

Risk Factors for Conduct Problems and Depressive Symptoms in a Cohort of Ukrainian Children

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Potential risk factors for conduct problems and depressive symptoms were tested in a cohort of 10- to 12-year-old Ukrainian children (N = 544, 47.6% male). Risk factors examined were child emotional lability, child attention problems, poor mother–child communication, coercive maternal discipline, maternal depression, and low marital satisfaction. Results indicated that poor mother–child communication was related to conduct problems and depressive symptoms for both boys and girls. In addition, conduct problems and depression were associated with attention problems for boys and with low marital satisfaction for girls. Emotional lability was related specifically to conduct problems, and maternal punishment was related specifically to depressive symptoms.

Understanding the relation between conduct problems and depressive symptoms has important clinical implications. Children with co-occurring conduct problems and depression are at increased risk for substance abuse, violence, delinquency, and suicide, compared with children who suffer from conduct problems or depression alone (Capaldi, 1992; Miller-Johnson, Lochman, Coie, Terry, & Hyman, 1998). Moreover, the overlap of these diagnostic groups is not uncommon. Among children with depression, rates of conduct problems range from 23% to 78%; among children with conduct problems, rates of depression range from 10% to 45% (Angold & Costello, 1993; Bird, Gould, & Staghezza, 1993; Velez, Johnson, & Cohen, 1989). In their meta-analytic review of general population studies conducted in various countries, Angold, Costello, and Erklani (1999) reported that conduct

problems and depression co-occur at a median odds ratio of 6.6. Given their rates of overlap and the negative outcomes associated with co-occurring conduct problems and depression, examination of how this comorbidity develops is critical (Lilienfeld, 2003).

One explanation for the co-occurrence of conduct problems and depressive symptoms is that the comorbidity stems from shared risk factors (Angold et al., 1999; Caron & Rutter, 1991; Klein & Riso, 1993). Shared risk factors for conduct problems and depressive symptoms could involve at least five domains: (1) child emotion dysregulation and emotional lability (Beauchaine, 2001; Snyder, Schrepferman, & St. Peter, 1997); (2) child attention problems (Bird et al., 1993; Treuting & Hinshaw, 2001); (3) ineffective and coercive discipline (Compton, Snyder, Schrepferman, Bank, & Shortt, 2003; Loeber, Farrington, Stouthamer-Loeber, & Van Kammen, 1998); (4) low parent–child communication and parental detachment (Drabick, Gadow, & Sprafkin, in press; Fergusson, Lynskey, & Horwood, 1996); and (5) parental psychological problems, including maternal depression and low marital satisfaction (Fendrich, Warner, & Weissman, 1990; Loeber et al., 1998). Using a developmental psychopathology perspective, a model for the development of conduct problems and depressive symptoms that ties these various domains together could be posited. For instance, the ability to regulate emotions and attend to demands affects how well children tolerate frustration and negotiate interpersonal interactions (Bagwell, Molina, Pelham, & Hoza, 2001; Shaw, Owens, Giovannelli, &

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Winslow, 2001). Thus, a child who is emotionally dysregulated (Domain 1), exhibits attention problems (Domain 2), or both may be less responsive to or compliant with parental demands. Parenting an emotionally dysregulated or inattentive child has the potential to be demanding and time-intensive. Furthermore, during conflictual situations, child emotional lability and attention problems may be more salient or exacerbated. Parents may be more likely to engage in coercive discipline as a result (Domain 3). Over time, these coercive interactions may lead to poor parent-child communication and parental detachment because of the aversive nature of parent-child interactions (Domain 4). This pattern of poor parent-child communication is particularly likely if the child exhibits attention problems (Beauchaine, Gatzke-Kopp, & Mead, *in press*). Because of the pervasive nature of attention problems, even nonconflictual interactions may be less rewarding to parents and parents may become increasingly detached over time. These possibilities are especially likely if parents are experiencing their own psychological problems, such as maternal depression and marital problems (Domain 5). Alternatively, stress from parent-child conflict could influence parental psychological adjustment and marital quality. Thus, a model of the development of co-occurring conduct problems and depressive symptoms should account for the influence of these factors on both symptom domains.

