Academic and School Health Issues Among Children Exposed to Maternal Intimate Partner Abuse

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Objective: To determine the association between children's exposure to maternal intimate partner violence (IPV) and academic problems and school health concerns.

Design: The study population consisted of 153 children aged 5 to 16 years who attended public school and whose mothers experienced police- or court-reported IPV. The comparison group consisted of public school peers of the exposed children. Generalized linear modeling using a binomial distribution and log-link function served as the primary method of analysis.

Setting: Urban public school district.

Main Outcome Measures: The occurrence of academic problems and type-specific school nurse visits during the 1-year study period.

Results: Children whose mothers experienced IPV were more likely to be suspended from school (relative risk [RR], 1.8; 95% confidence interval [CI], 1.2-1.7) and to have frequent non-suspension-related absences (RR, 1.6; 95% CI, 1.0-2.3) than comparison children after adjusting for relevant confounders. Intimate partner violence–exposed children were more likely to have a school nurse visit for social or emotional complaints (RR, 2.2; 95% CI, 1.3-3.9), a visit that resulted in being sent home from school (RR, 1.6; 95% CI, 1.1-2.3), or a visit that led to referral to the school speech pathologist (RR, 7.5; 95% CI, 1.9-29.6) relative to comparison schoolchildren after adjusting for relevant confounders.

Conclusions: Children's exposure to maternal IPV is significantly associated with the occurrence of academic problems and school health concerns. Describing the increased risk of the academic and health problems exhibited by IPV-exposed children relative to nonexposed children offers the possibility of improving the likelihood that clinicians will identify the woman who experienced abuse and her children, and promote referral to appropriate resources.

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More than 3 million children are exposed to their mother's abuse by an intimate partner in the United States each year. Case series suggest that many of these children have academic problems, including poor grades, grade repetition, absenteeism, and problematic school behavior. However, most studies using control groups have not confirmed these associations, and only one has reported on school behavior among these children. An additional area of concern for children exposed to intimate partner violence (IPV) is whether these children are more likely than other children to exhibit physical health problems. Descriptive studies have reported stress-related somatic complaints, including headaches, abdominal pains, and speech problems, among IPV-exposed children. Only one analytic study has examined the somatic complaints of IPV-exposed children. Controlled studies that have evaluated academic and health problems among children exposed to maternal IPV share important methodological limitations, including a small sample size, sampling only among shelter populations, failure to account for child abuse, measurement of outcomes solely by maternal report, and/or use of volunteer comparison groups.

The present study examines the academic and school health histories of children exposed to maternal IPV compared with their public school counterparts. Our aim was to determine if children exposed to IPV, either with or without a history of child abuse, were more likely to exhibit academic problems and to seek school health services than their school peers. This study addressed the gaps in information about the consequences of maternal IPV on children's health and academic functioning
SUBJECTS AND METHODS

SUBJECTS

The exposed group consisted of children whose mothers experienced police- or court-reported male-perpetrated IPV in Seattle, Wash, and who participated in the Women’s Wellness Study (WWS), previously described in detail. Briefly, the WWS population consisted of a random sample of 448 Seattle-area women 18 years and older who experienced abuse by a male intimate partner that resulted in a police-reported incident or the filing of an order of protection between October 15, 1997, and December 31, 1998. The response rate of the WWS was 60.4%, and participants were somewhat more likely to have obtained protection orders and less likely to be living with their abusers than were nonparticipants. Eligible children were aged 6 to 17 years on their mother’s enrollment into the WWS, attended Seattle public schools, and lived with their mother at least part-time during the study period (the 12 months before her enrollment in the main study).

Study subjects were the 133 eligible children who attended Seattle public schools during some or all of the 12 months of observation. Thirty (20%) of the IPV-exposed study children also experienced child abuse. Data on child abuse were collected for the IPV-exposed children using referrals made to the police department (primarily by Child Protective Services) for investigation of child physical abuse, sexual abuse, or severe neglect.

