

# ***Adolescent Risk Behavior Patterns: Effects of Structured Time-Use, Interpersonal Connections, Self-System Characteristics, and Socio- Demographic Influences***

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**ABSTRACT:** The relationships between risk behaviors and factors representing multiple ecological layers are examined among a sample of youth in grades seven through 12 ( $n = 2,701$ ). Our primary interest is in the relationship between structured time-use as a protective factor and youth risk behavior patterns. Two other layers of protective factors are also examined, those dealing with interpersonal connections and with self-system characteristics. Concomitant demographic factors in the study are age, ethnicity, gender, and socioeconomic status. Stepwise multiple regression analysis reveals that less risk behavior is associated with greater attachment to school, greater school success, closer relationships with parents, and greater participation in structured time-use; significant predictors of more risk behavior are being older, being

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male, and having one good friend. Implications for professional practice include employing a comprehensive, ecological approach to prevention and intervention, and enacting social support initiatives at multiple levels.

**KEY WORDS:** Adolescents; Structured Time-Use; Risk Behavior; Protective Factors.

Inquiries into risk behaviors and protective factors among adolescents are prominent in the social, behavioral, and health sciences, and range from examinations of particular risk factor conditions (Perkins & Hartless, 2002) to general conceptual frameworks that are tied to prevention and intervention programs (Bogenschneider, 1996). Also prominent in the adolescent development literature is research on how time is used and the associated developmental outcomes (Larson & Verma, 1999). The current study links elements of these areas of adolescent development research and examines the relationships between structured time-use protective factors and adolescent risk behaviors. These relationships are considered within the context of critical interpersonal connections and self-system protective factors, and socio-demographic context factors.

### **Conceptual Framework and Related Literature**

A risk behavior is any behavior that impedes successful adolescent development and that may compromise a sense of competency, skill development, or the acquisition of socially approved roles (Baldwin, 2000). A protective factor is one that decreases the odds of participating in risk behaviors, that lessens the chances of experiencing negative outcomes from participation in risk behaviors, and that buffers against being exposed to risk factors or exhibiting risky behaviors (Jessor, 1998). The risk behaviors are not only problems in the present but may interact to send a young person on a path of increasing personal and social difficulties.

The recent National Research Council and Institute of Medicine report on youth development and effective community programs discusses a number of risks that can impede successful development (Eccles & Gottman, 2002, p. 48). Among them are changing relationships with parents that result in alienation of youth and

their families, participation of youth in deviant behavior so much so that their transition into productive adulthood is prevented, a lack of connections between youth and both successful adults and supportive institutions, inadequate educational opportunities, lack of civic engagement experiences so that youth do not develop skills to be community participants, and alienation that comes from cultural intolerance, so that youth withdraw from mainstream society. These risk situations reflect the ecology of youth development and the intersections of important systems that have a bearing on their present and future quality of life.

Our research is guided by an ecological human development framework that suggests multiple systems interact to produce developmental outcomes (Bronfenbrenner, 1995). Many researchers have employed a multiple systems approach in demonstrating how different contexts are influences on important developmental and quality of life outcomes (e.g., Bogenschnider, 1996; Bowen & Bowen, 1998; Eamon, 2002; Gorman-Smith, Tolan, & Henry, 2000; Perkins & Hartless, 2000). This layered approach to examining youth resilience and risk serves as an efficient way to organize a wide range of potentially important factors.

Our study is consonant with this earlier research in that it examines interrelated layers of protective factors that cut across roles, relationships and life circumstances. Specifically, the research model that we examine includes three categories of protective factors (structured time-use, interpersonal connections, and self-system/individual characteristics), three aspects of risk behaviors (delinquency, substance use, and sexual activity), and four socio-demographic contextual factors (gender, ethnicity, family socioeconomic status, and age). Analytically we examine the relationships simultaneously between the protective factors, the demographic factors, and the risk behaviors. These *time-use protective factors* are focused on structured activities, are broadly oriented and reflect the social and institutional contexts in which activities occur. *Connections protective factors* address the relationships that youth have with peers, parents, and other adults. *Self-system/Individual protective factors* encompass key sense of self and personal success dimensions. *Socio-Demographic context factors* are in the model because in several respects they control the opportunities that youth may have to use their time in particular ways, and also may themselves be associated with risk behaviors.

