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Developmental Antecedents of Partner Abuse: A Prospective–Longitudinal Study

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Prospective measures of risk factors for partner abuse were obtained from a large birth cohort in 4 domains: socioeconomic resources, family relations, educational achievements, and problem behaviors. Partner abuse outcomes were measured at age 21. Results showed that antecedents of abuse included risk factors from all 4 domains. Risk factors were similar for men and women. Some age 3 antecedents were significant, but the strongest correlations were from age 15. In multivariate analyses, the most consistent predictor was the presence of early problem behaviors. In a cross-validation test, abuse was moderately predictable by the same antecedents, whether the outcome measure was self-report or reports from partners of sample members. Findings suggest that theories of partner abuse should account for developmental influences from multiple life domains and that primary prevention of partner abuse should begin in adolescence.

In recent years, recognition of the problem of spouse and partner abuse has grown. Contemporary theories of partner violence tend to implicate macro-level determinants: Feminist theory implicates cultural support of patriarchy (Dobash & Dobash, 1979), sociobiological theory implicates threats to transmission of the perpetrator's genes because of the fear of infidelity (Daly & Wilson, 1988), and legal theory implicates secular shifts in society's tolerance for violence (Zimring, 1989). Although macro-level theories are compelling in their breadth, they cannot explain the presence of substantial numbers of nonviolent individuals within the context of patriarchal, biological, or legal motivating factors.

A more complete theoretical framework would complement macro-level explanations with individual-level explanations (O'Leary, 1993). These individual-level perspectives would seek to distinguish the developmental backgrounds of individuals who are most likely to respond to societal conditions that facilitate partner abuse. The most widely cited individual-level explanation for partner abuse is a social-learning perspective, which posits that partner violence has its roots in the childhood family environment (O'Leary, 1988). Theorists have also noted the need to incorporate individual-level factors such as personality traits and attitudes into theories of partner violence (Holtzworth-Munroe & Stuart, 1994; O'Leary, 1993; Riggs & O'Leary, 1989). In addition, developmental researchers have suggested that continuity in individual differences in aggressive tendencies may be expressed in different behavioral forms in different life periods, from childhood peer aggression to adolescent delinquency to adult partner violence (Farrington, 1989; Huesmann, Eron, Lefkowitz, & Walder, 1984; Moffitt, 1993).

With respect to the developmental origins of partner abuse, theory building has outpaced the building of an empirical knowledge base. Although a complete theory does not exist at this point, we can begin to formulate some components of one. Our work is guided by two considerations. First, we know that risk factors for partner violence resemble those for stranger violence (Fagan & Browne, 1994). Existing developmental theories of antisocial behavior can thus serve as a starting point

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for developmental theories on partner violence. These theories include individual and social components (Fagan & Browne, 1994; Moffitt, 1993; O'Leary, 1988; Patterson, 1982). Second, in spite of similarities between those who are violent toward strangers and those who are violent toward partners, there are also important differences (Fagan & Browne, 1994). It may thus be necessary to modify general theories of antisocial behavior to be more specifically relevant to partner violence. Theoretical perspectives that are specific to intimate violence have implicated economic stress, subcultural norms favoring domestic violence, psychopathology, and substance abuse (e.g., O'Leary, 1993). Although these perspectives tend to explain adult behavior without reference to childhood antecedents, they can be adapted to a developmental perspective by assessing the presence of the predicted adulthood risk factors at earlier points in the life course.

Descriptive studies that document reliable empirical relations are necessary to inform theory building. In the present study, we addressed three empirical questions: (a) what are the developmental antecedents of physical and psychological abuse between partners in young adulthood, (b) how early in the life course can we identify such antecedent factors, and (c) are there gender differences in the antecedents of partner abuse? We addressed these questions by using *prospective* data gathered during the course of a 21-year longitudinal study of a representative birth cohort. We examined a diverse set of personal and family characteristics that have been implicated as "risk markers" by previous retrospective and cross-sectional investigations. Although the present study was not conceived as a test of a particular developmental theory of partner abuse, our selection of variables for the study was guided by the existing literature.

