

Chapter 4

Social Context Protection and Risk in Adolescent Behavior and Development

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Concern with the context of human action—its content, structure, organization, and implications for behavior—has burgeoned in recent decades; and research designs in social and developmental psychology have increasingly sought to incorporate measures of the social environment along with individual difference measures. The current preoccupation with context was, of course, presaged long ago by Kurt Lewin (1951) and more recently by Urie Bronfenbrenner (1986), as well as by others. Cronbach (1982), for example, argued that “Understanding an adolescent’s experience ... seems to require a community-wide ecological perspective” (p. 74) and that perspective has animated a wide array of contemporary studies (e.g., Arthur, Hawkins, Pollard, Catalano, & Baglioni, 2002; Beam, Gil-Rivas, Greenberger, & Chen, 2002; Cook, Herman, Phillips, & Settersten, 2002; Crosnoe, Erickson, & Dornbusch, 2002; Eccles, Early, Frasier, Belansky, & McCarthy, 1997; Elder & Conger, 2000; Elliott et al., 2006; Furstenberg, Cook, Eccles, Elder, & Sameroff, 1999; Herrenkohl et al., 2000; Novak & Clayton, 2001). Such studies have encompassed various domains of the social environment including the family, the peer group, the school, and the neighborhood; and they have investigated a wide range of adolescent experience including depression, academic achievement, delinquency, and substance use.

We report a cross-national study of adolescent samples in the United States and the People’s Republic of China that employed a psychosocial theory of protective

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factors and risk factors to articulate the content of four key social contexts of adolescent life—the family, the peer group, the school, and the neighborhood. The protection-risk conceptual framework used in this research emerges from a reformulation and extension of Problem Behavior Theory (Jessor, Donovan, & Costa, 1991; Jessor, Graves, Hanson, & Jessor, 1968; Jessor & Jessor, 1977), organizing the main constructs from that theory—personal controls, social controls, models for problem behavior, support, opportunity—into protective and risk factors. The reformulation retains the direct linkages of the constructs to behavior outcomes, but it adds a new focus on the moderating effect that protection can have on the impact of risk.

Three types of protection are specified by the reformulation of Problem Behavior Theory—models protection, controls protection, and support protection; and three types of risk are specified—models risk, opportunity risk, and vulnerability risk. Insofar as possible, multiple-item measures of each type of protection and risk were developed for each of four different social contexts and most of the measures also derive from Problem Behavior Theory. The primary aim of this study is to explore the account that protection and risk in four social contexts provides of variation in adolescent problem behavior.

Articulating protective and risk factors as the theoretical content of adolescent social contexts permits logical implications for variation in problem behavior to be drawn. The theoretical role of protective factors is to decrease the likelihood of engaging in problem behavior: Protective factors provide models for positive, prosocial behavior; informal and formal social controls against problem behavior; and a supportive environment to sustain prosocial commitment. The theoretical role of risk factors, by contrast, is to increase the likelihood of engaging in problem behavior: Risk factors provide models for problem behavior, greater opportunity to engage in it, and contextual vulnerability for its occurrence. Protective factors play an additional, indirect role as well; theoretically, they can moderate or buffer the impact of exposure to risk factors (see Costa, Jessor, & Turbin, 1999; Jessor, Turbin, & Costa, 1998a, 1998b; Jessor et al., 2003; Jessor, Van Den Bos, Vanderryn, Costa, & Turbin, 1995; Rutter, 1987). Almost no attention has been given to demonstrating moderator effects of context protection on context risk, or of context protection on individual-level risk. Such demonstration would have significant implications for prevention policies and the design of intervention programs.

The generality of the contextual account is also explored in this chapter by testing it in an adolescent sample from another society, one very different from the United States in economic organization, institutional systems, and cultural traditions. Such distal or macrolevel societal differences likely shape differences at the more proximal level in protection and risk in the immediate social context. With regard to Chinese society, for example, it has long “been characterized by extensive informal social controls” (Liu & Messner, 2001, p. 18), and the regulatory role of family, school, and neighborhood on adolescent behavior is likely to be greater there than in the United States (Zhang & Messner, 1996). All the analyses reported in this chapter are replicated, therefore, in both the United States and China samples using the same measures in a cross-national study of adolescent behavior and development (see Jessor et al., 2003).

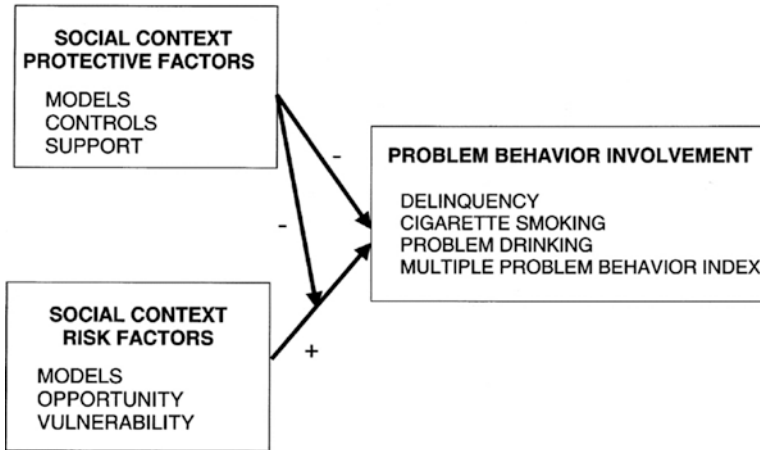


Fig. 4.1 The protection-risk model of social context and adolescent problem behavior involvement (Adapted from Jessor et al., 2003). The “+” and “-” signs indicate a positive or negative impact on involvement in problem behavior

With regard to the three types of context protection, models protection has to do with contextual models for positive, prosocial, or conventional behavior and it includes such measures as parental involvement in volunteer work and friends’ participation in school clubs and community organizations. Controls protection has to do with regulation and sanctions for transgressions, and it includes measures of parent sanctions for misbehavior and disapproval from neighbors for problem behavior. Support protection has to do with expressed interest and support from others, and it includes measures of teacher interest in students and of family closeness. With regard to the three types of contextual risk, models risk has to do with social models for problem behaviors, and it includes such measures as friends’ smoking and neighborhood models for drinking. Opportunity risk has to do with access to engaging in problem behavior and includes measures of the availability of cigarettes and alcohol in the home and of the prevalence and activity of gangs in the neighborhood. Vulnerability risk has to do with contextual aspects likely to instigate or promote problem behavior, and it includes measures of tension in the family and of stress at school. The theoretical model relating social context protection and risk to adolescent problem behavior involvement is shown in Fig. 4.1; it illustrates the direct effects of protection and risk on problem behavior, as well as the moderator effect that protective factors can have on exposure to risk.

A previous report from this cross-national study (Jessor et al., 2003) emphasized the overall account of problem behavior provided by composite indexes that summarized protective factors and risk factors across context and individual-level measures combined. This chapter has a different focus, and its objective is to explore the role of each of four social contexts in accounting for problem behavior when individual-level factors are controlled. It also seeks to demonstrate the moderating effect of protection in the social context on individual-level risk and the moderating effect of protection on risk both within and across social contexts. These latter objectives have rarely been addressed in the adolescent literature.

Social contextual measures related to those used in this research have been shown to be associated with adolescent problem behavior in various studies. For example, higher levels of informal social controls in the neighborhood context were associated with lower neighborhood rates of adolescent problem behavior including delinquency, drug use, and criminal activity in both Chicago and Denver (Elliott et al., 1996; Sampson, 1997). Research has also demonstrated that models for problem behaviors in the peer context are related to personal involvement in various problem behaviors (Guo, Hill, Hawkins, Catalano, & Abbott, 2002; Hops, Andrews, Duncan, Duncan, & Tildesley, 2000; Jessor & Jessor, 1977; Johnston, O'Malley, & Bachman, 2001; Kandel, 1985). Data from the large Add Health study of U.S. adolescents in Grades 7 through 12 demonstrated that "connectedness" (i.e., perceived support from and closeness to others in the family and school social contexts) is negatively associated with violent behavior, cigarette use, alcohol use, marijuana use, and the initiation of sexual intercourse at younger ages (Resnick et al., 1997). In the same study, greater access to substances (cigarettes, alcohol, illicit drugs) in the family context—opportunity risk in our terms—was associated with higher levels of use of cigarettes, alcohol, and marijuana. Greater social regulation or control in the three contexts of family, peer group, and school was associated with lower levels of delinquency and drug use among 7th-grade students (Eccles et al., 1997), and Barber and Olsen (1997) reported that lower levels of monitoring in the family context and higher levels of models for problem behavior in the peer context were associated with higher levels of delinquency among 8th graders (especially among girls). Work reported by Patterson and his colleagues (e.g., Patterson & Yoeger, 1997; Reid & Patterson, 1989) also indicated that poor parental monitoring is associated with the development of antisocial and delinquent behavior in childhood and adolescence.