Despite the identification of these predictors, little is known about whether risk factors for conduct problems and depressive symptoms differ by sex because most studies to date have included only boys or have not compared boys and girls (e.g., Capaldi, 1992; Drabick et al., *in press*; Loeber et al., 1998). The limited research that has tested sex differences reveals several notable findings. First, long-term sequelae of conduct problems and depressive symptoms, such as behavioral disinhibition, substance abuse, and suicide, occur in girls as well as boys (Marmorstein & Iacono, 2001; Wannan & Fombonne, 1998). Moreover, girls with this comorbid condition are at increased risk for anxiety, early child bearing and pregnancy, and low school attainment (Bardone, Moffitt, Caspi, & Fickson, 1996). Second, comorbid conduct problems and depressive symptoms are more likely to occur in preadolescence for boys but in adolescence for girls (Zoccolillo, 1992). Finally, the course of this comorbid condition differs for boys and girls. For instance, Wiesner (2003) reported that conduct problems preceded depressive symptoms in boys, whereas conduct problems and depressive symptoms exhibited bidirectional effects for girls.

Although there is evidence of different prevalence rates, patterns of onset, and developmental sequelae for boys and girls, less attention has been given to whether risk factors for comorbid conduct problems and depressive symptoms differ by sex. Coercive family interactions are related to conduct problems in both

boys and girls; however, coercive family environments are related to girls' but not boys' depressive symptoms (Compton et al., 2003). This discrepancy suggests that familial factors may differentially confer risk for depressive symptoms in girls. This possibility is consistent with evidence that girls are more susceptible to psychological problems in the presence of problematic interpersonal relationships than boys, as girls focus more on relationships and demonstrate higher levels of empathy (Rosenfield, Vertefuille, & McAlpine, 2000). Another risk factor for which sex differences have been found is attention problems. Boys are more likely than girls to exhibit attention problems, and girls with attention problems display lower levels of conduct problems and depressive symptoms than boys in community samples (Gaub & Carlson, 1997). In contrast, research examining emotional lability, maternal depression, and low marital satisfaction as predictors of conduct problems and depressive symptoms has not demonstrated significant sex differences (e.g., Fendrich et al., 1990; McCarty, McMahan, & Conduct Problems Prevention Research Group, 2003; Storvall & Wichstrom, 2002).

Another limitation in research on co-occurring conduct problems and depressive symptoms is a general reliance on Western samples (Downey & Walker, 1992; Velez et al., 1989). Among important candidates for cross-cultural studies are the countries that comprise the former Soviet Union. These countries are now experiencing increased rates of domestic violence, antisocial behavior, unemployment, and poverty (Slobodskaya, 1999). Despite these increases, relatively little is known about prevalence rates and risk factors for psychological disorders in these countries (Bromet et al., 2000).

The limited literature that addresses the expression of child psychopathology in Russia suggests that Russian children evidence higher levels of depressive symptoms than children in the United Kingdom (Charman & Pervova, 1996) and higher levels of conduct problems than adolescents in the United States (Slobodskaya, 1999). Similar to findings in Western samples, higher levels of depressive symptoms in girls than boys have been reported in Russian and Slovakian samples (Charman & Pervova, 1996; Ruiselová & Prokopčáková, 2000; Slobodskaya, 1999). However, sex differences in prevalence rates for antisocial behavior are not necessarily consistent with what has been reported in Western countries. For instance, in a study of Slovak adolescents, Ruiselová and Prokopčáková reported that levels of antisocial behavior were similar for boys and girls. This departure from the common finding of elevated rates of antisocial behavior in boys may stem partly from the measure used to assess antisocial behavior. Specifically, this measure included items related to substance use and covert antisocial acts (e.g., running away), for which fewer sex

differences have been found among adolescent Western samples (Storvall & Wichstrom, 2002). In contrast, among Ukrainian children, teacher reports of aggressive behavior and mother reports of both oppositional defiant disorder and conduct disorder indicate that boys' symptom levels are greater than girls' symptom levels (Drabick, Gadow, Carlson, & Bromet, 2004).