The comparison group consisted of children aged 5 to 16 years who attended Seattle public schools for any period between October 1, 1996, and December 31, 1997. Enrollment into the study occurred on the randomly assigned start date or the date the student was first in attendance in Seattle schools, whichever occurred later. The end of the observation period for all children was defined as the date the child left Seattle public schools (and did not return) or 1 year following the child’s study enrollment date, whichever came first. Of the 74,034 students who attended Seattle public schools during the 1996-1997, 1997-1998, and 1998-1999 academic years (the academic years that spanned recruitment and follow-up), 48,406 attended during their randomly assigned 12-month observation period and were eligible for inclusion in the study. Study protocols, including consent by WWS participants to access identifiable school records of their children, were approved by the University of Washington and the Seattle School District Human Subjects Divisions.

ACADEMIC PERFORMANCE AND SCHOOL BEHAVIOR OUTCOMES

The academic problems assessed included any academic suspension, any academic expulsion, frequent absenteeism (absent for ≥15% of school days other than for academic suspension), receipt of special education services, grade retention, and a cumulative grade point average (GPA) of 1.0 or lower on a scale of 4.0 (representing a GPA in the “D” to “F” letter-grade range) during the 12-month observation period. Absenteeism rates were defined as number of days absent (other than for academic suspension) of total possible days of school enrollment. Because academic suspensions were counted toward the total number of days absent in the original data, we subtracted total number of days suspended from total days absent to provide absenteeism rates independent of the outcome of disciplinary suspension. Information about absenteeism and special education services was obtained for children in all grades (kindergarten through 12th grade). Academic grades were available in computerized format only for children in grades 6 through 12 and, therefore, were evaluated only among several ways. First, we used citywide data on police-reported IPV incidents, allowing for greater generalizability to all children exposed to police-reported maternal IPV. Second, we collected data on the timing of exposure to maternal abuse, enabling us to examine exposure before the outcome. Third, information about child abuse was collected for the IPV-exposed group, allowing us to generate risk estimates of academic and health problems associated with exposure to maternal IPV and maternal IPV in conjunction with child abuse. Finally, computerized school data were used, providing more accurate information than obtained by parent report alone.

RESULTS

The IPV-exposed children were somewhat younger, had a slightly different racial or ethnic composition, were more likely to live in households headed by single parents, and had lower household incomes than the comparison children (Table 1).

BEHAVIOR AND ACADEMIC PROBLEMS

After adjusting for confounders (Table 2), children exposed to maternal IPV only were almost twice as likely, and those exposed to maternal IPV and child abuse were twice as likely, as comparison children to have been suspended from school during the study period. Nonabused and abused IPV-exposed children were significantly more likely to have been suspended for disruptive or delinquent behavior than comparison children (12% and 17%, respectively, vs 4%; P=.01), and abused IPV-exposed children were significantly more likely to have been suspended for aggressive behavior than comparison children (13% vs 3%; P=.02). Academic expulsion was not associated with exposure to paternal IPV only or with exposure to maternal IPV and child abuse after adjusting for the same set of covariates.

Students exposed to maternal IPV only were 1.6 times as likely, and those exposed to maternal IPV and child abuse were 2.2 times as likely, to have been frequently absent from school during the study period relative to students in the comparison group, after adjusting for the set of covariates listed in Table 2.

Intimate partner violence exposure in the absence of child abuse was not significantly related to measures of academic performance. However, children exposed to maternal IPV and child abuse were more likely to have a cumulative GPA at or below 1.0 and to have been re-
children in these grades. Grade retention was ascertained for children in grades 3 and higher to better identify problems of academic ability rather than social immaturity.

SCHOOL HEALTH OUTCOMES

Data on school health services were available from a database maintained by Seattle public schools. The database included information from standardized forms filled out by school nurses on all visits to the school nurse by students attending Seattle public schools. Variables included date and time of service, referral source, referral reason(s), services provided, and any outside referrals that were made. School health outcomes included the proportion of children with at least 1 school nurse visit for each of the following reasons: social or emotional concerns, alcohol or other drug concerns or receipt of alcohol or other drug assessment, visits resulting in a referral to the speech pathologist, and visits resulting in the child being sent home. Visits to the school nurse were either self-initiated or at the suggestion of school personnel for the stated physical or psychological complaint. Referrals to the school speech pathologist were based on school nurse assessment.

