approved consent and assent forms after receiving them in school. Additionally, a contact information form was completed and returned so that the questionnaires could be mailed to participating families. Upon receiving the signed consent and assent forms, the questionnaire packets (see Appendix B for the adolescent questionnaire packet), one for the parent/legal guardian and one for the adolescent, were sent to the 518 participating families. Each packet contained a demographic questionnaire, the Parental Monitoring Instrument (PMI), the Adolescent Risk Inventory, the Parental Monitoring Scale, the Parent-Adolescent Communication Scale, and some additional questionnaires not utilized in the present study (such as a depression scale and the Parenting Styles Inventory). Some questionnaires were omitted from the present study, as they were not necessary to answer the research questions or to complete the analyses. Also included in the packet were two self-addressed stamped envelopes and two seals, which participants were instructed to place over the seal of the envelope to ensure the confidentiality of each dyad member.

Adolescents and their parents/legal guardians were instructed to complete their respective questionnaires in separate places and to avoid viewing their partners' responses to ensure their privacy. The questionnaires were designed at a fifth grade reading level to allow for potential reading difficulties among participants. After

completing the questionnaires, the adolescents and parents were instructed to place their questionnaire in individual envelopes provided and to place the seal on the envelope.

Two broken seals were identified and the participants were contacted to assess any concerns for privacy. Additionally, project staff offered to send the questionnaires to a new address in future mailings.

Data Analysis

Preliminary data analyses were conducted to test for normality, and to obtain descriptive statistics on each of the research variables. For research question one and the four corresponding hypotheses, a 4 x 4 between-subjects factorial multiple analysis of variance (MANOVA) was conducted to test main effects for two independent on two dependent variables. The two independent variables included family income (categorical variable) and parental marital status (categorical variable). The two dependent variables were parental knowledge composite (continuous variable), and adolescent risk-taking composite (continuous variable). Alpha levels were set at $p < .025$ to control for Type I error. See Figure 1 below to review the various categories of each variable. A follow-up analysis of variance (ANOVA) summary table including the sum of squares, degrees of freedom (df), mean squares, and the F test statistic were also included. Bonferroni post hoc analyses were completed to identify where differences existed within the levels of the independent variables.

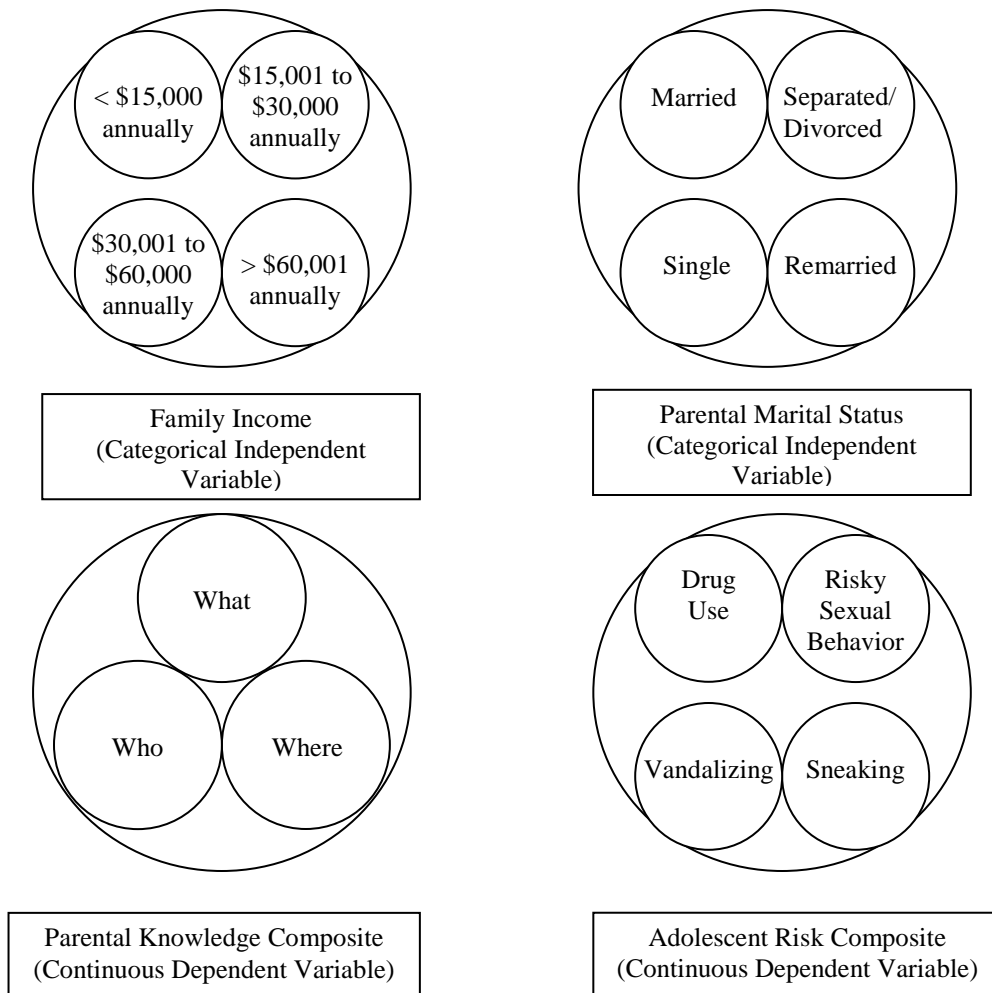


Figure 1. Variables utilized in the MANOVA 1. For the independent variables, the internal circles demonstrate the different categories to which participants identified. Within the parental knowledge composite and adolescent risk composite, the internal circles demonstrated the different areas included in the composites, but they were not examined independently.

For research question two and the two corresponding hypotheses, a 4 x 4 between-subjects factorial multiple analysis of variance (MANOVA) was conducted to test main effects for two independent on three dependent variables. The two independent variables included family income (categorical variable) and parental marital status (categorical variable). The dependent variables included the three parental monitoring strategies, direct, indirect, and restrictive (all continuous variables). Alpha levels were set at $p < .025$ to control for Type I error. See Figure 2 below to review the various

categories of each variable. A follow-up ANOVA summary table with the sum of squares, degrees of freedom (*df*), mean squares, and the *F* test statistic was also included in the report. Bonferroni post hoc analyses were completed to identify where differences existed within the levels of the independent variables.

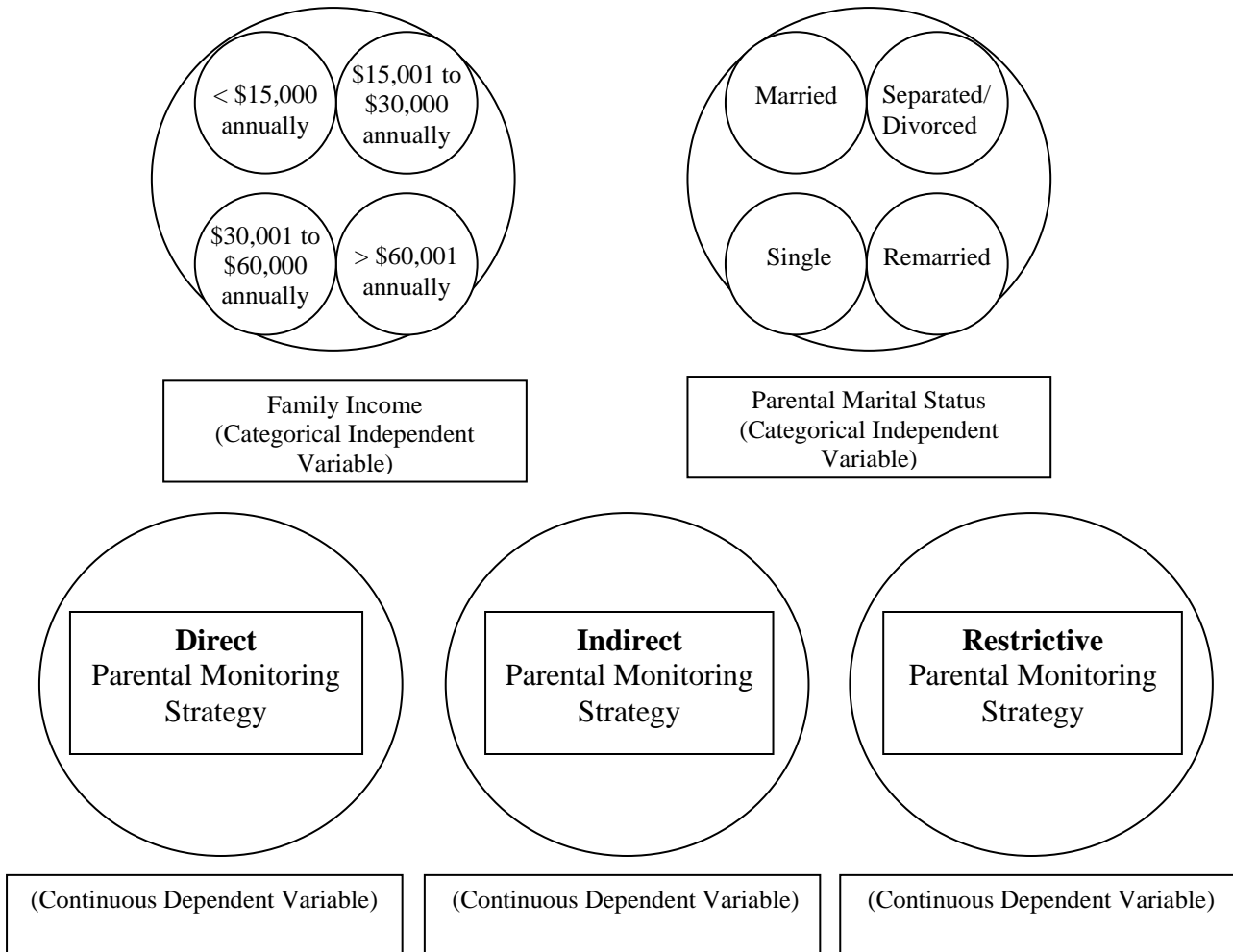


Figure 2. Variables utilized in MANOVA 2. For the independent variables, the internal circles demonstrate the different categories to which participants identified. All three parental monitoring strategies (dependent variables) were continuous variables.