With regard to risk factors, research in the former Soviet Union suggests some commonalities with Western samples. In a study comparing attention deficit hyperactivity disorder symptom subtypes in a Ukrainian sample, participants with the attention deficit hyperactivity disorder combined type were more aggressive than those with the inattentive subtype, who were more likely to experience academic difficulties (Gadow et al., 2000). In the same Ukrainian sample (Drabick et al., 2004), children with co-occurring oppositional defiant disorder and attention deficit hyperactivity disorder were at significantly greater risk of having parents with marital discord and poor parent-child relations. These findings parallel those found in Western samples (Biederman et al., 1996; Patterson, DeGarmo, & Knutson, 2000). Although these findings suggest similar risk factors to conduct problems in Ukrainian and Western samples, none of these studies has examined the co-occurrence of conduct problems and depressive symptoms.

As a result, we attempted to address some gaps in the cross-cultural literature by examining the generalizability of risk factors for conduct problems and depressive symptoms among male and female children in Ukraine. Symptoms and risk factors related to conduct problems and depression that have been examined in Western samples were evaluated. Based on the literature reviewed previously, we hypothesized that emotional lability, maternal depression, and low marital satisfaction would be related to conduct problems and depressive symptoms for boys and girls (Fendrich et al., 1990; McCarty et al., 2003). In contrast, we expected that attention problems would be related to conduct problems and depressive symptoms more strongly for boys than girls (Gaub & Carlson, 1997). Finally, we hypothesized that harsh, coercive discipline and poor mother-child communication would be related to only conduct problems among boys but to both conduct problems and depressive symptoms among girls (Compton et al., 2003).

Method

Participants

The sample was comprised of 600 children residing in Kyiv,¹ including 300 who were evacuated as infants

¹Because this study is a collaborative project with investigators in Ukraine, the article uses the original Ukrainian spellings for Chornobyl (Chernobyl) and Kyiv (Kiev).

from the 30-km zone surrounding the Chornobyl plant and 300 sex-matched classmates. Participant children were in utero to age 15 months (born between January 1985 and January 1987) at the time of the radiation leak (April 26, 1986) and were subsequently evacuated to Kyiv. Potential participants were identified from the National Register of Persons Affected by Radiation as a Result of the Chornobyl Accident and two relief organizations, for a total of 721 children (576 children were on all three lists). The addresses of the 721 children were checked, and 693 families were identified who were still living in Kyiv in 1996. Fifteen of the 693 children were randomly selected to participate in a pilot study. The remaining 678 names were randomized. Respondents were then selected sequentially until 300 interviews (48.3% male) were completed. The classmate comparison group consisted of same-sex, non-evacuee children selected from the same homeroom in Kyiv as each evacuee. The response rates were 92% (300 out of 326) for the evacuees and 85% (300 out of 352) for the classmates. Of these 600 participants, a completed battery of measures was obtained for 544 children (272 evacuees, 272 controls; 47.6% male). Assessments took place in 1997 when the children were 10 to 12 years old. The mean age ($\pm SD$) was 10.7 (± 0.60) years for the evacuee children and 10.9 (± 0.72) years for their classmates. There were no differences between boys and girls or between evacuee and control groups in terms of age, maternal education, or socioeconomic status (all $ps > .05$). Additional details on the sample can be found in Bromet et al. (2000), Gadow et al., (2000), and Litcher et al. (2000).