Similar social contextual variables have also been shown to account for problem behavior involvement among adolescents in China. In a cross-national study of Chinese and U.S. junior high school students, measures of parental warmth and support, of parental monitoring, and of peer disapproval of misconduct were all significantly associated with lower involvement in adolescent problem behaviors such as theft, aggression, school misconduct, and substance use in both countries; and, on the other hand, stress in the family context was significantly related to higher problem behavior involvement in both countries (Chen, Greenberger, Lester, Dong, & Guo, 1998). Models for substance use, aggression, and theft in the family, peer, school, and neighborhood contexts were all positively associated with 11th-grade Chinese adolescents' overall level of involvement in those behaviors; in addition, parental sanctions and peer sanctions were negatively associated with adolescent problem behavior involvement in China (Greenberger, Chen, Beam, Whang, & Dong, 2000). Although models for aggression, gambling, and criminal activities in the peer and family contexts were predictive of greater involvement in delinquency in a sample of Chinese youth aged 15 through 18, models for deviant behavior in the neighborhood context were unrelated to delinquent behavior involvement (Zhang & Messner, 1996).

Only a few studies have investigated the interactive effects of social context variables (i.e., the potential moderating influence of social contextual protective factors on the impact of social contextual risk factors), and none of them included samples from outside the United States. Findings from these studies are mixed. In regard to protective processes for adolescent depression, Gore and Aseltine (1995) found that support in the family context and in the peer context buffered the impact of stress in that same context. There was, however, no evidence for moderating effects across those two contexts. Beam et al. (2002) reported a significant buffering effect of parental warmth, a protective factor, on family risk in accounting for adolescent depression. This is the only study we could locate that found both significant within-context and cross-context moderating effects in accounting for adolescent problem behavior. For example, perceived peer disapproval of misconduct (a protective factor) not only had a moderating effect on risk in the peer context, but also on risk in the family context and in what they called the “VIP” context (a very important nonparental adult). Rankin and Quane (2002) also reported a cross-context moderator effect, between the neighborhood context and the family context; and Crosnoe et al. (2002) reported cross-context moderator effects between protective factors in the family context and in the school context and a single risk factor of models for deviance in the peer context. However, when Cook et al. (2002) examined interactions of measures across four social contexts—school, neighborhood, friendship group, and family—no cross-context interactions were found. Because their measures were of the overall “quality” of each of the four contexts rather than of both protective factors and risk factors within each context, interaction effects would be unlikely to emerge.

This study seeks to advance understanding about the role of adolescent social contexts by applying a systematic protection-risk model to four of these contexts, by examining the independent influence of each context, by exploring moderator effects within and across contexts, by assessing whether context protection moderates individual-level risk, and by testing the generality of the contextual model across adolescent samples drawn from two very distinctive societies.

Four key questions are addressed in this chapter:

1. Do measures of protection, risk, and their interaction in each of the four social contexts—family, peers, school, neighborhood—provide independent information about problem behavior involvement beyond that provided by measures of individual-level protective and risk factors?
2. Do measures of protection, risk, and their interaction in each of the four social contexts provide a unique, independent contribution to the explanation of adolescent problem behavior involvement beyond that provided by the measures of protection and risk in the other three contexts?
3. Do measures of protective factors in each of the four social contexts moderate measures of individual-level risk (i.e., are there interaction effects between context and person in accounting for adolescent problem behavior involvement)?
4. Do measures of protection in one social context moderate measures of risk in other contexts (i.e., are there interaction effects across social contexts in regard to adolescent problem behavior involvement)?

Method

Study Design, Participants, and Procedures

The data used in this chapter were collected in the year 2000 as part of a cross-national study of adolescent behavior and development. A 36-page Adolescent Health and Development Questionnaire (AHDQ) was administered to samples of adolescents in Beijing, China and in a large urban area in the Rocky Mountain region of the United States. The AHDQ is the most recent version of a questionnaire developed over the past several decades for use in both local and national sample studies (e.g., Jessor et al., 1995). Content of the AHDQ is logically derived from the constructs in Problem Behavior Theory. The AHDQ assesses a broad range of pro-social and problem behaviors, as well as psychosocial protective factors and risk factors in the individual (values, beliefs, attitudes, and expectations) and in four social contexts.

Procedures used in the development of the Chinese-language version of the AHDQ were consonant with recommendations for translating, adapting, or developing assessment instruments for use in different cultures (see Geisinger, 1994; Van de Vijver & Hambleton, 1996). The potential for ethnocentric bias in theorizing and operationalizing were addressed in several preliminary steps. First, the head of the Chinese research group in this cross-national collaboration, a senior developmental psychologist at Beijing Normal University, determined that the protection-risk psychosocial framework used in the current research was pertinent to the investigation and understanding of variation in adolescent problem behavior and health behavior in China. Second, an earlier version of the AHDQ was translated into Chinese at Beijing Normal University. In the translation process, special attention was given by the Chinese research team to ensure that item content was culturally appropriate and that any necessary item substitutions maintained comparable meaning across the two cultures. Third, two preliminary studies using this earlier version of the questionnaire were carried out in Beijing: a pilot study of 170 high school students (age 16–17) in 1997; and, in 1998, a study of 401 students in Grades 7 through 9 in three middle schools. Findings indicated that measures of protection and risk had good psychometric properties, related as expected to one another and also related to criterion measures of problem behaviors such as delinquency, cigarette smoking, and alcohol use. Overall, the translation of that earlier questionnaire was deemed successful by the Chinese team and yielded theoretically expected findings.

For this study, the AHDQ was translated into Chinese and then translated back into English by members of the Chinese research team. Once again, particular attention was given to ensure comparable meaning across the two cultures. Items that were inappropriate were omitted, and meaningful substitutions were made; for example, in the assessment of religiosity, Chinese students were asked about participation in spiritual or traditional ceremonies rather than about church attendance. The translation and the back translation were then reviewed in detail by a Chinese social scientist at the University of North Carolina. In addition, the Chinese-language

version of the AHDQ was reviewed by a native Chinese student at the University of Colorado at Boulder; and the back translation was reviewed by members of the U.S. research team. On the basis of these multiple reviews, a few instances where the meaning may have been compromised in translation were communicated to the Chinese team, and the Chinese-language version of the AHDQ was accordingly revised. Both of the Chinese-speaking reviewers in the United States found the Chinese translation of the AHDQ to be very well done, and the agreed-on equivalence of the two versions undergirds the appropriateness of comparisons between the Chinese and U.S. samples.

The issue of the meaning equivalence of measurement cannot, of course, entirely be ruled out. Knight and Hill (1998) recommended that evidence in support of equivalence include comparison across groups of the reliability and the validity coefficients. In that regard, similarity across the U.S. and China samples of alpha reliability coefficients and of bivariate validity coefficients for a large number of the measures in the AHDQ has been shown in a previous study using these same samples (Jessor et al., 2003). In addition, the congruent pattern of explanatory findings in both country samples, and for both genders, in that study provides further reassurance about meaning equivalence.

A total of 3,335 students in Grades 7, 8, and 9 took part in the study—1,739 in the Chinese sample and 1,596 in the U.S. sample. In both countries, participating schools were selected in collaboration with the school district administration to best represent variation in the socioeconomic backgrounds of the students and, in the United States, to reflect the racial and ethnic composition of students in the school district as well. In Beijing, schools were selected from two districts—one in the city and the other in the suburbs. In each district, schools varying in educational quality were chosen to represent institutions described as above average, average, and below average. In each of the seven schools selected in Beijing and the nine schools selected in the United States, students were randomly sampled within grade for participation in the study.

Active parental consent and personal consent were required. Letters describing the study to the parents and the adolescents were distributed to the sampled students, and signed consent forms were returned to teachers. In the United States, all contact and consent materials were written in both English and Spanish, and a bilingual version of the questionnaire was available for students who preferred to work in Spanish ($n = 135$). Study participants filled out the questionnaire at school in large-group administration sessions proctored by research staff. Each participant received a token payment—\$5 in the United States; \$2, plus a gift to each school, in Beijing.