Research questions three and four were exploratory in nature and were initially going to be conducted utilizing two 3-way factorial ANOVAs. This analysis could only be conducted if significant group differences were found in research question one, so that the highest risk family income and parental marital status groups could be identified. However, the high risk groups were not identified based on parental marital status and family income in research question one because no significant results emerged. Therefore, questions three and four could not be examined using only the highest risk groups, as originally planned. As a result, the analysis was independently examined and modified slightly. Research questions three and four were collapsed into one analysis. The individual participant responses were recoded based on the most commonly utilized parental monitoring strategy. Direct was, by far, the most commonly utilized of the three parental monitoring strategies; therefore, it was further broken down based on the second most commonly utilized strategy. Five different groups were identified: indirect (indirect strategy was the most commonly utilized by individual participants), direct with a tie for second (direct was the most commonly utilized by individual participants with indirect and restrictive equally utilized as second most common strategy), direct-indirect combination (direct was most commonly utilized by individual participants and indirect was the second most commonly utilized strategy), direct-restrictive combination (direct was the most commonly utilized and restrictive was the second most commonly utilized strategy among individual participants), and restrictive (restrictive was the most commonly utilized strategy among individual participants). Then a One-Way Analysis of Variance (ANOVA) was conducted, whereby the dependent variable was the type of

parental monitoring strategy utilized (categorical variable) and the independent variable was the adolescent risk-taking composite (continuous variable).

CHAPTER 4

Results

A review of literature suggested that family income and parental marital status, in addition to other socioeconomic variables, were related to adolescent risk-taking (Blum, 2000; Flewelling & Bauman, 1990; Han & Waldfogel, 2007; Lempers, et al., 1989; Mancini & Huebner, 2004; and Scarinci et al., 2002). Specifically, adolescent risk-taking typically increased as family income decreased and in single/divorced families. Examination of parental knowledge and parental monitoring literature also revealed a relationship with adolescent risk-taking, such that risk-taking increased as monitoring and knowledge decreased. However, as Cottrell et al. (2007) noted, parental monitoring is better examined categorically rather than on a high to low continuum.

Thus, the purpose of the current study is to examine group differences between adolescent risk-taking and parental knowledge based on two SES factors (family income and parental marital status). Additionally, group differences in the three parental monitoring strategies (direct, indirect, and restrictive) were also examined based on family income and parental marital status. Finally, parental monitoring strategies were examined as potential resiliency factors. This study utilized the same sample as the Cottrell et al. (2007) study and included a total of 518 adolescent-parent dyads, after five dyads were removed due to missing data.

Sample Characteristics

A demographic questionnaire was completed by parents and/or participating caregivers (see Appendix C), which provided demographic information about themselves, including age (range = 29 to 76 years, $M = 41.28$ years, $SD = 6.78$), and

gender (91.3% females, 8.7% males), and their family characteristics including the number of children living in the home (Range = 1-5+, M = 1.68, SD = .891, 80.1% of families had 2 or more children), parental marital status (9.5% single, 66.4% married, 15.9% separated/divorced, and 8.2% remarried), and total family income (19.1% of families with an income < \$15,000, 25.9% with \$15,000-\$30,000, 34.0% with 30,001-\$60,000, and 21.0% with > \$60,000). The caregivers also indicated their relationship to the participating adolescent from one of the following: (1) biological parent (91.3%); (2) adopted parent (1.5%); (3) stepparent (2.5%); (4) grandparent (2.1%); (5) aunt or uncle (0.4%); or (6) other (0.4%). Parents answered questions about their adolescents as well including, their age (Range = 12-18, M = 14.80; SD = 1.3), gender (70.1% female, 29.9% male), current rating of grades in school (83.8% with A's and B's, 27.8% with B's and C's, 13.0% with C's and D's, and 1.5% with D's and F's), and race/ethnicity (95.9% Caucasian, 1.7% African American, 0.8% Asian, 0.6% Native American, 0.2% Hispanic, and 0.8% Other). See Table 1 for full explanation of the participants' demographic characteristics. Parental marital status and family income were the two socioeconomic factors identified as independent variables in the current study.

Since adolescent risk-taking was an independent variable, specific characteristics of risk taking were explored. Adolescents were instructed to indicate how many times they had engaged in the risky activity in the past four months. Some examples of risk-taking items included: "drank alcohol," "used tobacco," "been suspended from school," "stolen anything," and "snuck out of the house." Possible responses to the items were: "0 times," "1-2 times," "3-4 times," and "5+ times." Overall, the mean adolescent risk-taking composite score was 13.43 (SD = 4.59) with a range from 9.00 to 34.00. Within

the various income levels the mean and standard deviations for adolescent risk-taking were as follows: < \$15,000 (M = 14.19, SD = 4.63); \$15,001 to \$30,000 (M = 13.29, SD = 4.28); 30,001 to \$60,000 (M = 13.31, SD = 4.60); > \$60,000 (M = 13.11, SD = 4.88).

Mean and standard deviations in adolescent risk-taking based on parental marital status were also calculated. They were as follows: Single (M = 14.41, SD = 4.33); Married (M = 12.96, SD = 4.43); Separated/Divorced (M = 13.98, SD = 4.53); and Remarried (14.97, SD = 5.64).

See Table 2 for adolescent risk-taking means and standard deviations based on levels of income and marital status.

Similarly, the parental knowledge composite was examined based on family income and parental marital status. On the scale utilized to measure parental knowledge, parents responded to items regarding their awareness of their adolescents' whereabouts at various times throughout the day using a 4-point Likert scale. An endorsement of "1" indicated that parents never knew information and "4" indicated that parents knew information all the time. The mean parental knowledge composite score for the entire sample was 3.48 (SD = 0.68) where the total possible range was 1 to 4. Within the levels of income, the parental knowledge composite scores were as follows: < \$15,000 (M = 3.22, SD = 0.83); \$15,001 to \$30,000 (M = 3.53, SD = 0.62); 30,001 to \$60,000 (M = 3.55, SD = 0.62); > \$60,000 (M = 3.53, SD = 0.62). The knowledge composite scores for marital status categories were as follows: Single (M = 3.31, SD = 0.69); Married (M = 3.54, SD = 0.66); Separated/Divorced (M = 3.48, SD = 0.65); and Remarried (3.23, SD = 0.79). Table 3 delineates the parental knowledge composite means and standard deviations based family income and parental marital status.

Parental Monitoring Strategy Characteristics

Specific parental monitoring strategies (direct, indirect, and restrictive) were also explored. Parents were asked to rate how many times they had engaged in various types of parental monitoring activities in the previous four months (1 = 0 times, 2 = 1-2 times, 3 = 3-4 times, and 4 = 5+ times). Utilizing three of the parental monitoring strategies identified by Cottrell et al. (2007) in the factor analysis, means of monitoring strategy use were calculated. For the purpose of identifying frequencies, the means were then recoded as: 1 to 1.99 = 1, 2-2.99 = 2, 3-3.99 = 3, and 4-4.99 = 4. Within the direct parental monitoring strategy, 17.5% of participants rated it a “1,” 32.8% rated it a “2,” 25.3% rated it a “3,” and 22.9% rated it a “4.” Participants utilized the indirect parental monitoring strategy in the following: 70.7% rated it a “1,” 22.5% rated it a “2,” 4.4% rated it a “3,” and 1.1% rated it a “4.” Participants reported utilizing the restrictive parental monitoring strategy in the following manner: 83.2% rated it a “1,” 10.7% rated it a “2,” 3.8% rated it a “3,” and 1.0% rated it a “4.”

Mean scores were also computed within each parental monitoring strategy based on the two independent variables (parental marital status and family income). The mean score for use of the direct parental monitoring strategy was 2.54 (SD = 1.03). Examination of the direct parental monitoring strategy used based on family income level revealed the following: < \$15,000 (M = 2.20, SD = 0.95); \$15,001 to \$30,000 (M = 2.56, SD = 1.05); 30,001 to \$60,000 (M = 2.68, SD = 0.99); > \$60,000 (M = 2.74, SD = 1.07). Within the four categories of parental marital status, the mean use of direct parental monitoring strategy was as follows: Single (M = 2.27, SD = 1.02); Married (M = 2.57, SD = 1.03); Separated/Divorced (M = 2.52, SD = 1.01); and Remarried (2.74, SD = 1.08). See

table 4 for a full examination of direct parental monitoring strategy means and standard deviations based on family income and parental marital status.

The mean score for the use of the indirect parental monitoring strategy was 1.35 (SD = 0.62). Based on family income, the mean use of the indirect parental monitoring strategy was as follows: < \$15,000 (M = 1.36, SD = 0.67); \$15,001 to \$30,000 (M = 1.38, SD = 0.65); 30,001 to \$60,000 (M = 1.33, SD = 0.61); > \$60,000 (M = 1.34, SD = 0.58). Within the four categories of parental marital status, the mean use of indirect parental monitoring strategy was as follows: Single (M = 1.29, SD = 0.58); Married (M = 1.37, SD = 0.65); Separated/Divorced (M = 1.25, SD = 0.46); and Remarried (1.43, SD = 0.74). Table 5 delineated the means and standard deviations of indirect parental monitoring strategy use based on family income and parental marital status.

The final parental monitoring strategy, restrictive, had a mean use of 1.22 (SD = .55) in the total sample. When use of this monitoring strategy was examined based on family income, the following means and standard deviations were identified: < \$15,000 (M = 1.22, SD = 0.51); \$15,001 to \$30,000 (M = 1.24, SD = 0.63); 30,001 to \$60,000 (M = 1.19, SD = 0.53); > \$60,000 (M = 1.22, SD = 0.54). The mean use of restrictive parental monitoring strategy based on parental marital status was as follows: Single (M = 1.22, SD = 0.51); Married (M = 1.22, SD = 0.57); Separated/Divorced (M = 1.12, SD = 0.37); and Remarried (1.33, SD = 0.72). See table 6 for means and standard deviations of restrictive parental monitoring strategy use based on family income and parental marital status.

Research Questions

Research Question 1: Are there significant group differences in adolescent risk-taking and parental knowledge, based on family income and parental marital status (socioeconomic factors)? Hypothesis 1a: A significant group difference will exist in

adolescent risk-taking, based on family income. Lower income groups will exhibit significantly higher adolescent risk-taking as supported by previous literature.