Procedure

The study was approved by the institutional review boards of the State University of New York at Stony Brook, the Ukrainian Psychiatric Association, and Socis-Gallup of Ukraine, an independent nongovernmental organization that has conducted numerous surveys of Chornobyl-exposed samples. The first stage of the study included a home interview with the children and their mothers. The home interviews were organized by Socis-Gallup. The 20 interviewers, who were all university graduates, were given extensive training and had experience working on previous Socis projects. The initial contact was made with the mothers either by telephone or in person. Written informed consent and verbal assent were obtained from mothers and children, respectively, following a description of the study. Psychosocial and neuropsychological data then were collected. Mothers received a household item (e.g., tablecloth, iron) and children received a toy for participating. In addition, the director of the Department of Education of Kyiv requested cooperation from the principals of the children's schools. Interviewers

obtained teacher ratings, attendance records, and current grades for each child.

Measures

The assessment battery consisted primarily of English-language measures that were translated into Russian and Ukrainian using standard translation and back-translation procedures.

Conduct problems. Mother reports of conduct problems were derived from the Aggressive Behavior scale of the Russian version (Carter, Grigorenko, & Pauls, 1995) of the Child Behavior Checklist (Achenbach, 1991). The 20 items were rated on a scale of 0 (*not at all true*) to 2 (*completely true*), $\alpha = .86$.

Depressive symptoms. Children rated their depressive symptoms using the Depression Self-Rating Scale (Birlleson, 1981) on a scale from 0 (*never*) to 3 (*all the time*). There were 23 items and $\alpha = .80$. Sample items included, "I enjoy the things I do as much as I used to," "I feel like crying," "My mind wanders and I cannot concentrate," and "I think life is not worth living."

Child emotional lability. Mothers rated 10 developmental history items as present or true (1) or absent or false (0). These included whether the child was a difficult baby; whether he or she cried or whined excessively or threw temper tantrums; and the child's activity level. Items were administered as part of a developmental history form (Drabick et al., 2004; Gadow et al., 2000) and were combined to form an emotional lability scale ($\alpha = .74$).

Child attention problems. Teachers provided reports of child attention problems using the 5-item Inattention scale from the IOWA Conners Teacher's Rating Scale (Loney & Milich, 1982). The items from the IOWA Inattention scale were "fidgeting," "hums and makes other odd noises," "excitable, impulsive," "inattentive, easily distracted," and "fails to finish things he or she starts." Items were rated on a scale from 0 (*not at all*) to 3 (*very much*), $\alpha = .83$.

Mother-child communication. Children reported on mother-child communication using a 5-item scale from the Child's Report of Parental Behavior Inventory (Margolis & Weintraub, 1977). Items were rated on a scale from 1 (*never*) to 5 (*always*) and included how often the mother understood the child's problems and worries and how often the mother got along with, comforted, talked things over with, and showed affection for the child ($\alpha = .66$).

Maternal discipline. Children reported on how often their mother engaged in five discipline practices using the Child's Report of Parental Behavior Inventory (Margolis & Weintraub, 1977), including yelling, physical punishment (spanking and beating), insults, and nagging. Items were rated on a scale from 1 (*never*) to 5 (*always*), $\alpha = .65$.

Parental psychological problems. Mothers completed the Russian translation (Tarabrina, Lazebnaya, Zelenova, & Lasko, 1996) of the Symptom Checklist-90-Revised (Derogatis, 1983), from which the Depression scale was used ($\alpha = .86$). Mothers also completed the Marital Satisfaction Scale (eight items, $\alpha = .90$; Phelan et al., 1991). This measure asks mothers to rate their marital relationship from 1 (*not at all good*) to 5 (*very good*), and how often seven items occur on a scale from 1 (*never*) to 5 (*very often*). Items included laughing together, feeling close to her husband, getting on each others' nerves, thinking about marital problems and divorce, and regretting marrying her husband.