Questionnaires were filled out by 98% of the Chinese sample and by 74% of the U.S. sample. The U.S. participation rate is generally accepted as satisfactory for urban, school-based samples requiring signed parental permission. In both countries, about one half the participants were boys (51% in China; 47% in the United States), and about one third were in Grades 7 (31% and 30%, respectively), 8 (34%), and 9 (35%). In the United States, 45% of the sample are self-described as Hispanic, 30% African American, 19% White, 4% Asian American, and 2% American Indian. Nearly all (96%) of the Chinese participants are of Han descent.

As reported earlier (Jessor et al., 2003), students in the Chinese sample came from smaller families, they were more likely to live with both biological parents, and their parents had received less formal education. The median number of children in Chinese participants' families is 1, compared to a median of 2 for U.S. participants. The great majority (83%) of the Chinese students, but only 45% of the U.S. students, were from intact families (i.e., families with both biological parents in the home). The average level of parental education in the Chinese sample was high school completion, whereas in the U.S. sample it was at least some education beyond high school.

Measurement of Adolescent Problem Behavior Involvement

The Multiple Problem Behavior Index (MPBI) assesses overall level of involvement in three different types of adolescent-reported problem behavior: (a) delinquent behavior including theft, vandalism, and physical aggression (United States: $\alpha = .84$; China: $\alpha = .82$); (b) cigarette smoking based on self-reports of frequency and amount of smoking in the past month and the past year (United States: $\alpha = .79$; China: $\alpha = .84$); and (c) problem drinking based on respondents' reports of frequency of drunkenness, frequency of high-volume drinking (4 or more drinks per occasion), and negative consequences of drinking such as getting into trouble with parents or having problems at school because of drinking (United States: $\alpha = .71$; China: $\alpha = .58$). Measures of the three components of the index were transformed into t scores ($M = 50$, $SD = 10$) and averaged. Alpha reliability of the MPBI is .69 in the U.S. sample and .64 in the China sample, with an average interitem correlation of .42 (United States) and .37 (China). In both countries, as would be expected, mean scores on this measure are significantly higher for older (higher grade in school) adolescents than for younger ones; in China only, boys have significantly higher MPBI scores than girls.

Measurement of Context Protection and Risk

The measures of the three kinds of social context protective factors (models protection, controls protection, support protection) and the three kinds of social context risk factors (models risk, opportunity risk, vulnerability risk) were based on the theoretical properties described earlier. Although an effort was made to measure every construct in every context, limitations on the length of the questionnaire made it necessary to omit measures of some constructs (models protection-school, models protection-neighborhood), including some that were expected to be highly correlated or redundant with others (e.g., opportunity risk-peers with models risk-peers, and opportunity risk-school with models risk-school).

Contextual measures of protection. Models protection was, as noted, assessed in only two contexts. A 3-item scale of models protection-family ($\alpha = .57$ and $.54$ for the U.S. and China samples, respectively) asked about parent involvement in various conventional organizations and prosocial pastimes (e.g., “Does either of your parents take part” in community groups [specified to encompass organizations relevant to each country, like the Parent-Teacher Organization in the United States, or the equivalent organization in China] or volunteer work [like at a hospital in the United States or in a “welfare service” in China]?). Models protection-peers (United States: $\alpha = .69$; China: $\alpha = .73$) is measured by four items that assess perceived peer models for various conventional or prosocial behaviors such as taking part in school clubs and participating in family activities (e.g., “How many of your friends do volunteer work in the community?”).

Controls protection was measured in each of the four social contexts. Controls protection-family is a 10-item scale (United States: $\alpha = .80$; China: $\alpha = .73$) that assesses strictness of parental rules (e.g., about being home by a certain time at night) and parental sanctions (e.g., “If your parents knew that you had shoplifted something from a store, would you get in trouble for it?”). Controls protection-peers is a 3-item scale (United States: $\alpha = .75$; China: $\alpha = .66$) that assesses perceived friends’ controls against social transgressions (e.g., “If you were going to do something that most people think is wrong, would your friends try to stop you?”). Controls protection-school is a 7-item measure (United States: $\alpha = .71$; China: $\alpha = .73$) that includes items about perceived institutional controls against student misbehavior (e.g., “In your school, how strict are the rules about student behavior in class, in the halls, and on the school grounds?”) and items about perceived student disapproval of student misbehavior such as cheating and vandalism (e.g., “What do most of the students at your school think about kids who damage school property?”). Controls protection-neighborhood is a 6-item scale (United States: $\alpha = .80$; China: $\alpha = .72$) comprised of items that ask about perceived neighborhood disapproval of teenage transgression (smoking, drinking, and vandalism; e.g., “How do you think most of the adults in your neighborhood feel about someone your age smoking cigarettes or drinking alcohol?”) and about perceived neighborhood controls against adolescent misbehavior (e.g., “If adults in your neighborhood saw kids doing something wrong or getting in trouble, would they tell the parents about it?”).

Support protection was measured in four contexts by multiple-item indicators of perceived social support. Support protection-family includes four items, for example, “Are your parents interested in what you think and how you feel?” (United States: $\alpha = .79$; China: $\alpha = .80$). Support protection-peers includes two items, for example, “When you have personal problems, do your friends try to understand and let you know they care?” (United States: $\alpha = .78$; China: $\alpha = .62$). Support protection-school includes four items, for example, “Do teachers at your school try to help students when they are having problems?” (United States: $\alpha = .83$; China: $\alpha = .77$). Support protection-neighborhood includes three items, for example, “In your neighborhood, do people help each other out and look after each other?” (United States: $\alpha = .86$; China: $\alpha = .85$).

Contextual measures of risk. Models risk was measured in all four contexts. Models risk-family relies on a single-item measure: “Does anyone in your close family smoke cigarettes?” Multiple-item scales in the other three social contexts assess social models in each context for a variety of risk behaviors (e.g., cigarette smoking, alcohol use). Example items are the following: “How many of the students at your school get into fights?,” and “How much drinking is there among adults in your neighborhood, as far as you know?” The alpha reliabilities for the measures of models risk in the three respective social contexts of peers (2 items), school (4 items), and neighborhood (2 items) are as follows: United States = .52, China = .55; United States = .84, China = .89; and United States = .56, China = .64, respectively.

Opportunity risk was measured in two contexts. Opportunity risk-family is comprised of two items that assess perceived availability of cigarettes in the home and perceived availability of alcohol in the home (United States: $\alpha = .34$; China: $\alpha = .65$). Opportunity risk-neighborhood is composed of two items that assess perceived gang activity in the neighborhood and neighborhood youths’ involvement in gangs (United States: $\alpha = .86$; China: $\alpha = .80$).

Vulnerability risk was assessed in three contexts. Vulnerability risk-family is a 6-item scale (United States: $\alpha = .75$; China: $\alpha = .69$) of lack of family closeness (e.g., “I think of my family as very close to one another”) and perceived tension in the home (e.g., “Is there tension or stress at home in your family?”). Vulnerability risk-peers is a single-item measure of felt stress in one’s social life (“In the past six months, how much stress or pressure have you felt in your personal or social life?”), and vulnerability risk-school is a single-item measure of felt stress at school (“In the past six months, how much stressor pressure have you felt at school?”).

Measurement of Individual-Level Protection and Risk

Only controls protection and vulnerability risk were assessed at the individual level because the other constructs in the contextual explanatory scheme (models, support, and opportunity) are not logically applicable at the level of describing the person.

Individual-level controls protection was measured by a 13-item scale (United States and China: $\alpha = .91$) comprised of 10 items that assess attitudinal intolerance of deviance (e.g., “How wrong do you think it is to cheat on tests or homework?”) and 3 items that assess perceived negative health effects of engaging in various problem behaviors (e.g., “Do you think regular smoking can have an effect on the health of young people your age?”). Individual-level vulnerability risk was assessed by a multiple-item measure of personal vulnerability. The 19 items in this scale (United States: $\alpha = .87$; China: $\alpha = .86$) all measure personal vulnerability risk including depression (3 items; e.g., “In the past six months, have you just felt really down about things?”), limited perceived chances for success in life (5 items; e.g., “What are the chances that you will have a job that pays well?”), low expectations for school achievement (4 items; e.g., “How sure are you that you will get at least a B average this year?”), and low self-esteem (7 items; e.g., “On the whole, how satisfied are you with yourself?”).

The individual-level measures were used in the analyses to determine whether the social context measures added significantly to the account of problem behavior involvement when sociodemographic background and individual-level protection and risk were controlled, and to assess whether context protection moderated or buffered individual-level risk.

In general, the 18 multiple-item scales used to assess protection and risk in the four social contexts and at the individual level have good scale properties, with most alphas (14 scales in each sample) ranging from .7 to .9. Although the alphas for the remaining scales were somewhat low (.3–.6), those measures (and the 3 single-item measures of risk) were nevertheless retained to maximize the theoretical comprehensiveness of protection and risk assessment across the social contexts.