Hypothesis 1b: A significant group difference will exist in adolescent risk-taking based on parental marital status. Single and divorced groups will exhibit significantly higher adolescent risk-taking as supported by previous literature. Hypothesis 1c: A significant group difference will exist in parental knowledge based on family income. Lower income groups will exhibit significantly lower parental knowledge as supported by previous literature. Hypothesis 1d: A significant group difference will exist in parental knowledge based on parental marital status. Single and divorced groups will exhibit significantly lower parental knowledge as supported by previous literature.

Research question one was examined by conducting a 4 (family income: < \$15,000, \$15,001 to \$30,000, 30,001 to \$60,000, and > \$60,000) x 4 (parental marital status: single, married, separated/divorced, and remarried) between-subjects factorial multiple analysis of variance (MANOVA) on two dependent variables: adolescent risk-taking and parental knowledge. Levene's Test of Equality of Error Variances was not significant for the adolescent risk-taking dependent variable, thus equal variances were assumed. However, Levene's Test was significant ($p = .001$) for the parental knowledge dependent variable. Using Wilks' criterion as the omnibus test statistic, the Family Income x Parental Marital Status interaction did not reach significance, $F(18, 980) = 1.507, p = .079, \text{partial } \eta^2 = .027$. Additionally, the combined dependent variables did not produce significant main effect results for family income, $F(6, 980) = .569, p = .755, \text{partial } \eta^2 = .003$, or parental marital status, $F(6, 980) = 1.898, p = .078, \text{partial } \eta^2 = .011$. Since main effects and interaction did not reach significance, univariate Analysis of

Variances (ANOVA) were not examined. Thus, none of the hypotheses for research question one were supported.

Research Question 2: Are there significant group differences in the use of parental monitoring strategies based on family income and parental marital status?

Hypothesis 2a: A significant group difference will exist in the use of parental monitoring strategies based on family income. Hypothesis 2b: A significant group difference will exist in the use of parental monitoring strategies based on parental marital status.

Research question two was assessed by conducting a 4 (family income: < \$15,000, \$15,001 to \$30,000, 30,001 to \$60,000, and > \$60,000) x 4 (parental marital status: single, married, separated/divorced, and remarried) between-subjects factorial multiple analysis of variance (MANOVA) on three dependent variables: direct parental monitoring strategy, indirect parental monitoring strategy, and restrictive parental monitoring strategy. Using an alpha level of .001 to evaluate homogeneity assumptions, Levene's Test of Equality of Error Variance was not significant for the direct parental monitoring strategy, but significant at the $p = .000$ level for both the indirect and restrictive parental monitoring strategies. Thus, equal variances cannot be assumed for either of those strategies. Using Wilks' criterion as the omnibus test statistic, the Family Income x Parental Marital Status interaction reached significance, $F(27, 1425) = 1.794, p = .008$, partial $\eta^2 = .032$. However, the combined dependent variables did not result in significant main effects for family income, $F(9, 1187) = 2.043, p = .032$, partial $\eta^2 = .012$, or parental marital status, $F(9, 1187) = 1.631, p = .101$, partial $\eta^2 = .010$. Univariate 4 x 4 ANOVAs were conducted on each individual dependent variable to further probe the

statistically significant multivariate effects. For the direct parental monitoring strategy there was a significant interaction effect, $F(9, 490) = 2.460, p = .010$, partial $\eta^2 = .043$. However, there were no significant main effects for family income, $F(3, 490) = .096, p = .962$, partial $\eta^2 = .001$, or parental marital status, $F(3, 490) = 2.428, p = .065$, partial $\eta^2 = .015$. See Figure 3 for a graphical representation of significant results for the direct parental monitoring strategy.

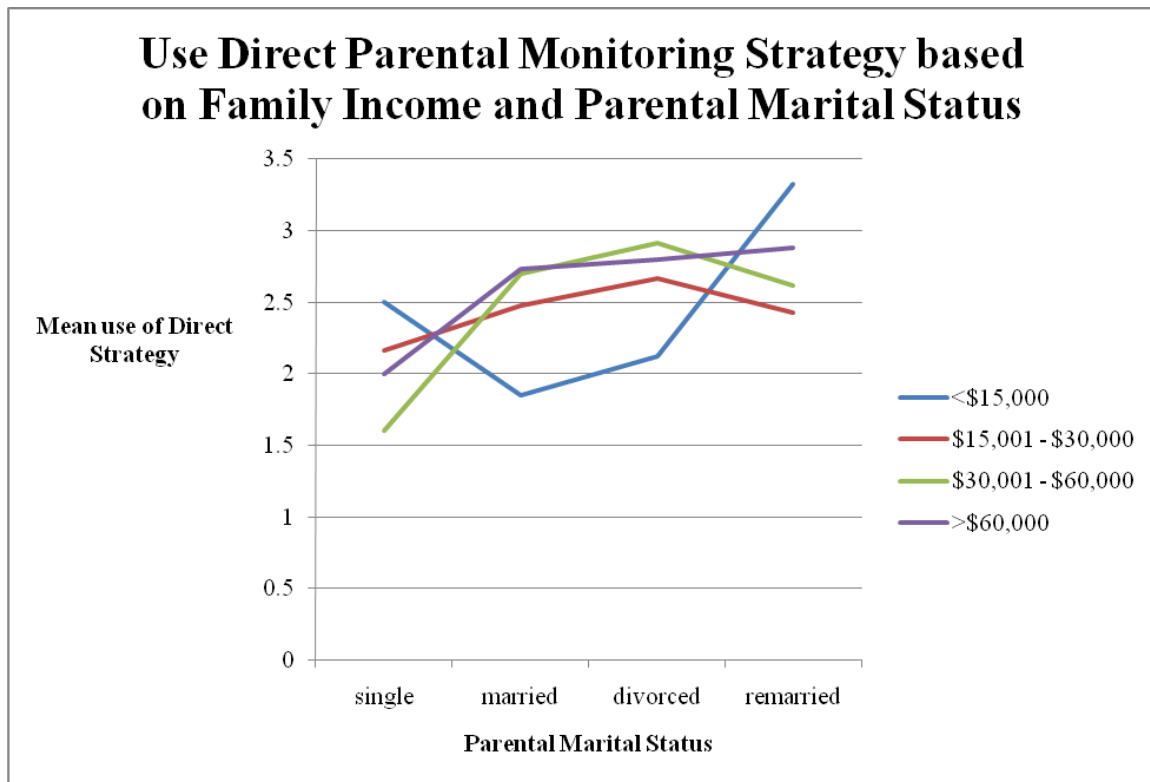


Figure 3. Use of direct parental monitoring strategy based on family income and parental marital status.

The indirect parental monitoring strategy the Family Income x Parental Marital Status interaction was significant, $F(9, 490) = 3.199, p = .001$, partial $\eta^2 = .056$. Additionally, main effect significance was reached for family income, $F(3, 490) = 4.469, p = .004$, partial $\eta^2 = .027$, but not for parental marital status, $F(3, 490) = 2.356, p = .071$, partial $\eta^2 = .014$. A Bonferroni post-hoc analysis of the family income main effect revealed a

significant difference ($p = .005$) in the use of the indirect parental monitoring strategy between the $< \$15,000$ income group ($M = 1.60$) and the $\$30,001 - \$60,000$ income group ($M = 1.21$). The difference between the $< \$15,000$ income group ($M = 1.60$) and the $\$15,000 - \$30,000$ income group ($M = 1.28$) approached significance ($p = .028$), but was not statistically significant. See Figure 4 for a graphical representation of significant results of the indirect parental monitoring strategy.

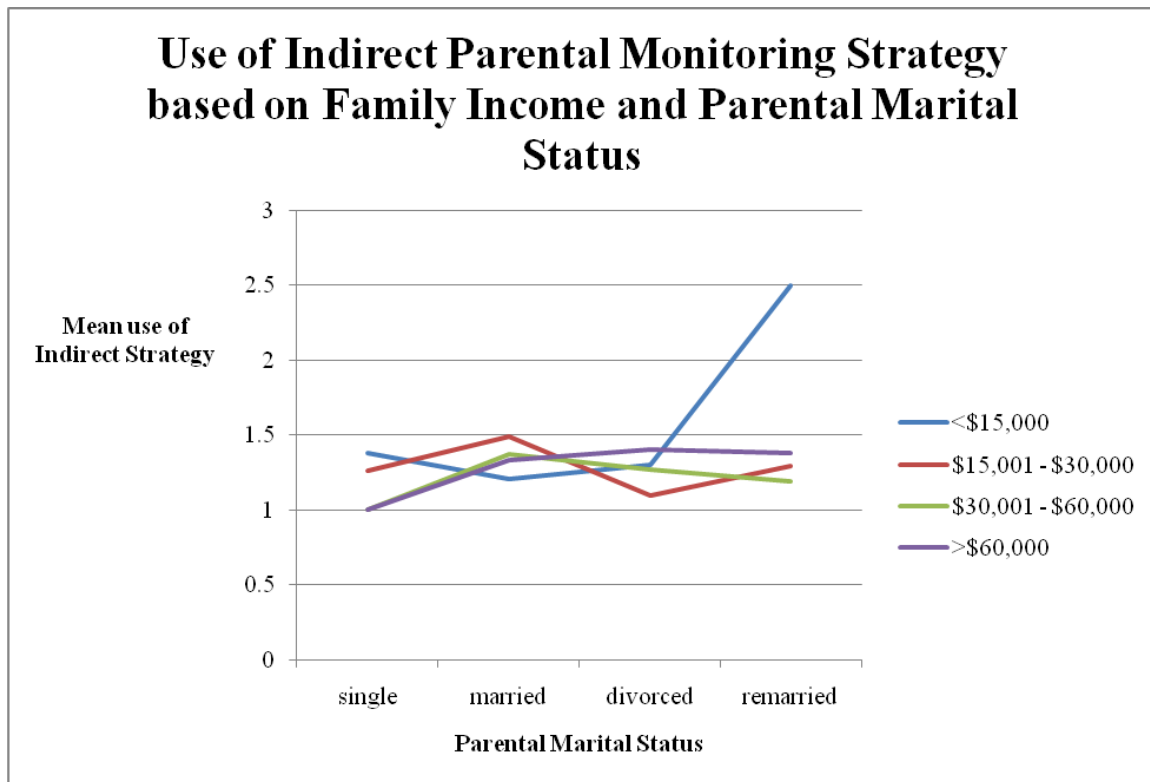


Figure 4. Use of indirect parental monitoring strategy based on family income and parental marital status.