Results

Descriptive Statistics

Bivariate correlations, means, and standard deviations for all study variables are presented separately for boys and girls in Table 1. Mean scores for boys and girls differed for the majority of variables examined. Boys had higher conduct problems, emotional lability, attention problems, and maternal punishment scores than girls. Girls had higher levels of depressive symptoms and reported better mother-child communication than boys. Effect sizes ranged from small to medium (Cohen's *d*). There were no significant differences between the evacuee and control groups for any variable.

For both boys and girls, conduct problems were significantly positively correlated with emotional lability, attention problems, maternal depression, and maternal punishment and negatively correlated with mother-child communication and marital satisfaction. Depressive symptoms were correlated with maternal punishment and mother-child communication (negatively) for boys and girls. Depressive symptoms were also related to attention problems in boys and low marital satisfaction in girls. Thus, all risk factors were significantly related to conduct problems in boys and girls. However, the pattern among depressive symptoms and risk factors was somewhat differentiated. Conduct problems and depressive symptoms were not significantly correlated in this sample (boys: $r = .04$; girls: $r = .08$; both $ps > .05$).

Table 1. Bivariate Correlations, Means, and Standard Deviations for Study Variables

Variable	1	2	3	4	5	6	7	8
1. Conduct Problems	—	.08	.51***	.24***	-.16**	.17**	.26***	-.20**
2. Depressive Symptoms	.04	—	.08	.10	-.38***	.29***	.07	-.15*
3. Emotional Lability	.39***	.03	—	.16**	-.04	.05	.16**	-.10
4. Attention Problems	.34***	.19**	.09	—	-.10	.18**	-.02	.05
5. Mother–Child Communication	-.24***	-.44***	-.13*	-.19**	—	-.45***	.02	.09
6. Maternal Punishment	.20**	.29***	.08	.16**	-.38***	—	-.05	-.07
7. Maternal Depression	.18**	.09	.23***	.00	-.06	.04	—	-.30***
8. Marital Satisfaction	-.16**	.02	-.12*	-.20**	.04	-.07	-.19**	—
Boys								
<i>M</i>	0.45 ^a	0.72 ^b	0.18 ^a	0.91 ^a	3.96 ^b	2.16 ^a	0.86	3.44
<i>SD</i>	0.28	0.35	0.21	0.72	0.46	0.57	0.56	1.36
Girls								
<i>M</i>	0.35 ^a	0.84 ^b	0.13 ^a	0.56 ^a	4.06 ^b	2.06 ^a	0.81	3.22
<i>SD</i>	0.24	0.33	0.17	0.56	0.50	0.55	0.57	1.49
Effect Size	0.42	0.27	0.27	0.55	0.22	0.18	0.08	0.16

Note: Correlations for boys are below the diagonal. Correlations for girls are above the diagonal. Effect size = Cohen’s *d*.
^aBoys > girls ($p < .05$). ^bGirls > boys ($p < .05$).
 * $p < .05$. ** $p < .01$. *** $p < .001$.

Relations Among Risk Factors, Conduct Problems, and Depressive Symptoms

Structural equation modeling was used to evaluate the relations among each of the six risk factors, conduct problems, and depressive symptoms using AMOS 5.0 (Arbuckle, 2003). First, a multiple group analysis (boys vs. girls) was conducted. All of the risk factors (emotional lability, attention problems, mother–child communication, maternal punishment, maternal depression, and marital satisfaction) were included as independent variables predicting both conduct problems and depressive symptoms. Six covariances were included. The model presented earlier suggests that a child who is emotionally dysregulated (Domain 1), exhibits attention problems (Domain 2), or both may be more likely to experience coercive discipline (Domain 3). Consequently, covariances between maternal punishment and (1) emotional lability and (2) attention problems were included. In addition, three covariances reflected common raters: (3) maternal depression and marital satisfaction, (4) maternal depression and child emotional lability, and (5) maternal punishment and mother–child communication. Last, it was hypothesized that attention problems, because of their pervasive nature, may contribute further to poor parent–child communication (Domain 4). As such, a covariance between (6) attention problems and mother–child communication was included.