Results

The analytic procedure used to address the four research questions posed in the introduction of this chapter is hierarchical multiple regression. All analyses were run separately for the Chinese and the U.S. samples. The following sociodemographic characteristics were entered at Step 1 of the regression: gender, grade in school, intact family (i.e., families that include both biological parents vs. families missing at least 1 biological parent), socioeconomic status (an index based on father's and mother's educational attainment and father's occupational status), race and ethnicity (U.S. analyses only), and school attended.¹ Because standardized regression coefficients are inappropriate with interaction terms (Aiken & West, 1991, pp. 40–47), all theoretical measures and the criterion measure were standardized. This procedure yields unstandardized coefficients that can be compared with one another (Aiken & West, 1991, p. 44). The unstandardized regression coefficients presented in the tables are, in effect, standardized coefficients—permitting comparisons not only of main effects coefficients with one another but also comparisons among the coefficients for interaction effects.

Results pertaining to each of the four research questions are presented in order. For all analyses, one-tailed tests of significance are reported. Because large numbers of predictor measures were used in the analyses that address research questions 1, 2, and 4, a more stringent criterion for significance ($p = .01$) was used in interpreting those results.

RQ1: Do measures of protection, risk, and their interaction in each of the four social contexts—family, peers, school, neighborhood—provide independent information about problem behavior involvement beyond that provided by measures of individual-level protective and risk factors?

¹To address the possible nonindependence of observations on the criterion measure within schools and the possible need for hierarchical linear modeling, we computed the intraclass correlation of the criterion measure within schools. Because it is negligible (.03 in the U.S. sample and .02 in the China sample), the students' responses can be treated as independent observations.

The first question was addressed by a series of four hierarchical multiple regression analyses, one for each context. The MPBI score was regressed against the predictor measures in the following order for each context: Step 1, the sociodemographic background measures; Step 2, the individual-level measures of protection, risk, and their interaction; and then, at Step 3, the social context measures of protection, risk, and their interaction for a particular context. The results of these four regression analyses are presented in Table 4.1.

As shown in Table 4.1, the three individual-level measures (controls protection, vulnerability risk, and the interaction of those two measures) entered at Step 2 accounted for significant variance in each of the samples (United States = 31%;

Table 4.1 Hierarchical regression of the multiple problem behavior index on measures of protection and risk in each social context: variance added to individual-level protection and risk by each context

Step	Measures	<i>B</i> ^a , final step		ΔR^2	
		U.S. Sample	China Sample	U.S. Sample	China Sample
1	Sociodemographic measures			.06**	.09**
2	Individual-level measures of protection, risk, and their interaction ^b			.31**	.22**
3	Social context measures of protection, risk, and their interaction ^c :				
	Family context analysis			.06**	.05**
	Models protection-family	.03	.03		
	Controls protection-family	-.19**	-.10**		
	Support protection-family	.00	.02		
	Models risk-family	.05	.09**		
	Opportunity risk-family	.06*	.03		
	Vulnerability risk-family	.08*	.08**		
	Controls protection x models risk	-.06*	-.06**		
	Controls protection x vulnerability risk	.00	-.06**		
3	Peer context analysis			.10**	.09**
	Models protection-peers	.03	-.03		
	Controls protection-peers	-.09*	-.02		
	Support protection-peers	.07*	.08**		
	Models risk-peers	.27**	.25**		
	Vulnerability risk-peers	.02	.00		
	Controls protection x models risk	-.11**	-.13**		
	Support protection x models risk	.08**	.03		
3	School context analysis			.04**	.07**
	Controls protection-school	.05	.01		
	Support protection-school	-.06*	-.08*		
	Models risk-school	.17**	.18**		
	Vulnerability risk-school	-.02	.00		
	Support protection x models risk	-.08**	-.13**		

(continued)

Table 4.1 (continued)

Step	Measures	<i>B</i> ^a , final step		ΔR^2	
		U.S. Sample	China Sample	U.S. Sample	China Sample
3	Neighborhood context analysis			.04**	.04**
	Controls protection-neighborhood	.00	-.11**		
	Support protection-neighborhood	.03	.02		
	Models risk-neighborhood	.08**	.10**		
	Opportunity risk-neighborhood	.15**	.07**		
	Controls protection x models risk	-.01	-.05*		
	Controls protection x opportunity risk	-.02	-.10**		
	Support protection x opportunity risk	-.06*	.04		
	Overall <i>R</i> ² range when one context is added			.40-.47	.35-.40
	ΔR^2 range when one context is added			.04-.10	.04-.09

Note U.S. sample, *N* = 1,380–1,389; China sample, *N* = 1,658–1,675. Sample size varied due to variation in the amount of missing data in the regression analyses for the four different social contexts. Numbers in italics represent increments in variance at Step 3 for each of the four analyses. Because of the large number of variables tested, the minimal criterion for significance was set at *p* = .01

p* = .01; *p* = .001

^aUnstandardized regression coefficients because standardized coefficients are inappropriate with interaction terms (see Aiken & West, 1991, pp. 40–47); all theoretical measures and the criterion measure had been standardized by *z* scoring within each country, so coefficients can be compared

^bIndividual-level measures of protection (controls), risk (vulnerability), and their interaction were entered at this step so the unique effect of the social context measures could be determined at Step 3

^cOnly interactions that are significant in at least one country are tabled

China = 22%). In addition, they had significant regression coefficients in the final model for each of the four social contexts in both samples (not tabled).

As can also be seen in Table 4.1, measures of each of the various social contexts make a significant contribution, at Step 3, to explaining adolescents’ involvement in problem behavior beyond that of the sociodemographic background and the individual-level protection and risk measures. This conclusion is supported, for each of the four contexts, by both the change in *R*² at Step 3 and by the regression coefficients in the final model for each context.

The two right-hand columns of Table 4.1 show that the protection and risk measures in each social context regression did contribute a significant (*p* = .001) increment in variance (4–10% in the U.S. sample; 4–9% in the China sample) when entered after the measures of sociodemographic characteristics and the individual-level measures of protection and risk. Adolescent reports of protective and risk factors in each of the four social contexts do, therefore, provide unique information about adolescents’ problem behavior involvement beyond that provided by their reports of their own individual-level protective and risk factors.

In the family context, which added 6% (U.S. sample) and 5% (China sample) variance, one protective factor (controls protection) and one risk factor (vulnerability risk) had significant regression coefficients in the final model for both country

samples. Models risk also had a significant regression coefficient, but in the China sample only; and opportunity risk was a significant predictor in the U.S. sample only. As expected, higher protection is associated with lower levels of problem behavior involvement, and higher risk with higher levels of problem behavior involvement. In addition, there were significant interaction effects of controls protection with models risk in both samples, and of controls protection with vulnerability risk (China sample only). The significant negative regression coefficients of these interaction terms indicate that—in the family context—controls protection has a moderating influence on (i.e., attenuates the impact of) models risk and vulnerability risk. The R^2 change shown in the two right-hand columns was significant ($p = .001$) in the two samples.

In the peer context, controls protection (U.S. sample only), models risk, and the interaction of these two measures had significant regression coefficients in the expected direction in the final model. Support protection-peers was a suppressor variable in both samples (its B weight is positive; but, as expected, it had negative bivariate correlations with the criterion measure), improving the overall model by subtracting irrelevant variance from the other predictors (Cohen & Cohen, 1983). The interaction of support protection and models risk in the U.S. sample was also a suppressor effect. Again, the R^2 change was significant ($p = .001$) in both samples (10% in the United States and 9% in China).

In the school context, support protection, models risk, and the interaction of these two measures had significant regression coefficients in the expected direction in the final model for both countries. The significant ($p = .001$) R^2 change is somewhat higher in the Chinese sample (7%) than in the U.S. sample (4%).

In the neighborhood context, controls protection (China sample only), models risk, and opportunity risk had significant regression coefficients in the expected direction in the final model. In addition, there were two significant interaction effects in the Chinese sample (controls protection moderating models risk and controls protection moderating opportunity risk) and one in the U.S. sample (support protection moderating opportunity risk). The R^2 change (4% in both samples) was significant ($p = .001$).