Previous studies have relied on two strategies to obtain information about the characteristics of individuals involved in partner abuse. One strategy is to ask respondents to report retrospectively about their childhood experiences, thus providing data on the distal factors associated with current partner abuse. Another strategy is to gather cross-sectional information about the current characteristics of individuals involved in abusive relationships, thus providing data on the proximal factors associated with partner abuse. Studies using these two strategies, retrospective and cross-sectional, have pointed to several characteristics associated with partner abuse that span the broad domains of early family relations, socioeconomic resources (including both occupational and educational resources), and problem behaviors. Building on earlier retrospective and cross-sectional findings, we tested a set of hypotheses that predicted that characteristics in these domains, if measured in childhood and adolescence, could foretell partner abuse in adulthood. The present study thus provides a prospective replication and extension of existing empirical findings about the risk factors for partner abuse and offers the opportunity to test whether these factors are, in fact, developmental and antecedent.

Early Family Relations

Exposure to conflict in one's family of origin is perhaps the most widely cited developmental explanation of partner abuse. Many studies have shown a relationship between partner abuse and recollections of having witnessed violence or abuse between one's parents (Cappell & Heiner, 1990; Doumas, Margolin, & John, 1994; Fagan, Stewart, & Hansen, 1983; Hotaling & Sugarman, 1986; Kalmuss, 1984; Murphy, Meyer, & O'Leary, 1993; Rosenbaum & O'Leary, 1981; Straus, Gelles, & Steinmetz, 1980). Other studies have shown a relationship between partner abuse and recollections of having been a victim of parental violence, abuse, physical punishment, or harsh discipline (Doumas et al., 1994; Downs, Miller, Testa, & Panek, 1992; Dutton & Hart, 1992; Fagan et al., 1983; Kalmuss, 1984; Marshall & Rose, 1990; Murphy et al., 1993; Simons, Wu, Johnson, & Conger, 1995; Straus, 1990b; Straus et al., 1980). Correlations have also been found between child maltreatment and poor maternal mental health (Downey & Coyne, 1990; Pianta, Egeland, & Erickson, 1989), thus suggesting that parental mental health should be examined as an additional indicator of conflicted childhood family relations that may contribute to later partner abuse. We tested the hypothesis (H1) that young adults who are involved in partner abuse are likely to have experienced conflicted family relations during childhood and adolescence.

Family Socioeconomic Resources

Socioeconomic resources have been implicated in partner abuse by studies showing contemporaneous associations of partner violence with unemployment (Gayford, 1975; Lewis, 1987; Magdol et al., 1997; Roberts, 1987), low income (Fagan & Browne, 1994; Hotaling & Sugarman, 1986; Pan, Neidig, & O'Leary, 1994; Straus et al., 1980), and low-status occupations (Fergusson, Horwood, Kershaw, & Shannon, 1986; Gayford, 1975; Hotaling & Sugarman, 1986; McLaughlin, Leonard, & Senchak, 1992; Straus et al., 1980). We tested the hypothesis (H2) that young adults who are involved in partner abuse are likely to have experienced socioeconomic deprivation during childhood and adolescence.

Educational Achievements

Low educational attainment has been associated with physical violence by husbands toward their wives (Fergusson et al., 1986; Gayford, 1975; Hotaling & Sugarman, 1986; Magdol et al., 1997; McLaughlin et al., 1992). Poor verbal skills have also been related to physical violence between spouses (Infante, 1989). Adult educational outcomes can be predicted from earlier in childhood by tests of intelligence and achievement (McCall, 1977), thus suggesting that such test scores might be examined as early risk predictors of partner abuse. We tested the hypothesis (H3) that young adults who are involved in partner abuse are likely to have experienced academic difficulties during childhood and adolescence.

Problem Behaviors

Studies of the contemporaneous characteristics of individuals involved in partner abuse have found that such persons are more likely to engage in a variety of problem behaviors. They have been reported to be more likely to be involved in criminal

activity (Gayford, 1975; Roberts, 1987; Rounsaville, 1978; Simons et al., 1995) and to use more alcohol and drugs (Barnett & Fagan, 1993; Fagan & Browne, 1994; Frieze & Browne, 1989; Hotaling & Sugarman, 1986; Kantor & Straus, 1987, 1989; Magdol et al., 1997; Pan et al., 1994). We tested the hypothesis (H4) that young adults who are involved in partner abuse are likely to have experienced problem behaviors during childhood and adolescence.