In the first multiple group model, path coefficients from risk factors to conduct problems and depressive symptoms were unconstrained across sexes. The unconstrained model provided a good fit (see Figure 1), $\chi^2(20, N = 544) = 40.87, p = .01$; comparative fit index

(CFI) = .96; root mean squared error of approximation (RMSEA) = .04; 90% confidence interval (CI) = .02 to .06. The included paths accounted for 25% and 32% of the variance in conduct problems for boys and girls, respectively, and 23% and 17% of the variance in depressive symptoms for boys and girls, respectively. To examine whether the model fit was equivalent for boys and girls, a second model was tested in which the paths were constrained to be equal for both boys and girls. This constrained model also provided a good fit, $\chi^2(32, N = 544) = 54.98, p = .01$; CFI = .95; RMSEA = .04; 90% CI = .02 to .05. The difference chi-square between the models with unconstrained and constrained path coefficients was not significant, $\chi^2(12) = 14.11, p = .29$. Because sex differences were hypothesized for attention problems, mother–child communication, and maternal punishment, the equivalences of these paths across sex was tested using one degree of freedom chi-square difference tests. None of the difference chi-squares for these paths was significant, $\chi^2(1) < 3.84, p > .05$.

Because the sample consisted of two distinct groups of children, evacuee and control groups, a second multiple-group analysis was conducted to determine the generalizability of the findings across these groups. In the first model, the path coefficients from risk factors to conduct problems and depressive symptoms were unconstrained across groups. The unconstrained model provided a good fit to the data, $\chi^2(20, N = 544) = 39.64, p = .01$; CFI = .96; RMSEA = .04; 90% CI = .02 to .06. In the second model, these paths were constrained to be equal across the evacuee and control groups. This constrained model also provided a good fit, $\chi^2(32, N = 544) = 64.11, p = .001$; CFI = .94; RMSEA = .04; 90% CI = .02 to .06. The chi-square dif-

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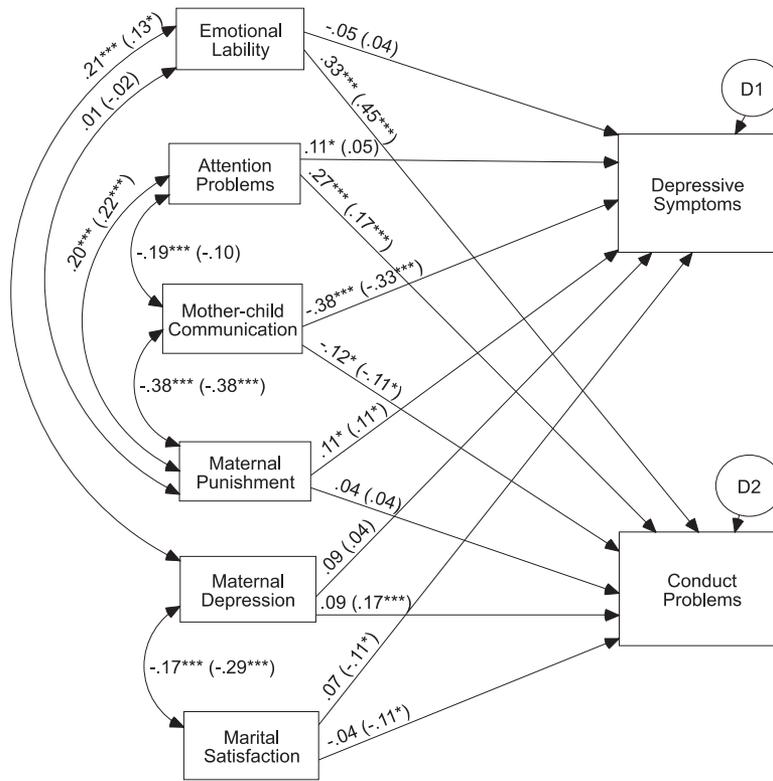