ANALYSIS

Risk estimates of academic problems and school nurse visits were calculated separately for IPV-exposed children with and without a history of child abuse, relative to comparison group children. Neither child abuse history nor IPV exposure data were available for the comparison group children; therefore, for analysis, we considered this group to be unexposed to both factors. We hypothesized that exposure to maternal IPV and child abuse would be associated with a greater level of adverse outcomes than exposure to maternal IPV alone, based on prior work that has shown an increased risk of behavioral problems with increasing number of life stressors. Likelihood ratio statistics were used to determine the statistical significance of the exposure-outcome relationship. Because most of our outcomes were moderately frequent, we computed relative risks (RRs) and confidence intervals (CIs) using generalized linear modeling with a binomial distribution and log-link function. The following variables, obtained from school databases, were evaluated as potential confounders: age (5-7, 8-10, 11-13, and 14-16 years); sex; race or ethnicity (white, black, Asian, Latino, and Native American); ZIP code, grouped as a census-based proxy for annual household income (<$30,000, $30,000-$39,999, $40,000-$49,999, and >=$50,000); bilingual program eligibility (yes or no); and academic grade (kindergarten-5th, 6th-8th, and 9th-12th grade). In addition, number of weekly hours of school nurse availability (continuous) was evaluated as a potential confounding factor for analyses involving school health visit outcomes. Confounding variables were included in the models if their inclusion led to meaningful changes in the exposure RR estimate, using a 10% change as a minimal guideline. The matching variable, month of study enrollment, grouped in 2-month increments, was included in all analyses. We examined effect modification by age, sex, and socioeconomic status and found no evidence of effect modification by these factors.

To verify the validity of our results, we performed sub-analyses with families in which the mothers experienced IPV for 1 year or longer at the time of the index incident date. This allowed us to confirm the association between exposure and outcome within a group in which we were certain that the exposure preceded the outcome of interest. In doing so, we obtained comparable results to those obtained using the entire cohort of IPV-exposed children; therefore, we present results for all IPV-exposed children in this report.

HEALTH PROBLEMS

Physical health complaints and injuries were the most common reason for school nurse visits among IPV-exposed children and comparison children (Table 3). Intimate partner violence–exposed children, with or without a history of child abuse, were no more likely to have had a nurse visit for physical health problems or complaints than were comparison children after adjusting for age, household income, and month of study enrollment. Injury-related visits were more likely among IPV-exposed children with or without concomitant child abuse after adjusting for weekly hours of school nurse availability, household income, and month of study enrollment. Children exposed to maternal IPV without a history of child abuse were 60% more likely to have had a nurse visit that resulted in being sent home from school, relative to comparison children, after adjusting for weekly hours of school nurse availability, household income, and month of study enrollment. We did not observe this same association for IPV-exposed children with a history of child abuse.

Nonabused IPV-exposed children were more than twice as likely as comparison children to have had at least 1 school nurse visit related to social or emotional concerns during the study period, after adjusting for weekly hours of school nurse availability, student race or ethnicity, and month of study enrollment. Visits for social or emotional concerns were not significantly more frequent among IPV-exposed children with a history of child abuse than among comparison children.

Nurse visits related to alcohol or other drug assessments or concerns were almost 4 times as likely among nonabused IPV-exposed children as among comparison children, but this association was only marginally significant with adjustment for weekly hours of school nurse availability, age, and month of study enrollment. No visits of this type occurred among abused IPV-exposed children during the study period.

Speech pathology referrals were more than 7 times as likely among nonabused IPV-exposed children relative to comparison group children after adjusting for relevant confounders. No speech pathology referrals occurred among the abused IPV-exposed children.
This retrospective cohort study found that children exposed to maternal IPV were significantly more likely to be frequently absent and to be suspended from school than were comparison schoolchildren. Children exposed jointly to maternal IPV and child abuse were at significantly greater risk of absenteeism, academic suspension, a low cumulative GPA, and grade retention relative to comparison children. In addition, we found that children exposed to maternal IPV were more than twice as likely to visit the school nurse for social or emotional reasons, were 1.6 times as likely to have a visit resulting in being sent home, and were more than 7 times as likely to be referred to a speech pathologist relative to comparison children, after adjusting for relevant confounders.