*Structured Time Use*

While there are a number of methods for organizing how non-school time is used by youth (Shanahan & Flaherty, 2001; Zeijl, Poel, duBois-Reymond, Ravesloot, & Meulman, 2000), we are focusing on those that are more structured and that are not oriented toward work. Time-use protective factors in this study are structured activities that involve formal organizations in order to be successfully completed (for example, extracurricular sports activities and clubs). Structured activities, in contrast with activities such as "hanging out with friends," are more formal, reflect community involvement, and involve connections with others in an intentional manner. Mahoney and Stattin (2000, p. 115) note that structured activities "are often of higher social complexity and may involve peer cooperation, support from family members, and guidance from unrelated adults." It is typically assumed that the more that youth participate in such activities, the better their quality of life, and the less their involvement in risk-oriented behaviors. For example, Hawkins and Catalano (1985) report that higher activity in leisure pursuits is associated with reduced use of drugs and alcohol. Iso-Ahola and Crowley (1991) suggest that substance abuse is linked with leisure boredom, a scenario being that youth attempt to relieve boredom via use of illicit substances, the implication being that more involvement and participation in activities in turn relieves boredom, and this in turn should decrease youth involvement in risk behaviors. Eccles and Barber (1999) found that participation in pro-social activities, such as participation in extra-curricular activities, was related to lower increases in both alcohol and drug use. However, Eccles and Barber (1999) also report that the relationship between time-use and risk behavior is not so clear-cut. They found that youth who participated in team sports were likely to drink more often, and to have friends who tended to drink more. Borden, Donnermeyer, and Scheer (2001) discovered that participation in non-school based activities is a protective factor with regard to risk behavior but that school-based activities tended to encourage drinking.

Overall the research literature suggests that when inquiring into the relationships of risk behaviors to how time is used a range of contexts must be accounted for in attaining a valid understanding of that relationship. However, while the association between time-use and risk behavior may not be clear-cut, it is generally agreed that time use is a key factor in studies of youth development and risk

behaviors. For example, Agnew and Petersen (1989) examined the relationship between several leisure activities and delinquency within the context of family and school factors. Among their conclusions was that time-use factors were equal to or, in some cases, more predictive of delinquency than these other factors. We hypothesize that greater participation in structured time-use protective factors will be associated with less risk behaviors, in effect mitigating negative developmental outcomes that may result from greater participation in those behaviors. We also hypothesize that these effects will persist even when other protective factors are taken into consideration.

### *Connections Protective Factors*

The connections that youth have with others, whether they are family members, friends, teachers, or other non-related adults, can also have an influence on their participation in risk behaviors. Since most adolescents in all likelihood reside with one or more of their parents, characteristics of that family unit will influence how out-of-school time is used. Research suggests that family processes, rather than family structure account for differences in adolescent outcomes (Demo & Acock, 1996; Kleist, 1999). Family processes can be reflected in the relationship that adolescents have with their parents. Johnson and Johnson (2001) suggest that parental influence has been underestimated, and that parents influence decisions related to smoking and drinking decisions by modeling, advice-giving and admonitions, and by the sanctions they enact. Resnick and colleagues (1997) found that youth who reported strong connections to parents also reported lower substance use, less early sexual activity and lower levels of violence. Walsch (1996) reported that adolescents who reported weak attachment to parents also reported more unrestrained sexual activity and more drug use. Karofsky (2001) found that youth who engage in more positive communication with their parents are less likely to be sexually active. Webster-Stratton (1998) reports that substance abuse and crime are linked to family processes that are dysfunctional and problem-ridden. We hypothesize that having stronger attachment to parents will be inversely related to participation in risk behaviors. We also expect that spending more time with family members will be inversely related to risk behaviors.

The literature also suggests that having connections with adults other than parents serves to mitigate risk behaviors. Scales and Leffert (1999) report that more prosocial behavior and less behavior problems are associated with receiving support from adults in the neighborhood. We expect that among the youth in our sample reporting a connection with a reliable adult other than a parent will be related to less risk behavior.