For the restrictive parental monitoring strategy neither main effect for family income, $F(3, 490) = .659$, $p = .577$, partial $\eta^2 = .004$ nor parental marital status, $F(3, 490) = 1.330$, $p = .264$, partial $\eta^2 = .008$ were statistically significant. Likewise, the interaction for the

restrictive parental monitoring strategy did not reach significance, $F(9, 490) = .944, p = .486$, partial $\eta^2 = .017$. See table 7 for an ANOVA summary table.

In sum, there was a significant interaction effect (family income x parental marital status) for the direct parental monitoring strategy, but no significant main effects. For the indirect parental monitoring strategy there was a significant main effect for family income, in addition to a significant interaction effect (family income x parental marital status). Finally, there were no significant main or interaction effects for the restrictive parental monitoring strategy.

Exploratory Research Question 3: Are there significant differences in mean adolescent risk-taking based on the use of certain parental monitoring strategies (direct, indirect, and restrictive) among those adolescents identified in research question one to be in a high risk group based on family income? No hypotheses were identified because this research question was examined in exploratory fashion.

Exploratory Research Question 4: Are there significant differences in mean adolescent risk-taking based on the use of certain parental monitoring strategies (direct, indirect, and restrictive) among those adolescents identified in research question one to be in a high risk group based on parental marital status? No hypotheses were identified because this research question was examined in exploratory fashion.

Research questions three and four were designed to examine parental monitoring strategies as potential resiliency factors, thus this author was going to utilize the groups identified as highest risk in question one. The high risk groups were not identified based on parental marital status and family income in research question one because no significant results emerged. Therefore, questions three and four could not be examined

using only the highest risk groups, as originally planned. As a result, the analysis was independently examined and modified slightly. First, the data was recoded based on the parental monitoring strategy most commonly utilized by each individual participant. Direct was, by far, the most commonly utilized of the three parental monitoring strategies, therefore, it was further broken down based on the second most commonly utilized strategy. Five different groups were identified (See Table 8 for a representation of each category): indirect (indirect strategy was the most commonly utilized), direct with a tie for second (direct was the most commonly utilized with indirect and restrictive equally utilized as second most common strategy), direct-indirect combination (direct was the most commonly utilized and indirect was the second most commonly utilized strategy), direct-restrictive combination (direct was the most commonly utilized and restrictive was the second most commonly utilized strategy), and restrictive (restrictive was the most commonly utilized strategy). See Table 9 for frequencies and percentages of each.

A One-Way Analysis of Variance (ANOVA) was conducted to determine if there were significant group differences in adolescent risk-taking based on the use of particular parental monitoring strategies. The dependent variable was the type of parental monitoring strategy utilized (categorical variable) and the independent variable was the adolescent risk-taking composite (continuous variable). The results revealed that there was a statistically significant difference in the mean adolescent risk-taking among the different types of parental monitoring strategies, $F(4, 435) = 8.035, p < .000$. Post hoc comparisons with Tukey's statistic suggest that significant differences existed between the direct with a tie for second (between indirect and restrictive) strategy and the direct-

restrictive combination strategy ($p < .000$). Additionally, a significant difference was found between the direct-indirect combination strategy and the direct-restrictive combination strategy ($p < .000$). See Table 10 for details.

In sum, significant differences in adolescent risk-taking emerged based on the type of parental monitoring strategy most commonly utilized. There were significant differences between the direct with a tie for second and the direct-restrictive combination, and the direct-indirect combination and the direct-restrictive combination, such that the direct-restrictive combination resulted in significantly higher adolescent risk-taking.

CHAPTER 5

Discussion

The first objective of this study was to identify potential group differences in adolescent risk-taking and parental knowledge of adolescent activities based on two socioeconomic variables, family income level and parental marital status. The hypotheses associated with this research question were as follows: Significant differences will exist in adolescent risk-taking behaviors (alcohol/drug use, risky sexual behaviors, vandalism, and sneaking behaviors) based on the family income and marital status, such that lower income and single/divorced parental marital status would result in increased adolescent risk-taking. Additionally, it was also hypothesized that lower family income and single/divorced parental marital status would result in significantly reduced parental knowledge of adolescent activities.

This study also examined group differences in parental monitoring strategies based on family income and parental marital status. This author hypothesized that use of parental monitoring strategies (as identified in Cottrell et al., 2007) would differ based on family income and parental marital status. Finally, the current study aimed to explore parental monitoring strategies as potential resiliency factors. Initially, this was to be done by utilizing the group with the highest adolescent risk-taking behaviors identified in research question one to determine if the use of particular parental monitoring strateg(ies) reduced the likelihood of adolescent risk-taking. Unfortunately, because no high risk groups were identified in research question one, the resiliency factor could not be examined in this manner. An independent analysis of the data did indicate that this could be examined by assessing differences in adolescent risk-taking of the whole sample (not

just the highest risk sub-sample) based on the most commonly used parental monitoring strategy. Though this does not necessarily examine parental monitoring strategies as resiliency factors (as an identifiable risk must be present to assess resiliency), it does explore parental monitoring strategies as protective factors (potentially associated with lower adolescent risk).

Differences in Adolescent Risk-Taking and Parental Knowledge Based on Family Income and Parental Marital Status

Several research studies supported the assertion that low socioeconomic status (as measured by Hollingshead Index, 1957) was related to increased adolescent risk-taking (Lempers, Clark-Lempers & Simons, 1989; Mancini & Huebner, 2004). Lempers, Clark-Lempers, and Simons (1989) found a significant negative correlation between economic hardship and parental nurturance, and a significant positive correlation between economic hardship and inconsistent discipline. Both reduced parental nurturance and increased inconsistent discipline were significantly correlated with adolescent delinquency and drug use. Mancini and Huebner (2004) concluded that socioeconomic status was negatively correlated with adolescent risk behavior. Further research supported hypotheses that the specific socioeconomic variables, family income and parental marital status, resulted in group differences related to adolescent risk-taking. Blum et al. (2000) and Unger, Sun, and Johnson (2007) determined that a positive inverse relationship existed between family income and early teenage cigarette use. Logistical regression information obtained by Flewelling and Bauman (1990) found single-parent and step-parent living circumstances to be correlated with all of the risky behaviors examined, including cigarette smoking, alcohol consumption, marijuana use, and sexual activity.

The findings of the current study did not support previous research studies, as no significant group differences emerged in adolescent risk-taking based on family income or parental marital status. Therefore, in the sample for this study, lower family income level and single/divorced parental marital status did not result in significantly higher adolescent risk-taking when compared to higher income levels and married parent status. Furthermore, the interaction between family income and parental marital status did not elicit any significant results. Though no significant findings occurred, some trends in the data were noted in the hypothesized direction. Overall, the lowest adolescent-risk taking was found in the highest family income level (> \$60,000) and in the married status. In the lowest income group (< \$15,000 annually), adolescent risk-taking was reported to be highest in adolescents whose parents were separated/divorced (14.94) and lowest in adolescents whose parents were still married (13.24).

Examination of relationships between parental knowledge and socioeconomic factors revealed numerous studies supporting the hypothesis that parental knowledge was lower in low SES families. For instance, Pettit et al. (2001) found that higher levels of mother-reported knowledge were significantly related to higher SES and a two biological parent family composition. Additionally, Capaldi et al. (2002) found SES to be positively related to parental knowledge of adolescent's activities. The hypothesis of the current study was not supported by the results. No significant differences in parental knowledge, based on family income and parental marital status, were identified. Once again, some trends emerged in the predicted direction. Though significant results were not reached, comparing the mean parental knowledge between groups revealed that the

highest family income group had the highest mean knowledge, while the lowest income group had the lowest mean parental knowledge.

The results of this study were divergent from previous studies in that lower family income and single/divorced marital status did not result in increased adolescent risk-taking behaviors or reduced parental knowledge. Numerous reasons could contribute to the divergence of current results compared to previous research. Foremost, the unique results could be directly related to the Appalachian sample used in the study. According to The Rural and Appalachian Youth and Families Consortium (1996), Appalachian families tend to have extensive kinship and neighborhood support, which can provide strength and resilience even in high-risk situations. An extensive kinship simply means that an increased number of adults take responsibility to monitoring child and adolescent behaviors as compared to mainstream U.S. society. For instance, it is common in Appalachian culture for grandparents, aunts, uncles, neighbors, and family friends to be involved in child rearing and even discipline. Therefore, this unique quality of Appalachian culture could actually provide resiliency against such high risk behaviors as drug and alcohol use, sexual involvement, vandalism, and sneaking behaviors.

Additionally, there were some limitations of the current study design and population that could have contributed to the unexpected results. The data for this study was archived and the original study was not designed to measure socioeconomic factors as research variables. Therefore, only minimal demographic socioeconomic information was available. Since results elicited some trends in the hypothesized direction, more detailed socioeconomic information may have provided significant results more commensurate to previous research studies. Additionally, a significant Levene's test

resulted, suggesting unequal variances in the parental knowledge variable. More limitations of the study overall are delineated later in this chapter.

Differences in Parental Monitoring Strategies Based on Family Income and Parental Marital Status

The concept and categories of parental monitoring strategies were introduced in the Cottrell et al. (2007) article and no other studies have been conducted examining categories of monitoring strategies. Some earlier studies reviewed parental monitoring on a high-low continuum (rather than categorically), but they examined parental monitoring and adolescent risk-taking (Dishion et al., 1991; Graber et al., 2006; Kerr & Stattin, 2000; Rodgers, 1999). A study conducted by Crouter et al. (2005) examined different types of parental monitoring as they relate to socioeconomic variables; though they did not use the term “parental monitoring strategies.” Crouter et al. (2005) conducted a cluster analysis and three sources of parental monitoring emerged for both fathers and mothers. They found that fathers gathered their information by having a positive relationship with their adolescent, relying on their spouses for information, and relying on others for information. Mothers gathered information about their adolescents by having a positive relationship with them, questioning them about their activities/whereabouts, and relying on others for information. These particular modes of obtaining parental knowledge are not commensurate to those strategies identified by Cottrell et al. (2007) and used in the current study, but they provide a comparison model. When examining specific socioeconomic variables, Crouter et al. (2005) determined that fathers in the relational cluster (the cluster that elicited the highest parental knowledge scores) were more highly educated and held more prestigious jobs. Mothers in the

questioners cluster (correlated with increased parental knowledge) were more highly educated.