Figure 1. Impact of hypothesized risk factors on conduct problems and depressive symptoms, $\chi^2(20, N = 544) = 40.87, p = .01$; CFI = .96; RMSEA = .04; 90% CI = .02 to .06. Path coefficients for boys and (girls) are standardized. * $p < .05$. ** $p < .01$. *** $p < .001$.

ference between the unconstrained and constrained models was significant, $\chi^2(12) = 24.47, p = .02$, indicating that the fit of this model was significantly different for the evacuee and control groups. The equivalences of paths across groups were tested using one degree of freedom chi-square difference tests. Two significant differences emerged. The chi-square difference was significant for the path from attention problems to conduct problems, $\chi^2(1) = 6.65, p = .01$; $\beta_s = .34$ and $.19$ for control and evacuee groups, respectively. Thus, attention problems were related to conduct problems for both the evacuee and control groups, though the magnitude of prediction was significantly greater for the control group. For the path from attention problems to depressive symptoms, the chi-square difference was also significant, $\chi^2(1) = 5.45, p = .02$; $\beta = .13$ ($p < .05$) for the control group and $\beta = -.06$ ($p > .05$) for the evacuee group. Thus, attention problems predicted depressive symptoms in the control group as hypothesized but attention problems were unrelated to depressive symptoms among evacuees.

Discussion

This study indicates that many of the sex differences in the prevalence of conduct problems and depression and many of the associations among risk factors to conduct problems and depressive symptoms generalize

from Western samples to boys and girls in Ukraine. For instance, our findings of higher levels of conduct problems in boys than girls and higher levels of depressive symptoms in girls than boys are consistent with research in Western samples (e.g., Velez et al., 1989). However, these results differ from reported equal prevalence rates of conduct problems in a sample of Slovak adolescents (cf. Ruiselová & Prokopčáková, 2000). This discrepancy may be because the study of Slovakian adolescents used self-reports and assessed covert antisocial and substance use behaviors, whereas this study focused on aggressive behavior in childhood and used mother reports. Furthermore, results of this study indicate that the sex difference in depressive symptoms typically seen in adolescence may have already emerged by age 12 (Merikangas & Angst, 1995).

Also consistent with previous research in Western samples (Gaub & Carlson, 1997), attention problems were associated with both conduct problems and depressive symptoms. A noteworthy discrepancy from previous research, however, was the finding that maternal punishment predicted depressive symptoms but not conduct problems. Because maternal punishment was significantly related to mother-child communication, this pattern of findings suggests that the mother's low communication and detachment, not use of harsh discipline, may lead to conduct problems in this Ukrainian sample in preadolescence. Thus, harsh discipline may be effectively inhibiting aggressive behav-

ior in Ukraine. An implication is that as long as mothers are warm and supportive of their children, the use of harsh discipline may lead to depression but not aggression. Future research will be necessary to test these possibilities.

Further examination of the covariances among risk factors suggests a complex interplay in conferring risk. For example, low marital satisfaction was related to maternal depression, maternal depression was related to child emotional lability, and child emotional lability predicted conduct problems. One model for this pattern of findings is that marital problems, including low levels of spousal support, could result in a discordant and negative home environment. The presence of maternal depression could further decrease the mothers' availability and responsiveness, as well as increase the likelihood of mothers' being critical of their children (Nelson, Hammen, Brennan, & Ullman, 2003). From a functionalist perspective, one could also posit that children may engage in emotionally dysregulated behaviors to get attention from their mothers, who may be unable to provide such attention because of their own depression, lack of parenting support, or marital problems. This possibility is consistent with evidence that escalation of dysregulated behaviors over time can lead to conduct problems directly (Shaw et al., 2001; Snyder et al., 1997) or through a more complex relation with maternal depression (Fendrich et al., 1990; McCarty et al., 2003; Nelson et al., 2003).