Though the research data are not definitive, it is assumed that friends have the most pervasive influence on what adolescents think, feel, and do. There are many important sources of influence in a youth's life, and depending on the situation friends can be most significant. Borden, et al., (2001) report that peer encouragement was a primary determinant of marijuana use and of drinking. Agnew and Petersen (1989) report that delinquency is associated with time spent in unsupervised, peer-oriented activities. In our thinking about the ecology of time use in adolescence, the layer that reflects friend group relationships and associations becomes an important context because as youth become older they spend more and more time with people who are similar to themselves. Larson and Verma (1999) suggest that much of the time U.S. youth spend with peers involves talking and self-structured leisure activities (for example, "just hanging out"), and that the consequences developmentally can be quite positive (including developing supportive relationships). Mahoney and Stattin (2000) report an association between participation in low-level structured leisure activities and having deviant peer relations. Those adolescents who tended to be mainly involved in low structured activities were also more likely to report that their peers "stayed out on the town all night" and had been apprehended by the police. Overall youth who were involved in structured activities with their peers were less likely to participate in a range of risk behaviors. We hypothesize that having one good friend and spending time with friends in general will be inversely associated with participation in risk behaviors.

Somers and Gizzi (2001) found that participation in risk behaviors was related to how connected youth were to school; youth more connected reported less risk behavior. Steinberg and Avenevoli (1998) suggest that engagement in school operates as a protective factor with regard to problem behavior because youth committed to school spend relatively more of their time in school-related activities, from homework to extracurricular pursuits, and in all likelihood associate with other youth who are similarly engaged in school. This school

engagement often pertains to the relationships that students have with their teachers. Scales and Leffert (1999) also report that a number of studies have demonstrated that certain risky behaviors are less frequent when students are more closely connected with their teachers. We hypothesize that school attachment will be inversely related to participation in risk behaviors.

### *Self-System/Individual Protective Factors*

In addition to the role that interpersonal relationships have in youth development and risk behaviors, there are self-system factors that may be linked to youth themselves that are also important as protective factors (Huebner & Mancini, 2003). Griffin, Epstein, Botvin, and Spoth (2001) found that youth who were more socially confident, assertive, and had better communication skills were less likely to smoke and drink, thus indicating the significance of esteem and social competence in healthy adolescent development. Another self-system factor is academic success. Academic success can be a pivotal element in whether youth participate more or less in risk behaviors because lower grades are associated with participation in risk behaviors (e.g., Hawkins, 1997; Windle, 2000). We hypothesize that self-esteem and grades will be inversely related to risk behaviors.

### *Socio-Demographic Factors*

In addition to the time-use, connections, and individual protective factors that we have discussed above, there are a set of factors that often have a bearing on quality of life. Gender, ethnicity, and socioeconomic status comprise an important personal and societal context. Borden, et al., (2001) report that females were less likely to be involved in drug-use. Mahoney and Stattin (2000) found that the relationship between antisocial behavior and activity participation was similar overall for boys and for girls; however, they also note that boys' antisocial behavior was especially increased when they were mainly involved in low-structured activities and largely not involved in highly structured activities. Blum, Beuhring, Shew, Bearinger, Sieving, and Resnick (2000) found a greater tendency for White youth to smoke cigarettes and drink alcohol in their younger years compared to Black and Hispanic youth; Black youth were more likely to be sexually active and Black and Hispanic youth were both more likely to be involved in violent acts. In addition to these

cultural and opportunity factors is the demographic of chronological age. Research suggests that older youth are more likely to engage in risk-behavior than younger youth (Resnick et al., 1997). Earlier onset of substance use/abuse, delinquency, and sexual activity has a greater negative impact on developmental outcomes (Muuss & Porton, 1998). While it may be commonly thought that socioeconomic status is directly related to risk behavior among youth, the data are not definitive. Research by Tuinstra, Groothoff, Van Den Heuvel, and Post (1998) and by Tolan (1988) found no relationship between SES and risk behavior. Even though Blum et al. (2000) report a relationship between income and risk behavior they conclude that income has scant predictive power. Given the previous studies on gender and age that we cite here, we expect that males will be more involved in risk behaviors, as will older youth. Because the literature is equivocal regarding ethnicity and socioeconomic status, we do not expect there to be a relationship between them and risk behaviors.