The results of the current study revealed no significant difference in parental monitoring strategies based on family income or parental marital status; however, the interaction was statistically significant. Thus, the dependent variables were examined separately. For the direct monitoring strategy (asking the adolescent about their activities/whereabouts), no significant differences in family income or parental marital status emerged. However, there was a significant interaction effect between the two variables. In the single parental status category, the largest mean difference occurred between the < \$15,000 income group ($M = 2.50$) and the \$30,001 to \$60,000 income group ($M = 1.60$), such that the <\$15,000 income group was more likely to utilize the direct parental monitoring strategy. Furthermore, in the married category, the > \$60,001 income group had the highest mean utilization of the direct parental monitoring strategy ($M = 2.73$), while the < \$15,000 income group had the lowest utilization ($M = 1.85$). In the separated/divorced category, the <\$15,000 income group had the lowest utilization of the direct monitoring strategy ($M = 2.12$) and the \$30,001 to \$60,000 had the highest ($M = 2.91$). In the remarried category, the <\$15,000 income group had the highest utilization of the direct monitoring strategy ($M = 3.33$) and the \$15,001 to \$30,000 had the lowest utilization (2.43). The married and separated/divorced categories had similar trends in direct parental monitoring use based on family income, such that the lowest income category had the lowest use of direct parental monitoring strategy. The single and remarried categories had similar trends (albeit, trends opposite those of the married and

separated/divorced categories), such that the lowest income group had the highest use of the direct parental monitoring strategy.

The indirect parental monitoring strategy (relying on others to gather information about the adolescents' whereabouts/activities) did reach significance for the family income variable, suggesting that there were significant differences in the use of the indirect parental monitoring strategy based on family income. The statistically significant difference occurred between the < \$15,000 income group and the \$30,001 to \$60,000 income group, with the < \$15,000 income group utilizing the indirect strategy more frequently (< \$15,000 group $M = 1.60$; 30,001 to \$60,000 group $M = 1.21$). The interaction between the two variables was also significant for the indirect parental monitoring strategy. In the single category, the < \$15,000 income group had the highest utilization of the indirect monitoring strategy ($M = 1.38$), while the \$30,001 to \$60,000 and >\$60,001 income groups each had the lowest utilization ($M = 1.00$ for both groups). In the married category, the \$15,001 to \$30,000 income group had the highest utilization (1.49) while the < \$15,000 income group had the lowest utilization ($M = 1.21$). In the separated/divorced group, the >\$60,000 group had the highest utilization ($M = 1.40$) and the \$15,001 to \$30,000 income group had the lowest utilization ($M = 1.10$). Finally, in the remarried category, the < \$15,000 income group had the highest indirect monitoring strategy utilization ($M = 2.50$) and the \$30,001 to \$60,000 income group had the lowest utilization ($M = 1.20$). The most remarkable finding for the indirect strategy variable was the difference in the remarried category based on income. The lowest income category had a much higher mean utilization than all other income categories.

There were no statistically significant differences in the use of the restrictive parental monitoring strategy (limiting adolescent activities, and using invasive measures, such as reading the adolescent's diary, to gather information about whereabouts/activities) based on family income or parental marital status. Likewise, the interaction for the two variables was not significant. Within each of three parental marital status categories (single, married, and separated/divorced), the means of restrictive monitoring strategy usage was very similar based on income levels, thus a breakdown of each was unnecessary. However, within the remarried category, the restrictive strategy was most commonly utilized in the < \$15,000 income group ($M = 1.67$), and least commonly utilized in the \$60,001 group ($M = 1.13$).

Since there were no previous research studies conducted using the parental monitoring strategies identified in Cottrell et al. (2007), directional hypotheses were not assumed; however, the author of the current study did hypothesize that significant differences in the use of each parental monitoring strategy (direct, indirect, and restrictive) would exist based on family income and parental marital status. These hypotheses were only partially supported. The only significant difference occurred in the indirect independent variable based on family income. However, parental monitoring in an Appalachian population may look very different when compared to other cultural groups in the U.S. The Rural and Appalachian Youth and Families Consortium (RAYFC, 1996) indicated that Appalachian families tend to have an increased network of social support (extended family, neighbors, family friends) who may also be involved in monitoring the behaviors of their children. In fact, the RAYFC suggested that Appalachian values, such as "cooperation and modesty" may directly conflict with

American values of individuality and competitiveness (p. 389). Since Appalachian values and monitoring responsibility is so divergent from typical American values, it would have been helpful to have input about monitoring strategies from extended family and neighbors. For this study, however, only parents/guardians reported monitoring behaviors. An entire portion of those charged with monitoring the behaviors of the adolescents in the study was overlooked.

The primary study limitation for research question one also applied to research question two. The original study was not designed to do an in-depth measure of socioeconomic variables, thus this author was limited to utilizing the scant socioeconomic information collected and archived for demographic purposes. Additionally, the indirect parental monitoring strategy dependent variable elicited a significant Levene's Test of Equality of Error Variance; therefore, equal variances could not be assumed. Consequently, the results of this study should be interpreted with caution. Additionally, the effect sizes for the significant results were very small suggesting that the independent variables account for only a minimal portion of the group differences that did occur.

Differences in Adolescent Risk-Taking Based on Use of Parental Monitoring

Strategies

Since parental monitoring strategies was a fairly new concept, introduced in 2007 (Cottrell et al., 2007), this author aimed to evaluate the effectiveness of such strategies as potential resiliency factors in high risk samples (based on family income and parental marital status). Unfortunately, no clearly identifiable high risk samples emerged in research questions one and two. Therefore, the focus of this research design was changed

to simply identify potential differences in adolescent risk-taking based on use of particular parental monitoring strategies. There were significant differences between the direct-restrictive combination and two other strategies (direct with a tie for second and direct-indirect combination). The adolescent risk-taking was significantly higher in the direct-restrictive combination, as compared to the direct with a tie for second and direct-indirect combination strategies. This suggested that the use of some restrictive parental monitoring strategies were associated with increased adolescent risk-taking, as identified by the adolescent. Though significant results were not achieved, the restrictive parental monitoring strategy was associated with a higher mean adolescent risk-taking as compared to those strategies that included minimal or no restrictive strategies (direct with a tie for second, direct-indirect combo, and indirect).

The results of this study expand upon current literature, as previous studies only examined parental monitoring on a continuum (high vs. low) rather than categorically (types of parental monitoring). For instance, Griffin et al. (1999) found that, in an at-risk group of New York City adolescents, parental monitoring was negatively correlated with adolescent risk-taking. High parental monitoring was associated with decreased adolescent risk-taking. In a separate study, Rai et al. (2003) assessed the impact of parental monitoring on low-income African-American adolescents across six different cohorts. Significant correlations were found between parental monitoring and decreased use of cigarettes, alcohol, and marijuana. Additionally, parental monitoring provided a protective factor for violence related behaviors and sexual engagement. The examination of specific parental monitoring strategies in this study has illuminated the importance of the type of parental monitoring, rather than the amount. It seems that the use of

restrictive strategies (i.e. listening to phone conversations), as the primary strategy or in combination with the direct strategy, was not as effective compared to primary use of direct (i.e. asking adolescent about their activities) and indirect strategies (i.e. asking adolescents' friends about their activities).

The primary limitation of this study question was the necessary alteration in study design because the high-risk subsamples could not be identified. Due to this change in design, parental monitoring strategies could not be examined as resiliency factors, but only as protective factors instead (potentially preventing against risk-taking in the overall population, as compared to reducing risk-taking in an at-risk population). Additionally, as significant Levene's test suggested unequal variances and there was not equal distribution of participants within each strategy group (see Table 9).

Overall Limitations

Limitations were reviewed previously for each individual research question; however, there were some overall limitations to the current study that should be reviewed. Foremost, the study was designed so that all information was obtained by self-report of the adolescents and parents. The adolescents self-reported on their risk-taking behaviors, while the parents self-reported on their parental monitoring strategies and parental knowledge. Additionally, the participant dyads were strongly encouraged to complete the questionnaires separately, but there was no way to ensure this, as the questionnaires were sent to the participants' homes. Therefore, two influences may have interfered with accurate reporting of experiences. First, the adolescents and/or parents may have been compelled to report in a manner that is considered more socially desirable (i.e. reporting less risk-taking, or increased parental knowledge). Social desirability has

the potential to influence results and affect the validity of statistical interpretations (Drummond, 2000). Additionally, there was the possibility that the participant dyads did not complete the questionnaires separately, as instructed, and influenced each others' responses.

Another limitation of the study was the use of archived data from a larger data set. The measures used in the original study were not designed to collect in depth socioeconomic information. The use of this archived data limited this author to previously collected data, rather than data that was gathered with the use of specifically designed/selected socioeconomic measures. The utilization of more specific measures may have provided more rich socioeconomic demographic information (i.e. parent education level, parent employment status). Additionally, this author was limited to a convenience sample recruited in various counties in West Virginia. The overall study was designed to measure communication between parents and adolescents in Appalachia. Therefore, participants were recruited from Appalachian areas and the results of this study cannot be generalized to other areas of the country. According to the Appalachian Regional Commission (ARC) website, the Appalachian Region consists of a 205,000 square mile region, including the entire state of West Virginia and portions of 12 other states. Though Appalachian communities were once heavily dependent upon mining, agriculture, and industry, they have now become more diversified. Some have strong economies, while others still lack basic infrastructure within their communities. Thus, the results of this study cannot be comfortably generalized to other Appalachian communities, as they have become so diverse in recent years.

Implications for Practice and Future Research

This study is the first contribution to the current body of literature that examines parental monitoring strategies as identified by Cottrell et al. (2007). The significant differences elicited in the use of direct and indirect parental monitoring strategies based on socioeconomic variables will help contribute to the understanding of characteristic differences based on socioeconomic status. For instance, Ruby Payne (2001) described distinctions in time perception, value of money, value of people, entertainment, achievement, and other factors based on the socioeconomic level in which a person is categorized. She provides a framework of understanding clients based on socioeconomic status, and use of parental monitoring strategies would make a good addition to this general body of knowledge.