We found that 15% of nonabused IPV-exposed children had been suspended during the 1-year study period. Our findings extend what has been found in prior research related to IPV exposure and school disciplinary actions by providing evidence that this association persists in the absence of a history of reported child abuse. Furthermore, our results are consistent with the findings of previous studies\(^9,15,20,21\) that children’s exposure to maternal IPV is associated with heightened aggression and delinquency. Consistent with findings from related studies\(^9,16\) that a cumulative increase in number of stressful life events translates into increasing risk of child behavioral problems, we found risk of academic suspension to be greatest among the children exposed to maternal IPV and child abuse.

The results on frequent absenteeism among IPV-exposed children were comparable to the results among abused and IPV-exposed children in the study by Dawud-Noursi et al.\(^9\) Although the results of this previous study did not show a significant difference between study groups, the researchers reported 17% truancy among 10- to 14-year-old abused and/or IPV-exposed children vs 8% among a school comparison group. This compares to 19% of nonabused IPV-exposed and 25% of abused IPV-exposed children with frequent absenteeism vs 12% of comparison schoolchildren from our study, both significant findings.

We found no increased risk of poor academic performance, measured by grade retention, special education, and low GPAs, among nonabused children exposed to maternal IPV. These findings are consistent with most, but not all, prior controlled studies that examined academic performance, as indicated by evaluative ratings provided by the mother or teacher or by self-report.\(^5,6,8,14\) In contrast, Jaffe et al\(^19\) reported a significantly lower mean score on the school performance portion of the social competence scale of the Child Behavior Checklist for boys from a battered women’s shelter relative to a community comparison group. However, the researchers were unable to adjust for potentially important confounding factors, particularly subject history of child abuse.

Although overall visits for physical health complaints were fairly similar in likelihood among IPV-exposed children and comparison group children, IPV-exposed children were 60% more likely to be sent home from school by the school nurse. We did not have information on the specific types of health complaints to draw conclusions about consistency with earlier descriptive studies regarding specific stress-related symptoms, including headaches and gastrointestinal complaints, but did confirm the association between IPV exposure and speech problems. We confirmed the association of IPV exposure and risk-taking behaviors, as manifested by the higher occurrence of injury-related and alcohol- and other drug-related visits, consistent with studies\(^7,8,15,20,21\) that have shown greater externalizing behaviors among IPV-exposed children sampled from battered women’s shelters. Our results that IPV-exposed children were more likely to be referred for visits related to social or emotional concerns corroborate the findings of general psychological health problems among children in shelters and IPV agencies reported in prior studies and, more important, the present study established that this association remains for IPV-exposed children without a history of reported child abuse.\(^5,22\) Our findings on the relative frequency with which IPV-exposed children visit school nurses, combined with the recognition that school health services are important sites for prevention programs, delineate a path for future intervention programs and evaluative research.\(^25-28\)

### Table 1. Demographics and Characteristics of Study Subjects by Exposure Status

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>IPV-Exposed Children (n = 153)</th>
<th>School Comparison Children (n = 48,406)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, y</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-7</td>
<td>52 (34)</td>
<td>13,444 (28)</td>
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<tr>
<td>8-10</td>
<td>44 (29)</td>
<td>12,512 (26)</td>
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<tr>
<td>11-13</td>
<td>33 (22)</td>
<td>11,110 (23)</td>
</tr>
<tr>
<td>14-16</td>
<td>24 (16)</td>
<td>11,340 (23)</td>
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<tr>
<td>Sex</td>
<td></td>
<td></td>
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<tr>
<td>Female</td>
<td>84 (55)</td>
<td>23,843 (49)</td>
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<tr>
<td>Male</td>
<td>69 (45)</td>
<td>24,563 (51)</td>
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<tr>
<td>Race or ethnicity</td>
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<td></td>
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<tr>
<td>White</td>
<td>62 (41)</td>
<td>19,823 (41)</td>
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<tr>
<td>Black</td>
<td>59 (39)</td>
<td>11,295 (23)</td>
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<td>Asian</td>
<td>13 (9)</td>
<td>11,252 (23)</td>
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<td>Latino</td>
<td>14 (9)</td>
<td>4,428 (9)</td>
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<tr>
<td>Native American</td>
<td>4 (3)</td>
<td>1,498 (3)</td>
</tr>
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<td>Academic grade</td>
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<tr>
<td>Kindergarten-5</td>
<td>101 (66)</td>
<td>28,204 (58)</td>
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<tr>
<td>6-8</td>
<td>32 (21)</td>
<td>11,095 (23)</td>
</tr>
<tr>
<td>9-12</td>
<td>20 (13)</td>
<td>9,107 (19)</td>
</tr>
<tr>
<td>Student household composition</td>
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<td></td>
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<tr>
<td>Both parents</td>
<td>50 (34)</td>
<td>27,614 (58)</td>
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<tr>
<td>Mother only</td>
<td>91 (61)</td>
<td>14,925 (29)</td>
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<tr>
<td>Father only</td>
<td>3 (2)</td>
<td>1,975 (4)</td>
</tr>
<tr>
<td>Guardian, alone, spouse, or agency</td>
<td>4 (3)</td>
<td>2,757 (6)</td>
</tr>
<tr>
<td>Proxy annual household income, $</td>
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<tr>
<td>&lt;30,000</td>
<td>28 (19)</td>
<td>6,060 (14)</td>
</tr>
<tr>
<td>30,000-39,999</td>
<td>91 (61)</td>
<td>23,142 (55)</td>
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<tr>
<td>40,000-49,999</td>
<td>21 (14)</td>
<td>11,523 (26)</td>
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<tr>
<td>≥50,000</td>
<td>10 (7)</td>
<td>3,270 (7)</td>
</tr>
<tr>
<td>Eligible for the bilingual program</td>
<td>6 (4)</td>
<td>657 (2)</td>
</tr>
</tbody>
</table>