The finding of significant moderator effects in each of the four contexts indicates that at higher levels of protection the impact of risk factors is attenuated. To illustrate a moderator effect, the distributions of the measure of controls protection-peers and the measure of models risk-peers were dichotomized within each sample to define groups that were low and high on protection and risk. Figure 4.2 shows the mean MPBI score for groups of participants in the lower half of protection scores who had low- or high-risk scores, and in the upper half of protection scores who had low- or high-risk scores. Figure 4.2 shows that the relation of risk to problem behavior involvement is stronger (steeper) at low levels of protection and is attenuated when protection is high. In other words, when protection is high, the impact of risk is buffered. Conversely, the difference in problem behavior involvement between low and high protection is greatest when risk is high; when risk is low, the influence of protection is less important. As can be seen, the moderator effect holds for both the U.S. and China samples.

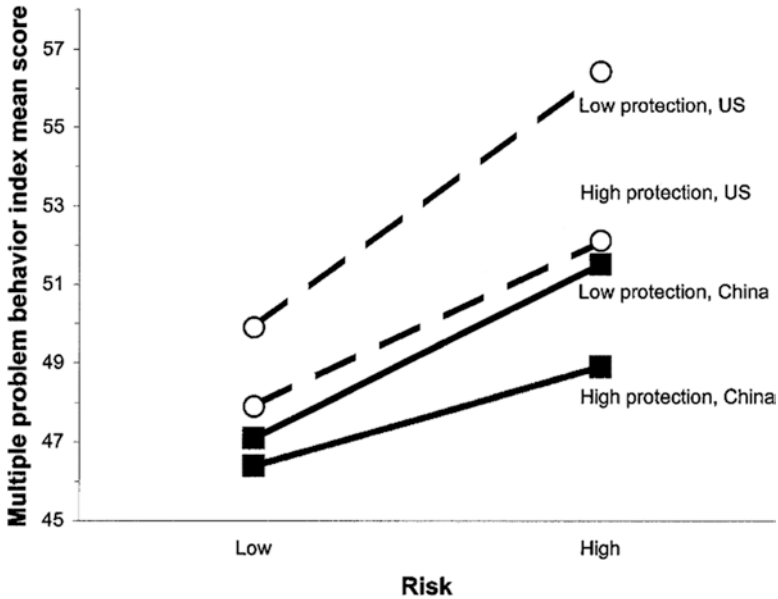


Fig. 4.2 The moderator effect of controls protection-peers on the relation of models risk-peers to adolescent problem behavior involvement

The regression analyses addressing the first research question suggest that the social context protection-risk model operates similarly in the U.S. and China samples. To more directly assess the comparability of the model in the two samples, additional regression analyses were carried out on the *combined* sample, with a country variable (coded “0” for the United States and “1” for China) included at Step 1. At Step 3, interactions of the country variable with the social context variables were entered. Only 5 of those interactions, out of 42 possible interactions,² were significant ($p = .01$), affirming the comparability of the explanatory model across both samples. The 5 significant interactions indicate that (a) the direct effect of controls protection-family is significantly stronger in the U.S. sample than in the China sample; (b) in the family context, the interaction of support protection with models risk is stronger in the China sample (but not significant in either sample); (c) the direct effect of controls protection-peers is stronger in the U.S. sample (not significant in the China sample); (d) the direct effect of opportunity risk-neighborhood is significantly stronger in the U.S. sample; and (e) in the neighborhood context, the interaction of support protection with opportunity risk is stronger in the U.S. sample (not significant in the China sample).

²In the analyses of the family context, 15 interactions of country with the social context measures were tested; in the analyses of the peer context, 11 interactions of country with the context measures were tested; and in the analyses of both the school context and the neighborhood context, there were 8 interactions of country with the context measures to be tested.

The amount of consistency across the two samples with respect to the social contextual main effects and interaction effects shown in Table 4.1 also supports the general comparability of the model across the two samples of adolescents. In the family context, controls protection, vulnerability risk, and the interaction of controls protection and models risk are significant predictors in both the U.S. sample and the China sample. In the peer context, models risk and the interaction of controls protection and models risk are significant for both samples. In the school context, support protection, models risk, and the interaction of these two variables are significant predictors in the two samples. In the neighborhood context, two risk factors—models risk and opportunity risk—are significant in both samples.

In sum, measures of protection and risk and their interactions in each of the four social contexts added a significant increment to the amount of variance explained in problem behavior involvement. In addition, various measures of protection, risk, and their interaction had significant regression coefficients in the final model for each context. The only exceptions to this general pattern of findings were the nonsignificance of the protection measures from the peer context in the final model for the China sample and the nonsignificance of the protection measures from the neighborhood context in the final model for the U.S. sample. Protection did, however, have a significant moderating effect on risk in both of these contexts. The findings suggest an affirmative answer to RQ1.

RQ2: Do measures of protection, risk, and their interaction in each of the four social contexts provide a unique, independent contribution to the explanation of adolescent problem behavior involvement beyond that provided by the measures of protection and risk in the other three contexts?

To address this question, the MPBI score was regressed against the predictor measures in the following order: at Step 1, the sociodemographic background measures and the individual-level measures of protection, risk, and their interaction were entered; and then, at Step 2, the social context measures of protection, risk, and their interactions for all four social contexts were entered.

The four-context model provides a substantial account of variation in adolescent problem behavior involvement in both the U.S. sample ($R^2 = .53$) and the China sample ($R^2 = .46$). What also needs emphasis is the large proportion of that account that derives uniquely from the contextual measures when entered at Step 2 (16% in both samples; results not tabled; table available from authors).

The measures of individual-level protection (controls), individual-level risk (vulnerability), and their interaction entered at Step 1 had significant regression coefficients in the final model. However, most important, the regression coefficients indicate that each of the four contexts makes a significant contribution to the account of problem behavior involvement, even when measures from all three other contexts are in the regression equation at Step 2.

In the family context, controls protection in both samples and models risk (China sample only) had significant ($p = .01$) coefficients in the final four-context model. There was also a significant interaction of controls protection with vulnerability risk in the China sample. In the peer context, models risk and the interaction of controls protection with models risk had significant regression coefficients in both samples in

the final model. In the school context, support protection (China sample only) and models risk were significant predictors of problem behavior involvement, as was the interaction of support protection with models risk (China sample only). Finally, in the neighborhood context, there were significant coefficients for opportunity risk and for the interaction of controls protection with opportunity risk (China sample only).

These findings indicate that each context as measured does indeed make a unique and significant contribution to the account of variance in multiple problem behavior involvement when other contexts are controlled. The answer to RQ2, therefore, can also be affirmative.³

RQ3: Do measures of protective factors in each of the four social contexts moderate measures of individual-level risk (i.e., are there interaction effects between context and person in accounting for adolescent problem behavior involvement)?

The possible moderating influence of measures of social context protection on measures of individual-level risk was investigated by a series of four separate hierarchical multiple regression analyses, again using the MPBI as the criterion measure. For each of the four social contexts, predictor measures were entered in the following order: sociodemographic background measures, the individual-level measure of risk, and the measures of protection from that particular social context at Step 1; then, at Step 2, the interactions of those measures of social context protection with the measure of individual-level risk were entered. Findings from these four separate regression analyses are presented in Table 4.2. Because a small number of variables were included in these analyses, the criterion for significance was set at $p = .05$.

As can be seen in Table 4.2, individual-level risk is a significant predictor in the final model for both samples in all four social context regression analyses; higher levels of individual-level risk are associated, as expected, with higher levels of problem behavior involvement. However, most important in Table 4.2, there is consistent support for a moderating effect of social context protective factors on individual-level risk. For each of the four contexts, and in both samples, when the interactions of context protection with individual-level risk were entered at Step 2, they accounted for a significant ($p = .001$) increment in variance (1–5%) in multiple problem behavior involvement.

³Further evidence for the unique explanatory contribution of each social context derives from a supplementary series of four hierarchical regression analyses carried out in the two separate samples. For each of the four social contexts, predictor measures were entered in the following two steps: (a) sociodemographic measures; individual-level measures of protection, risk, and their interaction; measures of protection, risk, and their interaction from three of the social contexts and (b) measures of protection, risk, and their interactions from the remaining fourth social context. In each analysis, there was a significant ($p = .01$) change in R^2 at Step 2 (i.e., each of the four contexts alone added a significant increment when the other three contexts were controlled; i.e., already entered at Step 1 of the regression analyses). The proportion of additional variance accounted for by each of the four social contexts in the U.S. and China samples, respectively, was: family context (3 % and 2 %), peer context (5 % and 4 %), school context (1 % and 3 %), and neighborhood context (1 % and 1 %).