Based on the results of the current study, single and remarried parents in the lowest income level utilize the direct parental monitoring strategy more frequently than those in higher income brackets. They are more likely to talk directly to their adolescents about their planned activities before and after they occurred. The married and separated/divorced parents had less frequent use of the direct activities. Parents in the lowest income level were more likely to utilize the indirect parental monitoring strategy than those in higher income brackets. Parents making less than \$15,000 annually were more likely to ask to meet their children's friends, contact friends' parents to talk about their child, ask friends about their child's activities, talk to other parents and neighbors about their child's activities, and check to see if another adult would be supervising their child's activities. Ruby Payne (2001) emphasized that school personnel, teachers, and counselors tend to emphasize and embrace middle class values and become frustrated

with students/clients who operate from another value system, such as that which comes with living in poverty. Therefore, adding information about socioeconomic differences in the use of parental monitoring strategies to multicultural, developmental, and other training courses would further enrich the education of counseling trainees, especially those working with a low SES population. In doing so, it would provide them with an understanding and, hopefully, reduced frustration, in their work with low SES families. Though more studies should be conducted related to parental monitoring strategies before any curriculum changes be made, some preliminary suggestions for addition to course content are as follows: 1) an understanding of the different types of parental monitoring strategies and the corresponding parent behaviors, 2) the differences in type of parent behaviors based on socioeconomic variables, and 3) how these parent behaviors are related to adolescent risk-taking (and perhaps other child outcomes if identified in future research).

Dishion and McMahon (1998) indicated that parental monitoring could serve as an intervention target, suggesting that modification of parent tracking activities used to monitor their child's behaviors could be the focus of treatment, if adolescent risk-taking is the presenting problem. The results of the current study could be used as preliminary data to modify interventions. It provides some information that the use of restrictive as the primary parental monitoring strategy, or in combination with direct, elicited group differences in adolescent risk-taking. Adolescent risk-taking was higher (although not always at a significant level) in those subsamples that utilized restrictive as a primary or secondary monitoring strategy. In other words, adolescents were more likely to engage in risky behaviors (alcohol and drug use, vandalism, and sneaking behaviors) if their

parents used restrictive monitoring strategies, such as listening to phone conversations, looking through closets and dressers, and reading personal notes or journal. Therefore, prevention and intervention work with adolescents and families should include the modification of parental monitoring strategies to shape healthier adolescent behaviors. For instance, parents who present to treatment with concerns of their adolescents' risky behaviors should be trained to utilize tracking behaviors that are associated with decreased adolescent risk, such as asking to meet friends, contacting parents of adolescent's friends, and talking to their adolescent about their activities before and after they occur. Additionally, they should be encouraged to decrease or minimize their use of restrictive strategies that are associated with increased drug/alcohol use, vandalism, risky sexual behaviors, and sneaking behaviors, such as listening to phone conversations, looking through adolescent's personal property, and reading notes or journals. This could be done via parent training sessions to teach the effectiveness of the types of monitoring strategies, modeling, role-playing appropriate monitoring in therapy, and encouraging practice of appropriate monitoring between sessions.

The results of this study highlight the importance of assessing the type(s) of parental monitoring utilized to track adolescent behaviors, as it could be a critical component of treatment, especially if the parents are utilizing a restrictive monitoring strategy. Though it is not yet normed to be utilized with a clinical population, the Parental Monitoring Instrument (PMI) used for this study could be an effective assessment tool for clinicians to measure parental involvement. Such a measure would help clinicians identify the type of tracking behaviors that parents use to gather information about their adolescents. If a family presents to treatment with a concern

about their adolescent's risky behaviors, an assessment of parental monitoring would help a clinician determine if it should be a focus of treatment. If the family identifies themselves as using primarily direct and indirect strategies, modification of parental monitoring would not need to be a focus of treatment. However, if the parents acknowledge using primarily restrictive strategies, the clinician should include modification of parental monitoring as a treatment goal.

The most significant implication to the field of counseling psychology that this study contributes is a model for replication. As previously stated, this was the first study to examine specific aspects (socioeconomic variables and relation to adolescent risk-taking) of the parental monitoring strategies identified by Cottrell et al. (2007). Though significant limitations were identified as a result of being a pioneer study, it does provide a good framework for future studies to launch. Some significance was reached for this study, but the limitations, including unequal groups and small effect sizes, challenge the applicability of the results. Recommendations for future studies include utilizing more equal group sizes and including a more comprehensive measure of socioeconomic status, using the Parental Monitoring Instrument (PMI) as a primary measure. More in depth measures would include a larger breakdown of family income (rather than just four categories), more detail about divorced/separated marital status (i.e. how many times divorced?), a measure of parental education level, and a measure of parental employment status. These specific categories are being recommended because they are the primary aspects of socioeconomic status examined in the literature at this time.

Additionally, examining the differences in parental monitoring strategies based on urban versus rural domicile would be an important expansion of the current study. This

may illuminate the practical implications of different types of parental monitoring strategies. For instance, parents living in an urban/inner city area may be more inclined to utilize the restrictive parental monitoring strategy, as they find it necessary to the safety of their adolescents. Whereas, a parent in a rural setting may find a direct parental monitoring strategy more useful because there is less concern of imminent danger to their adolescent. Although this is conjecture, having more detailed socioeconomic information would help accurately illuminate any differences in parental monitoring strategies. This information could then be used in training current and future clinicians about client differences, in much the same manner that Ruby Payne (2001) described distinctions in time perception, value of money, value of people, entertainment, and achievement based on socioeconomic variables. This would allow clinicians the opportunity to be sensitive to client perceptions, and to educate them about the most effective strategies to reduce risk-taking behaviors.

Furthermore, future research should examine a more specific age group of adolescents. This study included adolescents from ages 12-17 years old. However, the developmental milestones of this age range are very different, thus examining a smaller age range (i.e. 12-14 years old, 14-16 years old, 17+ years old) individually may provide more robust information about parental monitoring strategies, parental knowledge, and adolescent risk-taking at each level. Likely, parents would provide more freedom to a 17-year-old, as compared to a 12-year-old, and this would be developmentally appropriate. Appropriate and helpful monitoring strategies for the parent of a 12-year-old adolescent may not be as helpful to the parent of a 17-year-old. Thus, further examination of different age ranges of adolescence would be an important focus of future

research. Similarly, the way parents/guardians gather information about their adolescents may vary depending on gender. According to Karreman, Tuijl, van Aken, and Dekovic (2009), boys tend to exhibit more externalizing behaviors than girls, which would warrant different parenting techniques to monitoring and control child/adolescent behavior.

Additionally, the authors also suggest that parents within the U.S. society view externalizing behaviors such as defiance, hyperactivity, and impulsivity (which may lead to risk-taking behaviors, such as drug and alcohol use, sexual involvement, vandalism, and sneaking) as being more normative for boys than girls. As a result, parents may react and monitor different based on the gender of their adolescent. Therefore, this should be evaluated in future research on parental monitoring strategies to determine the implications.

Further research should also be conducted on the use of parental monitoring strategies as factors that can potentially build resiliency in adolescents. That is, future studies should focus on how the use of different monitoring strategies will affect adolescents identified as being in high risk situations based on SES factors (income, parental marital status, parent education level, and parent employment level). This study could not fully examine this possibility, but it would be an important contribution to the literature. The current study does provide some information that the use of restrictive as the primary parental monitoring strategy, or in combination with direct, elicited group differences in adolescent risk-taking. Adolescent risk-taking was higher (although not always at a significant level) in those subsamples that utilized restrictive as a primary or secondary monitoring strategy. This will be important information for clinicians to retain when working with parents of adolescents, specifically if the risk-taking was the primary

impetus behind seeking treatment. Clinicians could utilize this information to help the parent client determine more appropriate parental monitoring strategies that are associated with lower adolescent risk-taking. Additionally, this author would recommend that clinicians add a parental monitoring strategy questionnaire or interview to their intake evaluation for all new clients (regardless of socioeconomic status variables) to determine the type of parental monitoring most commonly utilized. This will provide the clinician with rich information about the functioning of the parent/adolescent dyad, and help guide treatment.

In examining all of the research questions of the current study to provide recommendations for future research, it seems that the most helpful study would examine both the effect of socioeconomic variables on parental monitoring strategies, and the effect of parental monitoring strategies on adolescent risk-taking. Future research may reveal that one particular strategy is not a universal “gold standard,” but rather different strategies (or strategy combinations) may be associated with lower adolescent risk-taking in particular socioeconomic groups. This is a vastly complex area of study, but could truly change the type of effective parenting implementations used by clinicians treating certain cultural groups.

Summary and Conclusions

Contrary to previous literature, the current study found no significant group differences in adolescent risk-taking based on family income or parental marital status. This is likely a result of inadequate socioeconomic measures used to gather demographic data. Though significant results were lacking, trends in the mean adolescent risk-taking emerged in hypothesized directions. Additionally, there were no significant differences

in the use of parental monitoring strategies based on family income or parental marital status; however, a significant interaction effect did result. Some significant differences were found in the use of the indirect parental monitoring strategy based on income, and a significant interaction effect was found in the use of direct parental monitoring strategy, but no significant differences were found in the use of the restrictive strategy based on family income or parental marital status. Finally, some significant differences were found in adolescent risk-taking based on the most commonly utilized parental monitoring strategy. Overall, adolescent risk-taking was higher in subsamples of parents who used restrictive parental monitoring strategy as their primary or secondary strategy for maintaining knowledge of their adolescents.

Future recommendations include a replication of the current study questions utilizing a more in depth measure of socioeconomic status. Additionally, examination of age and gender effects would also be warranted. The results of the current study, in addition to future research, could influence the training of clinicians. It may provide clinicians with a more detailed understanding of parental functioning within various classifications of socioeconomic status. Additionally, this may aide clinicians in tailoring their intake evaluations to gather meaningful information about parent/adolescent dyads. Finally, it may help clinicians alter their use of parent training techniques based on what would work most effectively within certain socioeconomic classifications and geographical locations (urban vs. rural).