Contrary to expectation, the magnitude of prediction from mother-child communication, maternal punishment, and attention problems to conduct problems and depressive symptoms did not differ based on sex. Thus, the observed sex differences in Western samples for attention problems (Gaub & Carlson, 1997) and family factors (Compton et al., 2003) were not evidenced in this sample. These findings suggest that these risk factors operate similarly to confer risk for conduct problems and depressive symptoms in Ukrainian boys and girls.

All of these findings need to be interpreted in light of several limitations. The cross-sectional nature of this study precluded a clear determination of whether the factors examined were mechanisms, risk factors, correlates, or sequelae of conduct problems and depressive symptoms. In addition, there was some overlap in the method of assessing risk factors and symptoms, and such method variance could potentially account for some of the associations. Because there is evidence that an individual's perception of a risk factor may be more important in understanding risk (Cole, Martin, & Powers, 1997), we allowed for this overlap in reporting. However, future research that employs parent-child observations and other objective indicators of risk factors and symptoms could minimize the effects of shared method variance.

Given the low correlation between conduct problems and depressive symptoms in this sample, the findings of this study can suggest factors that are related to conduct problems or depressive symptoms but are less capable of specifying factors that may be related to the comorbid condition. Because different raters were used to define conduct problems (mother report) and depressive symptoms (child report), this suggests that some of the correlation between these domains found in past studies may have been due to shared method variance (Downey & Walker, 1992; Miller-Johnson et al., 1998; Wiesner, 2003).

The use of a sample of children evacuated as infants from the 30-km zone surrounding the Chernobyl plant could raise some questions as to the generalizability of our findings to other Ukrainian samples. Further, the multiple group analysis indicated that the paths from attention problems to both conduct problems and depressive symptoms differed among the evacuee and control groups. The path from attention problems to conduct problems was significant for both groups, though the magnitude of the paths was significantly different. The finding that the path from attention problems to depressive symptoms was significant for the comparison but not the evacuee group was unexpected. Previous research in this sample provides a potential reason for this result. The evacuee and control groups have been shown to differ on very few variables approximately 11 years after the disaster. Specifically, the groups differed on maternal ratings of somatic symptoms in themselves and in their children (Bromet et al., 2000) and maternal report of children's memory problems (Litcher et al., 2000). However, no group differences emerged for child self-reports of somatic symptoms (Bromet et al., 2000) or neuropsychological or school performance (Litcher et al., 2000). This discrepancy indicates that mothers of children in the evacuee group perceive their children as having poorer health and memory than child self-report and objective measures indicated. Thus, one hypothesis for the failure to find a relation between teacher-reported attention problems and depressive symptoms in the evacuee group is that attention problems in this group are consistent with parental expectations for their children. As such, attention problems may not engender the same reactions from parents of evacuees as from parents of comparison children. Thus, evacuees are less likely to experience depressive symptoms in the presence of attention problems because these symptoms are not viewed as problematic.

Despite these limitations, this study provides some initial data to suggest that many of the risk factors for conduct problems and depressive symptoms found in research in Western samples may generalize to a Ukrainian sample. For instance, low mother-child communication was significantly related to conduct

problems and depressive symptoms. One noteworthy difference between findings in Western samples and this study was that harsh maternal discipline was related to depressive symptoms but not conduct problems for both boys and girls in this Ukrainian sample. Early intervention that includes parental support and consistent, more positive discipline strategies may help to prevent the development of conduct problems and this comorbid condition. In addition, preventive efforts that target poor mother-child communication could preclude the development of comorbid conduct problems and depression. Secondary prevention efforts aimed at children with attention problems may be particularly fruitful for preventing the development or exacerbation of conduct problems and this comorbid condition. Thus, addressing the child's behavior, parental stressors (e.g., low marital satisfaction), and the parent's response to the child may help to prevent the development of future problems, which likely result from bidirectional influences among these factors.

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