Table 4.2 Hierarchical regression of the multiple problem behavior index on the measure of individual-level risk and measures of protection in each social context: variance added by the interaction of measures of social context protection with the measure of individual-level risk^a

Step	Measures	<i>B</i> ^b , final step		ΔR^2	
		U.S. Sample	China Sample	U.S. Sample	China Sample
Family context analysis					
1	Sociodemographic measures	.20***	.20***	.27***	.22***
	Individual-level measure of risk				
	Models protection-family	.03	.04		
	Controls protection-family	-.31***	-.23***		
	Support protection-family	-.10***	-.07**		
2	Controls protection × individual-level risk	-.13***	-.13***	.03***	.02***
Peer context analysis					
1	Sociodemographic measures			.23***	.19***
	Individual-level measure of risk	.28***	.22***		
	Models protection-peers	.06*	-.08**		
	Controls protection-peers	-.31***	-.15***		
	Support protection-peers	.17***	.09***		
2	Models protection × individual-level risk	.02	-.05*	.02***	.05***
	Controls protection × individual-level risk	-.15***	-.10***		
	Support protection × individual-level risk	.06*	.00		
School context analysis					
1	Sociodemographic measures			.20***	.21***
	Individual-level measure of risk	.25***	.16***		
	Controls protection-school	-.03	-.14***		
	Support protection-school	-.19***	-.17***		
2	Controls protection × individual-level risk	-.02	-.10***	.02***	.02***
	Support protection × individual-level risk	-.12***	-.07**		
Neighborhood context analysis					
1	Sociodemographic measures			.17***	.21***
	Individual-level measure of risk	.31***	.19***		
	Controls protection-neighborhood	-.10***	-.23***		
	Support protection-neighborhood	.01	.01		

(continued)

Step	Measures	B^b , final step		ΔR^2	
		U.S. Sample	China Sample	U.S. Sample	China Sample
2	Controls protection \times individual-level risk	-.05*	-.14***	.01**	.03***
	Overall R^2 , range when one context is added			.18-.30	.20-.24
	ΔR^2 Change range when one context is added			.01-.03	.02-.05

Note U.S. sample, $N = 1,410$ – $1,434$; China sample, $N = 1,677$ – $1,682$. Sample size varied due to variation in the amount of missing data in the regression analyses for the four different social contexts. Numbers in italics represent increments in variance at Step 3 for each of the four analyses
* $p = .05$; ** $p = .01$; *** $p = .001$

^aOnly interactions that are significant in at least one country are tabled

^bUnstandardized regression coefficients because standardized coefficients are inappropriate with interaction terms (see Aiken & West, 1991, pp. 40–47); all theoretical measures and the criterion measure had been standardized by z scoring within each country, so coefficients could be compared

The moderator effects of social context protection on individual-level risk that reach significance demonstrate a high degree of similarity across the two samples. The interaction of controls protection with individual-level risk was a significant predictor in the final regression model for each of the four social contexts, except the school context in the U.S. sample. In both samples, too, the interaction of support protection-school with individual-level risk was significant in the final regression model. Finally, in the Chinese sample only, there was a significant interaction of models protection-peers with individual-level risk. The interaction of support protection-peers and individual-level risk in the U.S. sample was a suppressor variable.

These findings suggest that protective factors in the social contexts of adolescents' lives can attenuate the impact of individual-level risk for involvement in problem behavior.⁴ Controls protection, in particular, is a consistent contextual moderator of individual-level risk in both the China and U.S. samples. In both samples, too, support protection-school (i.e., from teachers and other school personnel) is a significant moderator of individual-level risk. The answer to RQ3, therefore, appears to be affirmative.

RQ4: Do measures of protection in one social context moderate measures of risk in other social contexts (i.e., are there interaction effects across social contexts in regard to adolescent problem behavior involvement)?

⁴Although the focus of this chapter is on the role played by social context protection and social context risk in accounting for adolescent problem behavior involvement, it was also of interest to examine whether individual-level protection moderated the impact of social context risk on behavior outcomes. Regression analyses similar to those that addressed research RQ3 indicated that individual-level protection moderates models risk in all four contexts in both country samples. In addition, individual-level protection moderates opportunity risk-family, vulnerability risk-family, vulnerability risk-school (China sample only), and opportunity risk-neighborhood (U.S. sample only).

A final series of four hierarchical multiple regression analyses was carried out for each of the four social contexts, with the MPBI as the criterion measure. At Step 1, sociodemographic measures, the measures of risk from three social contexts, and the measures of protection from the remaining (fourth) social context were entered; then, at Step 2, the interactions of the measures of protection in this remaining (fourth) context with all the measures of risk in the other three contexts were entered.⁵ In these analyses, the criterion for significance was again set at $p = .01$.

Table 4.3 indicates that protective factors in each of the four different contexts buffer or attenuate the impact of risk in the three other contexts. For each of the four different social contexts, and in each of the two country samples, those Protection by Risk interactions accounted for a significant ($p = .001$) increment in variance (3–7% in the U.S. sample; 4–6% in the China sample) in multiple problem behavior involvement.

For the family context regression analysis, as shown in Table 4.3, there were significant interaction effects at Step 2 between protection in the family context and risk factors in the other three social contexts. Controls protection-family moderated the impact of models risk-peers; models risk-school; and, in the U.S. sample only, opportunity risk-neighborhood.

In the analyses of cross-context moderating effects of protective factors in the peer, school, and neighborhood contexts, measures of controls protection in each of these contexts are consistently significant moderators of measures of risk factors in at least two of the three other contexts. Controls protection-peers moderated models risk-family (China sample only), opportunity risk-family (U.S. sample only), models risk-school, and opportunity risk-neighborhood; controls protection-school moderated vulnerability risk-family (China sample only), models risk-peers (China sample only), and opportunity risk-neighborhood (U.S. sample only); and controls protection-neighborhood moderated the impact of models risk-family (China sample only) and models risk-peers in both samples. In addition, there were cross-context moderating effects of models protection and support protection, primarily in the China sample. In the China sample only, models protection-peers moderated models risk-family and models risk-school. Support protection-school moderated models risk-peers in both countries, and it moderated models risk-family in the China sample. Support protection-neighborhood moderated models risk-peers in the U.S. sample only.

The findings in Table 4.3 suggest an affirmative answer to RQ4—protection in each of the four social contexts of adolescent life moderates risk in at least two of the other three contexts to attenuate its impact on adolescent involvement in problem behavior. Protection in the family, peer, and school contexts moderates risk factors in the other three contexts, and protection in the neighborhood context mod-

⁵In the analyses of the family context, 18 interactions of protection in that context with risk in the other three contexts were tested; in the analyses of the peer context, 21 interactions of protection in that context with risk in the other three contexts were tested; and, in the analyses of the school context and neighborhood context, 14 interactions of protection in that context with risk in the other three contexts were tested.

Table 4.3 Additional variance in multiple problem behavior involvement accounted for by the interactions of protective factors from each social context with risk factors from the other three social contexts

Step	Measures	<i>B</i> ^a , Final step		ΔR^2	
		U.S. Sample	China Sample	U.S. Sample	China Sample
Family context analysis					
1	Sociodemographic measures			.38**	.30**
	Risk measures—three other social contexts				
	Protection measures—family context				
2	Add protection × risk interactions ^b			.07**	.06**
	Controls protection-family × models risk-peers	-.17**	-.13**		
	Controls protection-family × models risk-school	-.09**	-.12**		
	Controls protection-family × opportunity risk-neighborhood	-.06*	.00		
Peer context analysis					
1	Sociodemographic measures			.30**	.25**
	Risk measures—three other social contexts				
	Protection measures—peer context				
2	Add protection × risk interactions ^b			.04**	.04**
	Models protection-peers × models risk-family	.02	-.06*		
	Models protection-peers × models risk-school	.00	-.06*		
	Controls protection-peers × models risk-family	-.04	-.07*		
	Controls protection-peers × opportunity risk-family	-.11**	.01		
	Controls protection-peers × opportunity risk-family	-.10**	-.13**		
	Controls protection-peers × models risk-school				
	Controls protection-peers × opportunity risk-neighborhood	-.06*	-.06*		
School context analysis					
1	Sociodemographic measures			.33**	.30**
	Risk measures—three other social contexts				
	Protection measures—school context				

Table 4.3 (continued)