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Table 1

Demographics of Dyad Participants (n = 518)

Characteristic	Frequency	Percent
<i>Adolescent Age</i>		
12-13	86	16.6
14-15	274	52.9
16-18	158	30.5
<i>Adolescent Gender</i>		
Male	155	29.9
Female	363	70.1
<i>Adolescent Race</i>		
Caucasian	496	95.9
African American	9	1.7
Hispanic/Latino	1	.2
Asian/Pacific Islander	4	.8
Native American	3	.6
Other	4	.8
<i>Adolescent Grades</i>		
A's and B's	288	54.9
B's and C's	146	27.8
C's and D's	68	13.0
D's and F's	8	1.5
<i>Parent Age</i>		
29-39	224	43.2
40-49	250	48.3
50+	44	8.5
<i>Parent Gender</i>		
Male	45	8.7
Female	473	91.3

Table 1 (Continued from previous page)

Demographics of Dyad Participants (n = 518)

Characteristic	Frequency	Percent
<i>Type of Parent</i>		
Biological	482	93.1
Adoptive	8	1.5
Step Parent	13	2.5
Grandparent	11	2.1
Aunt or Uncle	2	.4
Other	2	.4
<i>Number of Children in Home</i>		
1	219	52.8
2	134	32.3
3	45	10.8
4	12	2.9
5	3	.7
> 5	2	.5
Missing data	103	
<i>Annual Family Income</i>		
< \$15,000	97	19.1
\$15,000 - \$30,000	132	25.9
\$30,001 - \$60,000	173	34.0
> \$60,000	107	21.0
Missing data	9	
<i>Parental Marital Status</i>		
Single	49	9.5
Married	342	66.4
Separated/Divorced	82	15.9
Remarried	42	8.2
Missing data	3	

Table 2

Adolescent Risk-Taking Based on Family Income and Parental Marital Status

Income Level	Parental Marital Status	Mean	SD
< \$15,000	Single	14.42	4.56
	Married	13.24	4.57
	Separated/Divorced	14.94	4.40
	Remarried	14.33	4.63
\$15,001 - \$30,000	Single	13.95	3.78
	Married	13.13	4.59
	Separated/Divorced	12.33	2.74
	Remarried	16.29	4.82
\$30,001 - \$60,000	Single	16.80	5.54
	Married	12.87	4.22
	Separated/Divorced	13.91	5.14
	Remarried	14.43	5.64
> \$60,001	Single	11.00 ^a	
	Married	12.82	4.57
	Separated/Divorced	14.80	7.56
	Remarried	15.75	6.38

^a only 1 participant dyad was classified in this cell, thus no SD could be calculated

Table 3

Parental Knowledge Based on Family Income and Parental Marital Status

Income Level	Parental Marital Status	Mean	SD
< \$15,000	Single	3.36	0.65
	Married	3.02	0.96
	Separated/Divorced	3.27	0.82
	Remarried	3.50	0.68
\$15,001 - \$30,000	Single	3.27	0.76
	Married	3.58	0.60
	Separated/Divorced	3.62	0.51
	Remarried	3.45	0.77
\$30,001 - \$60,000	Single	3.13	0.73
	Married	3.61	0.57
	Separated/Divorced	3.63	0.47
	Remarried	3.24	0.89
> \$60,001	Single	3.92 ^a	
	Married	3.58	0.61
	Separated/Divorced	3.67	0.29
	Remarried	2.81	0.50

^a only 1 participant dyad was classified in this cell, thus no SD could be calculated

Table 4

Direct Parental Monitoring Strategy Based on Family Income and Parental Marital Status

Income Level	Parental Marital Status	Mean	SD
< \$15,000	Single	2.50	0.98
	Married	1.85	0.80
	Separated/Divorced	2.12	0.93
	Remarried	3.33	0.52
\$15,001 - \$30,000	Single	2.16	1.07
	Married	2.48	1.05
	Separated/Divorced	2.67	1.02
	Remarried	2.43	1.27
\$30,001 - \$60,000	Single	1.60	0.89
	Married	2.69	0.97
	Separated/Divorced	2.91	0.97
	Remarried	2.62	1.02
> \$60,001	Single	2.00 ^a	
	Married	2.73	1.05
	Separated/Divorced	2.80	1.10
	Remarried	2.88	1.36

^a only 1 participant dyad was classified in this cell, thus no SD could be calculated

Table 5

Indirect Parental Monitoring Strategy Based on Family Income and Parental Marital Status

Income Level	Parental Marital Status	Mean	SD
< \$15,000	Single	1.38	0.71
	Married	1.21	0.48
	Separated/Divorced	1.30	0.53
	Remarried	2.50	1.05
\$15,001 - \$30,000	Single	1.26	0.45
	Married	1.49	0.72
	Separated/Divorced	1.09	0.30
	Remarried	1.29	0.76
\$30,001 - \$60,000	Single	1.00	0.00
	Married	1.37	0.67
	Separated/Divorced	1.27	0.46
	Remarried	1.19	0.40
> \$60,001	Single	1.00 ^a	
	Married	1.33	0.56
	Separated/Divorced	1.40	0.55
	Remarried	1.38	0.52

^a only 1 participant dyad was classified in this cell, thus no SD could be calculated

Table 6

Restrictive Parental Monitoring Strategy Based on Family Income and Parental Marital Status

Income Level	Parental Marital Status	Mean	SD
< \$15,000	Single	1.25	0.44
	Married	1.24	0.56
	Separated/Divorced	1.09	0.29
	Remarried	1.67	1.03
\$15,001 - \$30,000	Single	1.26	0.65
	Married	1.27	0.70
	Separated/Divorced	1.00	0.00
	Remarried	1.43	0.53
\$30,001 - \$60,000	Single	1.00	0.00
	Married	1.17	0.49
	Separated/Divorced	1.27	0.55
	Remarried	1.29	0.78
> \$60,001	Single	1.00 ^a	
	Married	1.24	0.56
	Separated/Divorced	1.20	0.45
	Remarried	1.13	0.35

^a only 1 participant dyad was classified in this cell, thus no SD could be calculated

Table 7

ANOVAs Summary Table for Direct, Indirect, and Restrictive Parental Monitoring Strategy Dependent Variables

Dependent Variable	Independent Variable	<i>df</i>	F	partial η^2	<i>p</i>
Direct Parental Monitoring Strategy	Family Income	3	0.096	.001	.962
	Parental Marital Status	3	2.428	.015	.065
	Interaction	9	2.460*	.043	.010
Indirect Parental Monitoring Strategy	Family Income	3	4.469*	.027	.004
	Parental Marital Status	3	2.356	.014	.071
	Interaction	9	3.199**	.056	.001
Restrictive Parental Monitoring Strategy	Family Income	3	.659	.004	.577
	Parental Marital Status	3	1.330	.008	.264
	Interaction	9	.944	.017	.486

* $p < .01$. ** $p \leq .001$.

Table 8

Most Commonly Used Parental Monitoring Strategies

Name of Strategy	Primary Strategy	Secondary Strategy
Indirect	Indirect	----
Direct with a Tie for Second	Direct	Indirect Restrictive
Direct-Indirect Combination	Direct	Indirect
Direct-Restrictive Combination	Direct	Restrictive
Restrictive	Restrictive	----

Table 9

Frequencies and Percentages of Most Commonly Used Parental Monitoring Strategies

Type of Strategy	Frequency	Percentage
Indirect	4	0.8
Direct with a Tie for Second	268	51.0
Direct-Indirect Combination	111	21.1
Direct-Restrictive Combination	42	8.0
Restrictive	10	1.9
Excluded from total sample ^a	90	17.1
Total in Sample	435	

^a most common strategy could not be identified

Table 10

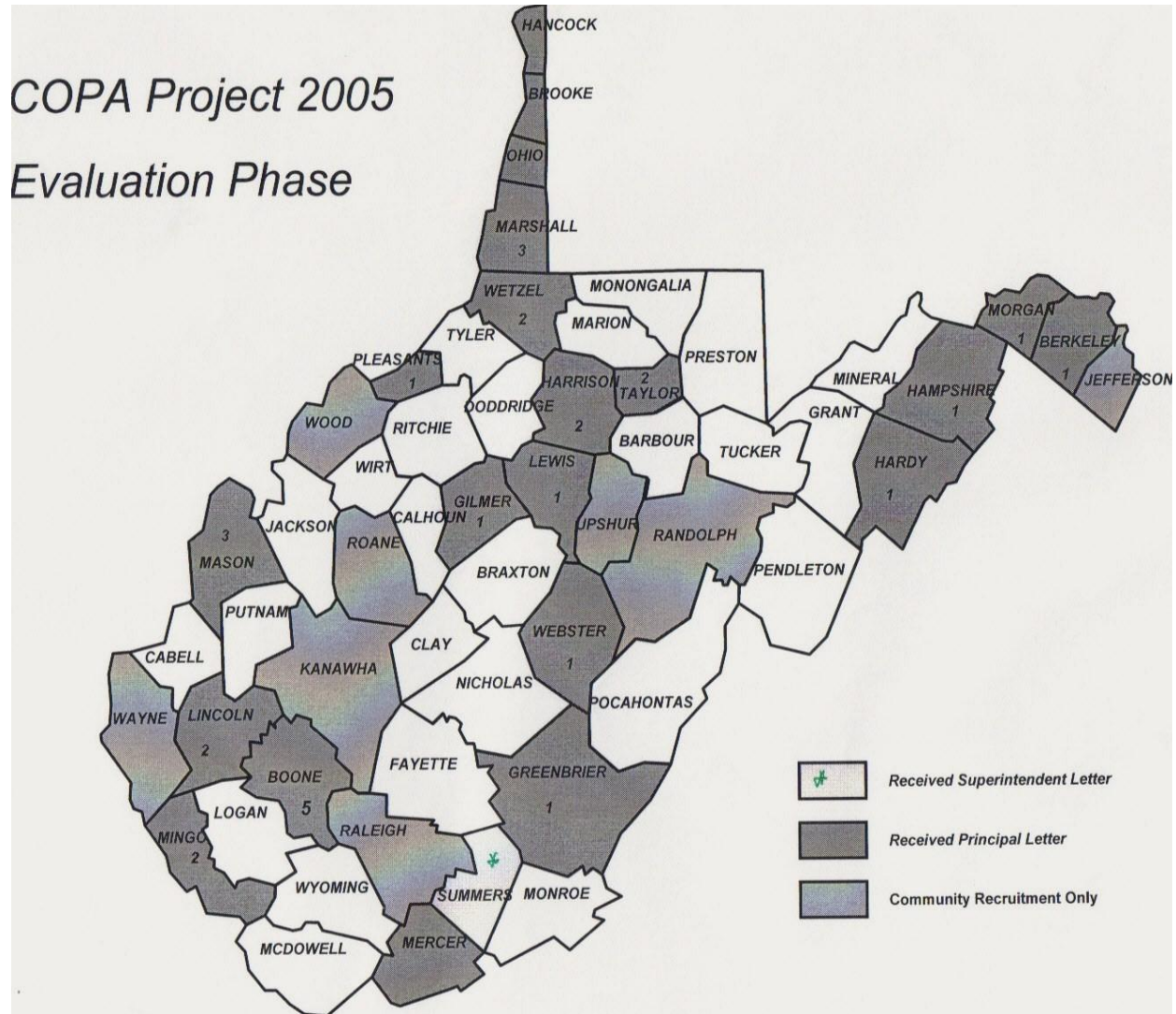
Differences in Adolescent Risk-Taking Based on Parental Monitoring Strategies