## **Methods**

### *Sample*

Data were collected between January 2001 and May 2002. Participants were 7th–12th grade public school students from six contiguous, rural, ethnically diverse counties in a Southeastern state. Population estimates for these counties ranged from 9,112 to 11,431. In these counties 23%–47% of students were eligible for free or reduced-price school lunches. Of the 3,135 students enrolled in the schools, 2,701 (86%) participated in the study. A 174-item comprehensive anonymous survey was administered during regular classes on one day to all students who were present, had parent permission to participate, and chose to participate. This survey is conducted as part of a larger community initiative designed to energize citizens around youth issues; the community is involved in determining the content of the survey, consequently it is omnibus because of the wide range of youth issues about which they want information. A drawback of this omnibus approach, however, is that a number of single-item measures are used to represent some complex constructs.

Fifty-two percent (52%) of the sample are female and 48% are male. The sample is predominantly Caucasian non-Hispanic (58%)

and African-American (35%). About 14% of the students are 7th graders, 13% are 8th graders, 22% are 9th graders, 20% are 10th graders, 16% are 11th graders, and 15% are 12th graders. Participants' mean age is 15 years.

### *Measurement*

*Risk Behaviors.* The risk behaviors assessed in our study included use of cigarettes, alcohol, and marijuana, sexual activity, and delinquency. With the exception of delinquency, these were single-item measures. Youth indicated substance use/abuse with regard to alcohol, cigarettes, and marijuana. They were asked: "During the past 30 days, on how many days did you use cigarettes (use alcohol; use marijuana)?" Responses ranged from "0 days" (coded as zero) to "all 30 days" (coded as 6). Sexual activity was assessed by asking, "If you have ever had sexual intercourse, have you had sexual intercourse within the past 30 days?" Responses choices were "I have never had sexual intercourse," "yes, in the past 30 days" or "not in the past 30 days." Delinquency was assessed by a nine item scale that focused on these activities: cheated on a class test; skipped school without a legitimate excuse; used a fake ID; ran away from home; drove a car without the owner's permission; purposely damaged property that belonged to someone else; took something from a store without paying for it; broke into some place like a car or building; got into trouble with the police. For each item the responses were "never, 1-2 times, 3-4 times, and 5 or more times" over the previous six months. These 14 risk behavior items were summed into a single measure (internal consistency is .73). The measure provides an overall pattern of risk behaviors rather than a focus on a particular behavior, and is consonant with problem behavior theory (Jessor, 1993).

*Structured Time-Use Protective Factors.* Time-use is assessed by five single items that reflect a wide range of structured activities. Youth were told, "Here are some things students may do on weekdays after school. Mark how often, on the average, you spend in each activity." Response choices ranged from "never" (coded as zero) to "daily, 7 or more hours per day" (coded as 9). The five activity participation items were: (1) In school-related, non-sport extracurricular activities such as Future Farmers of America, pep club, drama, band, academic clubs, and so on; (2) In non-school related clubs such

as Scouts, 4-H, Camp Fire, Boys and Girls Clubs, Key Club, and so on; (3) Doing volunteer work such as working with the elderly or disabled, helping with a political or environmental cause; (4) In church or other religious-related activities such as youth group, choir, usher, and so on; (5) In school or community-based sports. These items were summed to form a composite score of structured time use. We do not report internal consistency for these items because they reflect an aggregate pattern of participation and as such we would not expect them to have the same internal coherence as measures that revolve around a single construct.

*Connections Protective Factors.* *Time spent with friends* was measured by asking: "On weekdays after school how much time do you spend hanging out with friends?" Response choices ranged from "never" to "7 or more hours per day." *Having at least one good friend* was measured by asking participants to respond to this item: "I have at least one good friend I can count on." Response choices were: "strongly disagree, somewhat disagree, somewhat agree, and strongly agree." *Attachment to parents* was measured by summing three items: (1) My parents are good parents; (2) My parents care about me; (3) My parents respect me. Response choices were: "never, rarely, sometimes, most of the time, and always." Internal consistency is .81. *Time spent with family* was ascertained by asking respondents, "How often do you spend time doing things for fun with family members, other than watching television?" Response choices were from "never" to "daily, 7 or more hours per day." This measure of time spent with family taps more active pursuits that have more inherent interaction than is the case with watching television (Orthner, Barnett-Morris, & Mancini, 1994). *Having a reliable adult* (non-parent) was assessed by their responses to this statement: "If I were to have a serious personal problem, there is an adult who's not my parent whom I would feel okay talking to." Response choices were, "strongly disagree, somewhat disagree, somewhat agree, and strongly agree." *Attachment to school* was measured by combining four items: "I enjoy going to school," "I believe I am getting a good high quality education at my school," "Teachers in my school encourage me to do and be the best I can" and "Teachers in my school respect and listen to me." For these statements the response choices were: "strongly disagree, disagree, agree, and strongly agree." Internal consistency for these items is .77.