Step	Measures	<i>B</i> ^a , Final step		ΔR^2	
		U.S. Sample	China Sample	U.S. Sample	China Sample
2	Add protection × risk interactions ^b			<i>.04**</i>	<i>.06**</i>
	Controls protection-school × vulnerability	−.02	−.07*		
	risk-family	−.02	−.11**		
	Controls protection-school × models				
	risk-peers				
	Controls protection-school × opportunity	−.06*	.00		
	risk-neighborhood				
	Support protection-school × models	.03	−.07**		
	risk-family				
Support protection-school × models	−.17**	−.10**			
risk-peers					
Neighborhood context analysis					
1	Sociodemographic measures			<i>.32**</i>	<i>.30**</i>
	Risk measures—three other social contexts				
	Protection measures—neighborhood context				
2	Add protection × risk interactions ^b			<i>.03**</i>	<i>.05**</i>
	Controls protection-neighborhood × models risk-family	−.03	−.08**		
	Controls protection-neighborhood × models risk-peers	−.08*	−.12**		
	Support protection-neighborhood × models risk-peers	−.08*	−.01		
	ΔR^2 change range when cross-context protection × risk interactions are added			<i>.03–.07</i>	<i>.04–.06</i>

Note U.S. Sample, *N* = 1,332–1,359; China Sample, *N* = 1,642–1,667. Sample size varied due to variation in the amount of missing data in the regression analyses for the four different social contexts. Numbers in italics represent increments in variance at Step 3 for each of the four analyses. Because of the large number of variables tested, the minimal criterion for significance was set at *p* = .01

* *p* = .01; ** *p* = .001

^aUnstandardized regression coefficients because standardized coefficients are inappropriate with interaction terms (see Aiken & West, 1991, pp. 40–47); all theoretical measures and the criterion measure had been standardized by *z* scoring within each sample, so coefficients could be compared

^bOnly interactions that are significant in at least one country are tabled

erates risk factors in the family and peer contexts. Furthermore, the pattern of replicated findings across the two samples suggests that controls protection in one context is a fairly consistent moderator of models risk in other social contexts.

Discussion

The importance of the role played by four contexts of adolescent life—family, peers, school, and neighborhood—has been reinforced by the results of this study. Each context was shown to make a significant contribution to the account of variation in adolescent problem behavior in samples from the United States and China; together, their explanatory contribution was substantial in both samples. The theoretical conceptualization of social contexts as constituted of protective factors and risk factors that have both main and interactive or moderator effects on problem behavior was also supported. It would appear that social and developmental inquiry could clearly benefit from giving increased attention to contextual reports.

Measures of contexts were shown to add unique variance to the explanation of problem behavior involvement beyond that of sociodemographic background and individual-level psychosocial measures; each context, as measured, was shown to contribute unique variance beyond that of the other three contexts; measures of protection in each social context were shown to moderate the impact of individual-level risk; and measures of protection in each social context were shown to moderate the impact of risk in two or more of the other three contexts. That all of these outcomes were established in two independent samples of adolescents—one from the United States and one from China—substantially adds to their compellingness. The findings also reveal the critical importance of protective factors and the potential importance of enhancing protection in environmental intervention efforts. In this regard, Rutter's (1993) comment is apposite: "resilience may reside in the social context as much as within the individual" (p. 626).

It is, of course, important to recognize that some social contexts are "nested" within other social contexts and that individual attributes themselves may have been influenced by contexts. For example, family controls may be responsive to school or neighborhood risk factors (such as models risk or opportunity risk), and individual risk factors such as low self-esteem or low perceived life chances may be affected by context support protection. The multivariate analytic strategy used in this study, therefore, may well have resulted in underestimates of the magnitude of social contextual effects. Our concern in this chapter, however, is not to make parameter estimates of the magnitude of contextual effects but to demonstrate that different social contexts can have effects when individual-level or other social contextual influences are controlled. Despite the possibility that social contextual effects may have been mediated by individual-level variables or by other social contextual variables controlled in the different analyses, measures of protection and risk in each of the four social contexts were shown to provide a unique contribution to the explanation of problem behavior involvement beyond that provided by the measures of individual-

level protection and risk and by measures of protection and risk in the other three contexts.

The articulation of three types of contextual protection—models, controls, and supports—and three types of risk—models, opportunity, and vulnerability—proved useful in yielding more differentiated measures of context and in permitting the demonstration of interactions among them. The various kinds of protection specified are consistent with the emphasis of much recent socialization literature on such notions as “regulation” and “connectedness” (Barber, 1997; Barber & Olsen, 1997; Herman, Dornbusch, Herron, & Herting, 1997). Clearly, the realm of context protection is not exhausted by the three types thus far delineated, likewise for context risk; further specification is certainly called for as long as the additional categories remain systematically behavior relevant.

Although a relatively new endeavor, the exploration of cross-contextual moderator effects is a logical extension of contemporary research on social context in adolescent behavior and development. Cook et al. (2002) reported no evidence for cross-context interactions in predicting successful adolescent development. Their summary measures of family, friend, school, and neighborhood contexts, however, yielded an assessment of the overall quality of each social context, rather than assessing protective factors and risk factors separately. Only two other studies, to our knowledge, are similar to part of what we report here; and our research supports and extends that work. Beam et al. (2002) and Crosnoe et al. (2002) found evidence for cross-context moderating effects in accounting for variation in problem behavior involvement in adolescence. Our study advances this work by including not only a more comprehensive assessment of protective and risk factors, but also by assessing a wider range of social contexts and characteristics of the individual, by examining the moderating influence of social context protection on individual-level risk, and by engaging diverse societies. By demonstrating theoretically meaningful moderating effects across multiple contexts, and moderating effects of social context protective factors on individual-level risk, our findings document this relatively unexplored aspect of the role of context in research on adolescent behavior.

The family context and the peer context appeared, in Table 4.1, to have a stronger influence than the school and neighborhood in the U.S. sample, whereas the peer and school contexts were the most influential in the Chinese sample; with the neighborhood context being least influential in both samples. Although these outcomes are consistent with expectations based on the U.S. adolescent development literature, and with the influential role that schools in China play in facilitating adolescents’ socio-emotional as well as cognitive and career development (Dong & Chen, 2001), and with findings from other studies of neighborhood context effects (Cook et al., 2002; Greenberg, Lengua, Coie, & Pinderhughes, 1999; Leventhal & Brooks-Gunn, 2003), it is not possible to rule out the alternative inference that the obtained differences among contexts may be due to differential adequacy of the measures of the different contexts; particularly of measures of protection in the neighborhood context.

The variance added by the measures of each social context to the sociodemographic background and individual-level measures, and to the measures of the other contexts, ranges from 4% to 10% in the former analyses and 1% to 5% in the latter.

It is important to note that these percentages, although generally small, represent unique variance because shared variance has already gone to the measures entered at earlier steps. The issue of the magnitude of variance added is also relevant to the findings about moderator effects. With regard to individual-level risk, the moderator effects of protection in each of the four contexts yielded ΔR^2 s of 1% to 5%; and, with regard to context risk, cross-context moderator effects of protection yielded ΔR^2 s of 3% to 7%. All of these moderator effects, although small, are significant; and they fall in the usual range found in field studies (see McClelland & Judd, 1993). The critical issue, beyond magnitude and statistical significance, remains their theoretical significance; buttressing that is the fact that the findings are quite robust across two very diverse, independent samples.

Controls protection emerges as the key protective factor in all contexts except the school context (and, in the United States, the neighborhood context) and for adolescents in both samples. Controls protection is the most consistent moderator of individual-level risk, as well as of risk in each of the other contexts. Support protection played a much more limited role as compared with controls protection. The current emphasis on connectedness, as against regulation, in contemporary developmental studies is therefore not supported by our findings, which give the preeminent role to regulation (i.e., to what we have termed “controls protection”). It is possible, of course, that the strength of controls protection relative to support protection is a function of the particular criterion measure involved in this study (i.e., problem behavior) for which controls may be uniquely relevant (e.g., see Herman et al., 1997). Support protection could well play a larger role when the criterion is positive, prosocial behavior; and that possibility remains a matter for further inquiry.

The third type of protection assessed, models protection, yielded no moderator effects that were significant in both samples. In the China sample, however, models protection in the peer context was shown to moderate social contextual and individual-level risk. Although limited, these findings are notable in that they support Beam et al.’s (2002) observation that the peer context may be an important source of protection as well as, as is more commonly expected and reported, a source of risk for adolescent problem behavior involvement. Based on their moderation of risk at the individual level and of risk in other contexts, the data indicate the relative importance of the different types of protection: controls, supports, and models (in that order).

This effort to examine the role of social contexts in accounting for problem behavior involvement has engaged adolescents from a society markedly different from the United States in social organization, family structure, and cultural traditions. As reported elsewhere (Jessor et al., 2003), and as may be seen in Fig. 4.2, problem behavior was less prevalent in the Chinese sample than in the U.S. sample (this was especially the case for the Chinese girls). As would then be expected from the theory, protection was indeed found to be higher in the Chinese sample, and risk was generally lower. The explanatory consonance revealed by our study, not only across samples of adolescents from these two very different societies, but across samples that differed significantly in mean levels of problem behavior and of the protection and risk theoretical constructs, provides support for the generality of the protection and risk theory of social context.