*Data are given as number (percentage) of subjects. Percentages are based on category totals and may not total 100 because of rounding. IPV indicates intimate partner violence.
Because of the relatively small number of IPV-exposed children who had also experienced child abuse, the conclusions we can draw about their academic problems and school health services use are limited. We did find an increased likelihood of injury-related visits among this group; however, it is possible that this outcome could be a consequence of the abuse itself. The shelter populations represented by earlier studies tended to have a much higher prevalence of child abuse among IPV-exposed children compared with our study. The higher prevalence of child abuse from some prior research may also be explained in part by the differences in their use of maternal report vs our use of system report.

Our sample was more broadly representative of children whose mothers are abused by an intimate partner than samples drawn from battered women’s shelters; therefore, the results we provide are likely to be of greater generalizability to the population of IPV-exposed children. Nevertheless, our sample was limited to children of women whose abuse was reported to the police or court system. There is some suggestion that reported IPV incidents may comprise more serious incidents of IPV than those that are not reported. Therefore, it is possible that this outcome could be a consequence of the abuse itself. The shelter populations represented by earlier studies tended to have a much higher prevalence of child abuse among IPV-exposed children compared with our study. The higher prevalence of child abuse from some prior research may also be explained in part by the differences in their use of maternal report vs our use of system report.

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Although more than 3 million children are exposed to maternal IPV in the United States each year, little is known about whether these children are at an increased risk of academic and health-related problems. Descriptive studies have reported that academic and health problems are quite prevalent among this population. However, most studies using control groups have not confirmed these associations, and are limited in their interpretability because of important methodological problems, including small sample size, sampling only among shelter populations, failure to account for child abuse, measurement of outcomes solely by maternal report, and use of volunteer comparison groups.

A major contribution of this study is the rigorous examination of the association between maternal IPV and child health and academic problems, controlling for the important confounding effect of child abuse, the failure of which has been a serious limitation of prior research in this area. This study provides ample evidence of the increased academic and health problems associated with children’s exposure to maternal IPV with or without concurrent exposure to child abuse. For clinicians, a description of the problems exhibited by these children offers the possibility of increasing the likelihood of identifying the abused woman and her children, and promoting referral to appropriate resources. These data also provide an understanding of the needs exhibited by IPV-exposed children to the school personnel and pediatricians providing care for this population.

What This Study Adds

Although more than 3 million children are exposed to maternal IPV in the United States each year, little is known about whether these children are at an increased risk of academic and health-related problems. Descriptive studies have reported that academic and health problems are quite prevalent among this population. However, most studies using control groups have not confirmed these associations, and are limited in their interpretability because of important methodological problems, including small sample size, sampling only among shelter populations, failure to account for child abuse, measurement of outcomes solely by maternal report, and use of volunteer comparison groups.