*Self-System/Individual Protective Factors.* Rosenberg's (1965) ten-item scale was used to measure *self-esteem*. Items included "I feel I'm a person of worth, at least on a equal plane with others" and "At times I think I am no good at all." Response choices for each item were, "strongly disagree, somewhat disagree, somewhat agree, and strongly agree." Responses were summed and internal consistency was .78. *School success* was assessed by asking youth, "What are the average grades you usually get in your courses at school?" There were eight response choices, ranging from "mostly A's" (coded as 8) to "mostly below D" (coded as zero).

*Socio-Demographic Context Factors.* The four socio-demographic context indicators in the analyses are gender (females coded as zero and males coded as one), ethnicity (Whites coded as zero and African-Americans and other ethnicities coded as one), chronological age and family socioeconomic status. Two items were used as indicators of *family socioeconomic status*. Participants were asked, "How much education did your father/stepfather complete?" The question was repeated substituting "mother/stepmother" for "father/stepfather." Responses ranged from "0" (elementary or junior high school) to "6" (professional or graduate degree). These education level reports were summed to provide an overall measure of family resources. We felt that youth could provide relatively more accurate information on parents' educations compared to reporting on their income or providing enough employment details so that we could examine occupational status.

## Results

Bivariate relationships between all variables in the study are included in Table 1. According to this first-level analysis risk behavior is significantly associated statistically with all independent variables except ethnicity, time spent with friends, and having one good friend. The bivariate correlation between structured time-use activities and risk behavior is significant ( $r = -.177, p < .001$ ) indicating that youth who are more involved in activities report less risk behavior. Purely from a magnitude of coefficient perspective, more substantial relationships with risk behaviors are found with regard to school attachment, age, school success, parent attachment, and structured time-use. Table 1 also shows the breadth of the interrelationships between other important study variables. For example, we note that attachment to school

**TABLE 1**  
**Relationships between Risk Behaviors, Protective Factors, and Demographic Characteristics**

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Risk behavior													
2. Time-use	-.177**												
3. Time: friends	-.001	.088**											
4. Good friend	-.002	.044*	.068**										
5. Adult to talk to	-.074**	.122**	.039*	.163**									
6. Parent attach	-.195**	.082**	-.008	.110**	.162**								
7. School attach	-.327**	.188**	-.032	.095**	.243**	.279**							
8. Time: Family	-.051*	.153**	.096**	.044*	.050*	.167**	.028						
9. Self-esteem	-.049*	.004	.047*	.115**	.129**	.071**	.169**	-.103**					
10. Grades	-.280**	.201**	.020	.064**	.077**	.136**	.265**	.047*	.070**				
11. Age	.304**	-.075**	.065**	.009	.035	-.044*	-.180**	-.010	.032	-.119**			
12. Gender	.128**	-.090**	-.037	-.040*	-.129**	-.004	-.086**	-.030	-.018	-.127**	.032		
13. Ethnicity	-.018	-.037	-.102**	-.141**	.038	.018	.012	-.084**	-.061**	-.191**	-.065**	-.014	
14. SES	-.092**	.138**	.012	.066**	.001	.065**	.060**	-.003	-.086**	.239**	-.024	.032	-.190**

Note: \* $p < .05$ . \*\* $p < .001$ .