Strategy	Comparison Strategy	Mean Diff.	<i>p</i>
Indirect	Direct With Tie for Second	-1.85	1.00
	Direct-Indirect Combination	-2.00	1.00
	Direct-Restrictive Combination	-5.99	.121
	Restrictive	-3.25	1.00
Direct With Tie for Second	Indirect	1.85	1.00
	Direct-Indirect Combination	-0.14	1.00
	Direct-Restrictive Combination	-4.13**	.000
	Restrictive	-1.39	1.00
Direct-Indirect Combination	Indirect	2.00	1.00
	Direct With Tie for Second	0.14	1.00
	Direct-Restrictive Combination	-3.99**	.000
	Restrictive	-1.25	1.00
Direct-Restrictive Combination	Indirect	5.99	.121
	Direct With Tie for Second	4.13**	.000
	Direct-Indirect Combination	3.99**	.000
	Restrictive	2.74	.875
Restrictive	Indirect	3.25	1.00
	Direct With Tie for Second	1.39	1.00
	Direct-Indirect Combination	1.25	1.00
	Direct-Restrictive Combination	-2.74	.875

* $p < .025$. ** $p \leq .001$.

Appendix A

West Virginia Participant



**Numbers inside of counties represent the number of sites utilized to gather data

Appendix B

Adolescent Questionnaire

The following 28 pages were removed to protect sensitive information

Appendix C

Parent and Adolescent Demographic Questionnaire



59388

1. How old is this child? 12 13 14 15 16 17

2. Is this child: Male Female

3. What is your relationship with this child?

Biological Parent

Adoptive Parent

Stepparent

Grandparent

Aunt or Uncle

Other- Please explain- _____

4. How old are you? _____

5. Please identify your ethnicity or racial group?

Caucasian/White

African American/Black

Hispanic/Latino

Asian/Pacific Islander

Native American

Other - Please explain - _____

6. How many other children live in your house and how old are they?

One How old? _____

Two How old are they? _____

Three How old are they? _____

Four How old are they? _____

Five How old are they? _____

More than Five How old are they? _____

7. Do you have any stepchildren in your home? Yes No



59388

8. How many adults live in your home (including yourself) for at least half of the year?

- 1
 2
 3
 4 or more

9. Does this child participate in any organized activities (for example, church groups, girl scouts, baseball team)? Yes No

10. Does the child live with you for at least half of the year?
 Yes No

11. Do you have a working computer in your house? Yes No

12. Do you have access to the internet? Yes No

13. What kind of grades does your child typically get in school?
 A's and B's B's and C's C's and D's D's and F's

14. What is your yearly family income?

- Less than \$15,000
 Between \$15,000 and \$30,000
 Between \$30,001 and \$60,000
 Between \$60,001 and \$80,000
 Between \$80,001 and \$100,000
 Greater than \$100,000

15. Are you: Single Married Separated/Divorced Remarried

16. Are you: Male Female

17. Who knows more about your child's activities?

- I do My partner/spouse Other family member Other adult

Appendix D

Parental Monitoring Instrument (completed by parent)

Directions: Please answer by filling in one circle.				
In the PAST 4 MONTHS, how many times have you done the following:	0 times	1-2 times	3-4 times	5+ times
1. Checked to make sure your child completed his/her homework.				
2. Talked to teachers about your child's schoolwork.				
3. Looked at your child's homework.				
4. Talked to child about grades and schoolwork.				
5. Been involved with child's organized activities.				
6. Contacted school to be sure your child was there.				
7. Set time limits for your child's phone calls.				
8. Told child to end phone conversations.				
9. Listened to child's phone conversations without telling him/her.				
10. Did not allow child and friends in certain parts of the house.				
11. Asked your child to contact you on the phone to tell you about where, who, and what he/she were doing.				
12. Asked to meet your child's friend(s).				
13. Contacted the parent(s) of your child's friend(s) to introduce yourself and talk to them.				
14. Contacted other parents to find out more information about his/her friends and their families.				
15. Talked to your child's friends.				
16. Checked what your child was doing with friends while in your home.				
17. Looked through your child's drawers or closets.				

In the PAST 4 MONTHS, how many times has your parent done the following:	0 times	1-2 times	3-4 times	5+ times
18. Asked child's friends about activities they did with your child.				
19. Talked to child about what he/she had planned.				
20. Established a bedtime for your child.				
21. Checked on child sleeping during the night.				
22. Established consistent meal times.				
23. Expected family to eat as a group.				
24. Checked on what child ate.				
25. Exercised with your child.				
26. Checked on child's exercise routines.				
27. Talked to child about changes in your mood.				
28. Made child take a bath, brush teeth, or change clothes.				
29. Talked to child about his/her eating habits.				
30. Asked child about specifics of planned activities before giving permission to attend.				
31. Asked child what happened after planned activities.				
32. Talked to other parents about child's activities.				
33. Talked to neighbors about child's activities.				
34. Talked to child about managing money.				
35. Driven your child to an event.				
36. Thrown away child's materials that were not allowed (e.g. certain magazines, books, movies...)				
37. Changes rules and consequences for your child.				
38. Checked to see if another adult was with your child when he/she was supposed to be supervised.				

39. Did not allow child to watch certain shows on T.V.					
40. Arranged for child to use a beeper.					
41. Talked to child about gambling (playing cards, games for money, slot machines, betting on events)					
<p>Answer the following questions by filling in one circle. If this situation <i>DOES NOT APPLY</i> to your child (e.g. child doesn't have a driver's license so they don't drive) then please mark "Does not apply" for that question.</p>					
In the PAST 4 MONTHS, how many times has your parent done the following:	Doesn't Apply	0 times	1-2 times	3-4 times	5+ times
42. Read your child's personal notes or diary/journal.					
43. Placed computer in an open area of the home where use can be easily observed.					
44. Limited the amount of time your child can spend on computer.					
45. Used software to block certain web pages on the computer.					
46. Checked what websites child viewed through history or other method.					
47. Checked number of miles child drove in the car.					
48. Checked child's personal checking or savings bank account(s).					
49. Reviewed phone statements or call history on cell phone to see what calls child made.					
50. Checked with your spouse/partner/other caregiver about what your child had planned.					

Appendix E

Adolescent Risk Inventory (completed by adolescent)

Directions: Please indicate your response by filling in one circle.				
In the PAST 4 MONTHS, have you done any of the following:	0 times	1-2 times	3-4 times	5+ times
1. Drunk alcohol.				
2. Used tobacco (smokeless or cigarettes).				
3. Smoked marijuana.				
4. Tried other drugs (other than marijuana).				
5. Skipped school.				
6. Been suspended or in trouble at school.				
7. Been arrested or picked up by police.				
8. Lied about your activities.				
9. Stolen anything.				
10. Vandalized property.				
11. Stayed out past curfew.				
12. Snuck out of the house.				
13. Take car without permission.				
14. Used family finances (e.g., credit card cash, check) without permission.				
15. Gone somewhere without parent's permission.				
16. Possessed materials that were against your parent's rules (e.g., music, movies).				
17. Worked with friends to get around the rules.				
18. Received poor grades at school.				

In the PAST 4 MONTHS, have you done any of the following:	0 times	1-2 times	3-4 times	5+ times
19. Tried to look at things on the computer that would concern your parents (pornography, etc.).				
20. Hung out with the “wrong” kids.				
21. Hung out with people your parents didn’t know.				
22. Worn clothing and/or makeup that your parent thought was inappropriate.				
23. Gone without bathing for many days.				
24. Eaten unhealthy foods or not enough healthy foods.				
25. Used instant messaging or email to talk to someone who your parent does not approve.				
26. Used instant messaging or email to talk about things your parent does not approve.				
27. Gambled (played cards, games for money, slot machines, bet on events, etc.).				

Directions: Please indicate your response by filling in one circle.

In the PAST 4 MONTHS, have you done any of the following:	Yes	No
28. Experienced a change in your mood that concerned your parent.		
29. Had sexual intercourse without using condoms.		
30. Had sexual intercourse using condoms.		
31. Had sexual experiences, but you are still a virgin (you have not had intercourse or “gone all the way”)		
32. Used birth control.		

Appendix F

Parental Monitoring Scale (completed by adolescent)

Directions: Please indicate your response by filling in the circle.				
How many times does your parent know who you are with on typical:	Never	A Few Times	Several Times	All the Time
1. School afternoons until 5pm				
2. School evenings				
3. Non-school days (weekends, holidays)				
4. Non-school evenings (weekends, holidays)				

How many times does your parent know where you are on typical:	Never	A Few Times	Several Times	All the Time
1. School afternoons until 5pm				
2. School evenings				
3. Non-school days (weekends, holidays)				
4. Non-school evenings (weekends, holidays)				

How many times does your parent know what you are doing on typical:	Never	A Few Times	Several Times	All the Time
1. School afternoons until 5pm				
2. School evenings				
3. Non-school days (weekends, holidays)				
4. Non-school evenings (weekends, holidays)				