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sible that our results may not be generalizable to children of mothers who are abused by an intimate partner but whose abuse goes unreported.

A related limitation of this study is the possibility of misclassification of exposure. Neither exposure to maternal IPV nor history of child abuse was available for comparison children. For analysis, we assumed no exposure to either of these factors among the comparison group children. Clearly, the “unexposed” group may have contained children with either or both of these exposures, thus resulting in an underestimate of the risk of academic problems or health problems associated with children’s exposure to maternal IPV. To provide an indication of the degree of underestimation, we used an observed estimate of police-reported IPV in Seattle (33.5 cases per 1000 women-years) and the National Crime Victimization Survey estimate that 50% of IPV is reported to police, and calculated what we would expect for RR estimates had we been able to remove the approximately 3243 IPV-exposed children from our comparison group.

We calculated that our crude RR estimates for any suspension, frequent absenteeism, and low cumulative GPA associated with IPV exposure in the absence of child abuse would be underestimated by 7.7% (RR, 2.3; 95% CI, 1.5-3.6), 3.1% (RR, 1.7; 95% CI, 1.1-2.5), and 6.4% (RR, 2.0; 95% CI, 0.7-5.9), respectively. Similarly, the crude RR estimates for any school health visit resulting in the child being sent home, any visit for social or emotional reasons, and any injury-related visit associated with IPV exposure in the absence of child abuse would be underestimated by 4.7%, 9.0%, and 2.3%, respectively.

Our measure of socioeconomic status was limited to the use of ZIP code as a proxy for household income, which may have resulted in residual confounding by socioeconomic status. However, it is also likely that household income is lower among members of the exposed group as a consequence of the violence because women are more likely to leave an abusive relationship, with consequent loss of partner’s income contribution to the household. If this were the case, our adjustment for household income might have provided us with conservative estimates of the effect of maternal IPV on academic problems because it would measure only that result of violence that is not a consequence of reduced income.

Because the outcomes we evaluated were based on school records, they are more likely to provide an unbiased measure of school problems than those based on maternal or child report. More important, we found no evidence of referral bias for school nurse visits; IPV-exposed children were not significantly more likely to be referred by school personnel or others (who might be aware of the IPV exposure) than comparison children. In addition, examining the effects of child abuse exposure to maternal IPV separately provides a clearer picture of their respective impacts. We were able to address another major limitation of previous research among children exposed to IPV, that of lack of generalizability, by using a more representative sample rather than a sample derived from the select group represented by battered women’s shelters.

This study found evidence that children exposed to maternal IPV are at an increased risk of academic problems and school health services use for physical and psychological health complaints and concerns. Although meaningful discussion of the mechanisms through which children’s exposure to IPV may affect their academic functioning and health concerns is beyond the scope of this article, our results do suggest the need for additional studies with this specific aim. Intimate partner violence exposure is likely to affect academic functioning and child health directly and indirectly, through such factors as occurrence of posttraumatic stress disorder, behavioral problems, socioeconomic decline, decreased parental effectiveness, child neglect, social isolation, maternal and/or child depression, anxiety, and alcohol and other drug use.30-39 For example, some researchers have found that abused and neglected children show more speech and language deficits than nonabused or nonneglected children. It is possible that the occurrence of speech disorders among the IPV-exposed children from our study was mediated through neglect exhibited by the overwhelmed and unavailable parent who experienced abuse.42 The impact of IPV-related stress on immune function may also play a role in the health of these children.43,44 Furthermore, the likelihood of an adverse event among children with the additional exposure to child abuse would be expected to be elevated beyond that of exposure to IPV alone as a direct consequence of that abuse and through stronger activation of adverse mediating factors. Research directed toward elucidating these mechanisms could be useful in identifying prevention strate-
gies aimed at ameliorating the academic and health problems experienced by these children.

Our results offer a starting point from which we may broaden our understanding of the pervasiveness of the effects of maternal IPV on children’s academic functioning and health. For clinicians, a description of the problems exhibited by these children offers the possibility of increasing the likelihood of identifying the woman who experienced abuse and her children, and promoting referral to appropriate resources. These data also provide an understanding of the needs exhibited by IPV-exposed children to the school personnel and pediatricians providing care for this population.

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REFERENCES