is positively related to having one good friend, having a reliable adult to talk to, attachment to parents, self-esteem, school success, and socioeconomic status. We see that age is related negatively to parent attachment, school attachment, and school success, and is positively related to, in addition to risk behavior, time spent with friends. School success is positively related to having one good friend, having an adult to talk to, time spent with family, and self-esteem. The results summarized in Table 1 also show that greater involvement in structured time-use is related to spending more time with friends, having one good friend, having an adult to talk to, being more attached to parents, spending more time with family, being more attached to school, having better grades, being younger, being female, and having parents with higher educational levels. While the object of our study concerns structured time-use as a protective factor with regard to risk behaviors, an inspection of the correlation matrix is helpful in determining the variation that is shared among the independent variables. We include this correlation matrix as a precursor to the multivariate analysis rather than as a test of our hypotheses. We note that from an effect size perspective these bivariate correlations are modest. According to Cohen (1992) an effect size of .50 and higher is considered large, with those falling between .30 and .50 being medium, and those below .30 defined as small. Though the determination of what coefficient size is small, medium, and large is arbitrary, Table 1 data indicate that only the relationships that risk behaviors have with school attachment and with age reflect medium effects.

In order to adequately examine our expectations of these data we used stepwise multiple regression analysis. We rely on the standardized regression coefficients to examine the various hypotheses we have specified in the literature review, and use the stepwise procedure to examine the relative importance of all the study variables. In this stepwise approach the best (i.e., the variable that has the largest partial correlation with youth risk behaviors while controlling for all other variables in the model) is entered into the prediction equation, followed by the next best predictor, and so on, until all variables are examined against the criteria for inclusion in the model (in this case additional criteria are that the independent variable's regression coefficient is significant at the .05 level and that .01% of its variance is independent of other predictor variables). This analysis is summarized in Table 2. A significant proportion of the variation (21%) in risk behavior was explained by the model ( $F = 61.57$ ,  $df = 7, 1665$ , multiple  $r = .45$ ,  $r$  square = .21,  $p < .001$ ).

TABLE 2

**Stepwise Regression Analysis of Protective Factors on Risk Behaviors**

Variable	Beta	$R^2$	$R^2\Delta$	$F\Delta$ ( $df$ )
1. Teacher attachment	-.309**	.095	.095	176.291 (1, 1671)
2. Teacher attachment	-.276**	.148	.053	103.622 (1, 1670)
age	.232**			
3. Teacher attachment	-.224**	.181	.033	67.103 (1, 1669)
age	.221**			
School success	-.190**			
4. Teacher attachment	-.195**	.191	.010	20.667 (1, 1668)
age	.223**			
School success	-.184**			
Parent attachment	-.105**			
5. Teacher attachment	-.191**	.200	.009	18.732 (1, 1667)
age	.222**			
School success	-.172**			
Parent attachment	-.109**			
Gender	.096**			
6. Teacher attachment	-.185**	.203	.003	6.052 (1, 1666)
age	.221**			
School success	-.163**			
Parent attachment	-.107**			
Gender	.093**			
Time use	.056*			
7. Teacher attachment	-.187**	.206	.003	5.379 (1, 1665)
age	.219**			
School success	-.165**			
Parent attachment	-.110**			
Gender	.093**			
Time use	-.056*			
One good friend	.051*			

Note: Standardized Regression coefficients and overall F-test are significant at  $p < .001$ ; \*  $p < .05$ ; \*\*  $p < .001$ .

The first step indicates that the strongest predictor of risk behavior is attachment to school; greater attachment is associated with less risk behavior. With additional steps other significant predictors are: age, school success, parent attachment, gender, structured time-use, and having one good friend. Time spent with friends, having an adult to talk to, hours spent with family, self-esteem, ethnicity, and socioeconomic status did not meet the minimal criteria in order to enter the model. According to the full model (step seven) age is the primary predictor of risk behavior ( $\beta = .22$ ), followed by school attachment ( $-.19$ ), school success ( $-.17$ ), parent attachment ( $-.11$ ), gender (.09), structured time-use ( $-.06$ ), and having one good friend (.05). The structured time-use protective factor did not enter the model until step six in the analysis. Being older and male are factors associated with more risk behavior, as is having one good friend. Closer ties with school, more success in school, greater attachment to parents, and greater involvement in structured time-use are all related to less risk behavior. While structured time-use is important to the model, its relative significance is overshadowed by all other variables in the final model except having one good friend. We again note that while statistically significant, the effect sizes are in the small range (Cohen, 1992). Recognizing effect sizes is important in large survey studies such as this one because it guards against inappropriately overestimating the significance of tests of significance.