Although the explanatory model was in many ways consonant across the two samples, important differences between the two samples at this analytic level were nevertheless observed (e.g., the somewhat more consistent effects of controls protection in the neighborhood context in the China sample). Obviously, the broad differences between the two societies in social organization and culture cannot be fully captured by a limited and selected set of measures of protection and risk. The existence of more organized relations among neighborhood inhabitants in China (Rojek, 2001) and the more pervasive influence of teachers and schools in young people's lives in that country (Dong & Chen, 2001), for example, deserve additional attention in the exploration of social contextual influences on variation in adolescent behavior.

Although boys and girls in the U.S. sample report very comparable levels of involvement in problem behavior, boys in the China sample report significantly greater problem behavior involvement than do girls (Jessor et al., 2003). In our study, gender was controlled in all of the regression analyses. As expected, there was a significant main effect of gender in the expected direction in all analyses of the Chinese sample. For the U.S. sample, there was a main effect of gender in only a few of the analyses; and the findings indicated higher mean problem behavior involvement among boys. Additional regression analyses were carried out to examine whether there were interactions of gender with the measures of social context (i.e., whether the model described in Table 4.1 varied by gender). Results indicate that the model is essentially the same for boys and girls in each sample.

In this study, age cohort (grade in school) was also controlled in Step 1 of all of the regression analyses. For both country samples, there was a main effect of cohort in the majority of the analyses with the findings indicating higher mean problem behavior involvement among older students. When additional regression analyses were carried out to examine whether the model described in Table 4.1 varied by cohort, results indicate the model is largely invariant across cohorts, although there are some effects that vary as a function of age cohort. In the U.S. sample, the moderator effect of controls protection on the impact of models risk in the family context is significant for younger students (Grades 7 and 8) but not for older ones (Grade 9). In the peer context, on the other hand, the interaction of controls protection with models risk is significant for older students (Grades 8 and 9) but not for younger ones (Grade 7). In the China sample, several risk factors (models risk-peers, models risk-school, and opportunity risk-neighborhood), although significant in all three age cohorts, have a stronger effect among older students compared with younger ones. One interaction effect (Controls Protection by Opportunity Risk in the neighborhood context) is stronger among the older students as well; and another interaction (Support Protection by Models Risk in the school context) is significant only for the 9th-grade students. These cross-sectional findings may well be suggestive of developmental changes in the impacts of social contextual protective and risk factors. Further examination of that possibility will depend on longitudinal analyses and theory-based hypotheses about expected developmental change in social contextual influences.

In the analyses presented in this chapter we have examined a theory-based model of protection and risk in two diverse samples of adolescents. Although the same social contextual predictor measures of protection (models, controls, support), risk (models, opportunity, vulnerability), and Protection by Risk interactions are not always significant in both country samples, about one half of the significant outcomes are replicated across samples. With respect to significant main effects, controls protection in the family context; support protection in the school context; vulnerability risk in the family context; opportunity risk in the neighborhood context; and models risk in the peer, school, and neighborhood contexts emerge as consistent predictors of problem behavior in the two samples of adolescents. With respect to significant interaction or moderator effects, controls protection in all but the school context was a moderator of individual-level risk in both samples; and controls protection was a moderator of models risk within both the family context and the peer context. There were also several consistent moderator effects of controls protection and risk (especially models risk) *across* contexts, including controls protection in the family context moderating models risk in the peer and school contexts, controls protection in the peer context moderating models risk in the school context, controls protection in the neighborhood context moderating models risk in the peer context, and controls protection in the peer context moderating opportunity risk in the neighborhood context. It may well be that when there is this type of consistent protective effect from multiple contexts that their impact on the reduction of risk may be greater. Support protection in the school context was also shown to be of importance in the two samples for its moderating influence on individual-level risk, and on models risk in the school and peer contexts. In light of the relatively stringent significance criterion used in the analyses, this empirical consistency across the two independent samples provides additional conviction about the validity of the findings.

The findings from this study can inform the development of intervention programs designed to enhance protection for adolescents at risk for problem behavior involvement. The impact of individual-level risk and social contextual risks such as peer and parental models for problem behaviors may be buffered or moderated by school and community programs that offer support, adult mentoring, and regulation, and by engaging in activities that promote positive development.

The limitations of the study warrant acknowledgment. Because the social context predictor measures and the criterion measure of problem behavior are both based on adolescent reports, any relation is vulnerable to the inflationary bias of common method. By controlling for individual difference-level and background attributes in examining context effects, we have demonstrated that the different contexts have unique effects despite deriving from the same reporter. In addition, we carried out a substudy of parents of the samples in the United States ($n = 316$) and China ($n = 347$), asking for their own reports about the various types of protection and risk in their adolescent's same four contexts. With parallel measures from a parent-adolescent pair, it was possible to explore whether there was any degree of relation between the two different observers. All correlations for the nine protection measures in various contexts, except for controls protection in the school and neigh-

neighborhood contexts, were significant in both country samples; averaging .24 (range .14–.30) in the U.S. sample and .21 (range .12–.34) in the China sample. With regard to the eight measures of risk across the contexts, the average correlation was .27 (range .09–.46) in the U.S. sample and .18 (range .13–.26, one measure excluded) in the Chinese sample. These significant correlations across 15 different measures, although generally small, do indicate some degree of concordance about contexts by two different observers and in both samples. Nevertheless, this remains a limitation for this and other studies that have to rely on adolescent reports about context.

A further limitation is that the measurement of individual-level protection (controls protection) and of individual-level risk (vulnerability risk) in these analyses was relatively limited. Although each measure is a multiple-item, highly reliable scale, reliance on only two logically relevant, individual-level measures could well permit a larger contribution by the context measures to adolescent problem behavior than might be the case were a larger number of individual-level measures employed (e.g., including high self-efficacy as a protective factor). The 13-item measure of individual-level controls protection, however, has consistently been our strongest individual-level measure (e.g., see Costa et al., 1999; Jessor et al., 1995, 1998b, 2003), and the 19-item measure of vulnerability risk is a composite of four well-established scales (low self-esteem, depression, low expectations for academic achievement, and low perceived chances for success in life) encompassing a variety of individual-level characteristics that reflect the construct. In addition, the individual-level measures employed generally accounted for substantial amounts of variance. It seems, therefore, that despite the limited number of measures, variation in individual-level protection and risk was fairly well represented.

That the four contexts assessed in this research do not exhaust the contextual sources that impact the daily lives of adolescents is another limitation. Notably absent is the media context including radio, television, and the World Wide Web, which is pervasively important for contemporary adolescents in both countries. The work setting is another context that should be engaged, especially in research on U.S. adolescents and especially as they reach senior high school age. In addition, it is possible that, despite efforts to maximize measurement comparability, the concept of neighborhood in a socialist society like China is different enough from its connotation in the United States to have affected the findings. For example, controls protection-neighborhood moderated models risk-family in China but not in the United States; an outcome that would be consonant with the socially organized regulatory role of neighborhood in China but not in the United States.

The reliance on single-item measures for three of the nine measures of risk constitutes another measurement limitation. More comprehensive assessment of these constructs can, of course, only be beneficial. Similarly, the measurement framework could be expanded to include additional, theoretically meaningful constructs such as “opportunity protection” (e.g., availability of or access to after-school or community-based youth development programs), as well as more comprehensive measurements of constructs that are already in the model (e.g., neighborhood and school models for prosocial engagement as indicators of models protection). More comprehensive models might better inform the development of

prevention-intervention efforts as well as advance theory-based understanding of adolescent behavior.

Finally, the focus on early adolescence and the cross-sectional nature of the data are also important limitations. The relative importance of the various social contexts, as well as the central role of controls protection, could well reflect the developmental stage of the adolescent participants—all in middle school or Grade 9. As adolescents mature and become more independent, they may be less responsive to informal social controls, especially in the family context. There is a need for longitudinal research to explore change in relative context importance, and in the importance of controls protection, as adolescents move further from childhood toward later adolescence.

These limitations notwithstanding, the contributions of this research clearly show that adolescent social contexts matter; they show that protective factors and risk factors are theoretically and empirically useful ways of describing those contexts; and perhaps most important, they show that context protection can moderate risk at both the individual and the context level. The similarity of the findings across the samples from two such diverse societies gives them generality and increases their compellingness. Engaging the social contexts of adolescent life continues to promise large returns for developmental inquiry.

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