## Results Summary

Based on the theory and literature we specified 11 expectations of these data, and seven of them were confirmed. We had anticipated that participation in structured time-use would be associated with less risk behavior and that this association would persist when other factors were taken into consideration (confirmed). In the area of connections protective factors, we expected that attachment to parents would covary with less risk behavior (confirmed), and that similarly time spent with family would lower risk behavior (not confirmed; no significant relationship). As we examined connections with other reliable adults and connections with friends we expected that the former would be related to less risk behavior (not confirmed; no significant relationship), and that the latter would also be related to less risk behavior (not confirmed; having one good friend significantly related to more risk behavior and time spent with friends

unrelated to risk behavior). We anticipated that attachment to school would also relate to less risk behavior (confirmed). In the area of self-system/individual protective factors, we expected that self-esteem (not confirmed; no significant relationship), and school success would be related to less risk behavior (confirmed). In the area of socio-demographic factors, we thought that being male would be related to more risk behavior (confirmed), as would age (confirmed), and that both ethnicity and socioeconomic status would be unrelated to risk behaviors (confirmed).

## Discussion

Our *a priori* assumption in initiating this study was that structured time-use is a protective factor in the lives of youth. The literature generally supports that assumption, the notion being that occupied time is better than unoccupied time (e.g., Larson & Verma, 1999). Moreover the general assumption is that certain kinds of structured activities assist in skill development, bring youth into contact with other youth in socially acceptable ways, and bring youth into contact with responsible adults who provide leadership to these activities. Our data suggest there are several other protective factors that are prepotent. We are not suggesting that structured activities are unimportant, just that on their own they may not provide the mitigating effects that may be expected of them. However, the importance of structured activities in the lives of youth who do not benefit from other protective factors may be very important. Participation in structured activities (refer to Table 1) is significantly related to most all variables in this study, thereby attesting to its relevance in understanding youth development and youth risks. For example, it is substantially related to all of the connections protective factors. In a sense participation in structured activities provides a context through which positive youth development goals might be met, such as learning cooperative decision-making, interacting with diverse youth and adults, forming strong friendships, and connecting with caring adults. Though a different research design is appropriate to more directly address prevention and intervention effects, these basic research data suggest that initiatives focused on supporting positive connections with parents and with schools, on working with youth with regard to developing positive connections with their peers, on promoting school success, and on involving youth in struc-

tured time-use activities may lessen the probabilities of youth involvement in risk behaviors. These are all areas where communities can make a collective and concerted difference in the lives of youth (Mancini, Martin, & Bowen, 2003).

Protective factors that were most related to risk behaviors were attachment to school, school success, and attachment to parents. These findings are consistent with other research in this area (Jessor, 1998; Resnick et al., 1997; Scales & Leffert, 1999; Somers & Gizzi, 2001). The idea that the connections that youth have and the relationships that they represent are likely powerful influences on moving toward or away from risky behavior is sound. The literature generally supports that notion, but whereas parents and adults have a positive influence and actually serve as protective factors, (Karofsky, 2001; Walsch, 1996), the connections with friends can have less than desirable outcomes, and may serve as risk factors (Agnew & Petersen, 1989; Mahoney & Stattin, 2000). We found that risk behavior was higher among youth who said "I have at least one good friend I can count on." This finding points to the need in future research to inquire into what good friends or best friends do together, including the influence a primary friend has over making risky decisions. Generally connections with others are positive influences in the lives of youth, as attested to by our findings concerning attachment to school/teachers and to parents. However, it is of course the nature of these connections with teachers and with parents that make a difference, rather than being connected or in contiguity per se. Future research should explore the mediating role of connections in the examination of time use and risk factors. Our measure of school attachment encompasses the receipt of encouragement and respect from teachers, feeling that teachers are listening to youth, satisfaction with education, and enjoyment of school. Our measure of parent attachment taps into feeling that parents show respect and caring, as well as parents being defined as competent (in effect indicating parents are respected by the adolescent).

The factor found to be most predictive of risk behavior was age. The greater the age the greater the participation in risk behaviors. This finding is consistent with those of Resnick and colleagues (1997). In this study age is significantly related to a number of pivotal factors (refer to Table 1). For example, not only do older youth participate more in risk behaviors but they participate less in structured time-use activities, spend more time with their friends, are less attached to parents and to teachers, and report less school suc-

cess. Apparently the aging of youth brings with it a constellation of changes that puts increasing distance between youth and formal ways of spending time, connections with family and other adults, and with an important social institution, the school. The role of age in our study findings is not surprising since it is expected that as youth age they are more independent, are less in the company of adults supervised and more in the company of their peers unsupervised, feel more confident in taking risks, and have greater opportunity to engage in risk behaviors.

Even though our model covered a broad array of potential influences on youth risk behavior, our analyses indicate there is a great deal that is unknown with regard to understanding and predicting risks. Our model explained about one-fifth of the variability in risk behavior, and the relative effect of any one variable was modest. This suggests that further work needs to be done to refine the model, to explore other contextual factors that may influence risk behavior, and to improve how the dependent and independent variables are measured. However, the results also show that there are several areas that are promising with regard to developing prevention and intervention efforts and that therefore require the attention of program professionals.

### **Implications for Professional Practice**

While we intended to elevate the understanding that we have of the significance of structured time-use as a protective factor in the lives of youth, our goal was also to concurrently examine other significant protective factors. The significance of structured time-use was exceeded by several other protective factors. Findings reflect that various ecological layers are important for positive youth development and for less participation in risk behaviors, and include self, family, school, and friend system elements. For the most part these are ecological factors that may be amenable to change via prevention and intervention activities, especially those directed toward the social support systems that surround youth. Gottlieb (1988) discusses five levels of social support interventions, including individual, dyadic, group, social system, and community levels. A key point is that desired, positive change among people within communities occurs at multiple levels. Program professionals may deliver services to individual youth, may function to connect young people with

others their ages and with caring adults, may create networks of groups that provide support as an artifact of what they are primarily designed to do (for example, while a program may be designed to improve reading skills at the same time it serves to connect youth with each other in order to strengthen informal network support), or may direct a public awareness campaign targeted at positive youth development.

Initiatives to support youth must be complex and comprehensive in order to correspond to the realities of youth development, concerns, and situations. The attention of program professionals should be directed both at programs and at community contexts. Weissberg, Kumpfer, and Seligman (2003, p. 429) have noted that youth "grow up in families, schools, and neighborhoods, not in programs." Consequently the efforts of program professionals should not be confined to what actually transpires within their programs. Programmatic efforts should be designed to strengthen informal community networks. Because there are many everyday life effects on youth development, program professionals are encouraged to adopt more of a community approach to supporting youth (Wandersman & Florin, 2003; Mancini, Martin, & Bowen, 2003). Community-level prevention and intervention activities include activating grassroots participation of community members and of community-based organizations and supporting the networks that develop among them. In their discussion of principles of effective prevention programs, Nation, Crusto, Wandersman, Kumpfer, Seybolt, Morrissey-Kane, and Davino (2003) include programs that are multi-faceted (operating at family, peer, and community levels), that are appropriately timed with regard to youth needs (such as age and stage), and that promote strong and positive relations between youth, and between youth and adults. The results from our investigation are consonant with these suggestions in that we found support for the idea that elements of various ecological layers have an influence on youth risk behavior.

Program professionals are also encouraged to develop prevention and intervention initiatives that are able to provide general coverage with regard to youth development concerns, and are also able to target particular high risk groups of youth. For example, prevention and intervention initiatives must focus particular attention on the involvement of males in risk behaviors, and on the involvement of older youth in risk behaviors. There needs to be an intentional focus on the correlates of being male and of being older that lead toward

greater involvement in risk behavior. These correlative areas are where prevention and intervention efforts may make a positive difference. We agree with Blum et al., (2000) in saying that there is a danger in basing prevention and intervention on research variables that are not amenable to change. However, the data from our study point to a number of areas that are amenable to change because they involve roles, relationships, and primary connections in the lives of youth. Moreover they reflect contexts associated with communities that are malleable to prevention and intervention activities. While these data are equivocal with regard to the absolute impact of particular ecological layer elements, they do suggest the beginnings of a roadmap that accounts for multiple positive influences on youth risk behaviors.

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