In summary, an impressive array of factors has been linked to partner abuse by retrospective and cross-sectional studies. Because both of these types of studies have limitations that constrain the utility of their findings as a basis for developmental theory building, we tested whether these factors would also be linked to partner abuse when measured prospectively and longitudinally.

Prospective–Longitudinal Methods in the Study of Antecedents of Partner Abuse

Retrospective measures are less than ideal for studying the antecedents of partner abuse because respondents' recollections of their pasts may be distorted by memory failure (Bradburn, Rips, & Shevell, 1987). In our own longitudinal study, we found only weak correlations between measures of family process or problem behaviors obtained by retrospective reports and prospective measures that were taken at the actual time of the corresponding behaviors. For example, when the participants in our longitudinal study were 18 years old, we asked them to report on the level of conflict they recalled in their childhood families. We compared their recollections to earlier measures of family conflict that had been obtained when these young people were 7, 9, 13, and 15 years old. Correlations between retrospective reports and contemporaneous reports of family conflict averaged only .19, ranging from .09 to .27, in spite of the fact that family conflict is a relatively salient dimension of early family life (Henry, Moffitt, Caspi, Langley, & Silva, 1994). Retrospective measures are also subject to bias because of respondents' awareness of their outcome status. Respondents' recollections of their earlier attributes and personal histories may be guided by their own "implicit theories" (Ross, 1989), and they may formulate recollections of the past in biased ways to provide post hoc justifications for socially unacceptable behaviors (Widom, 1989). Thus, the use of retrospective reports as valid and veridical accounts of the past should be treated with caution (Loftus, 1993).

The ideal design strategy for a developmental study would start in childhood in the family context and would follow individuals until a relationship with a partner was established. We are fortunate to be involved in a developmental study of a birth cohort that has been followed for over 20 years. In a recent assessment of study members, we gathered data on abuse in their intimate relationships in young adulthood. By searching the archives of our longitudinal study, we were able to examine at least some of the risk factors in each of the domains implicated in previous retrospective and cross-sectional studies (i.e., family relations, family socioeconomic resources, educational achievements, and problem behaviors). By measuring the predictors of partner abuse prospectively, when the abusers were children and adolescents, we avoided the possibility of distorted or incomplete memories. We also established a temporal ordering between independent and dependent variables, thus providing a necessary, although not sufficient, test of a causal relationship. In addition, we addressed potential self-report bias on the *outcome* variable, partner violence, by conducting a cross-validation test. First, we tested how well our childhood and adolescent measures predicted our study members' partner abuse when abuse was measured by their self-reports. Then, we tested whether the child and adolescent risk factors would also predict study members' partner abuse when it was independently reported by someone else: their partners. By substituting partner reports for self-reports, we were able to test whether risk factors can be replicated and whether they are generalizable beyond self-report studies.

Although much of the existing research on partner violence has focused primarily on acts of physical violence, in this study we also included psychological abuse as an outcome because it may be intertwined with physical abuse. Past research has shown that verbal abuse is related to physical aggression (Infante, 1989; Jacobson et al., 1994; O'Leary, Malone, & Tyree, 1994; Straus et al., 1980) and that psychological abuse may precede physical abuse (Murphy & O'Leary, 1989). Threatening, controlling, and terrorizing behaviors are likely to explain at least part of the reason that women remain in abusive situations (Shepard & Campbell, 1992). Furthermore, Hornung, McCullough, and Sugimoto (1981) pointed out that the long-term effects of psychological abuse on physical and mental health may be quite serious.

In summary, the purpose of this study was to test hypotheses about the developmental antecedents of partner abuse in young adulthood. We aimed to inform theory building about the origins of abuse and to inform policy about the timing and breadth of prevention programs. We analyzed antecedent characteristics from three different age periods (early childhood, middle childhood, and adolescence) to find out when prevention programs should be scheduled for maximum effectiveness. We analyzed antecedent characteristics from four different domains (family relations, socioeconomic resources, educational achievements, and problem behaviors) to tap a broad set of alterable risk factors.

Method

The Dunedin Study Design and Procedures

The sample for this study was an unselected birth cohort that has been studied extensively for over 20 years as part of the Dunedin Multidisciplinary Health and Development Study. The history of the study has been described in detail by Silva (1990). It is a longitudinal investigation of the health, development, and behavior of a complete cohort of births between April 1, 1972, and March 31, 1973, in Dunedin, New Zealand, a city of 120,000. Perinatal data were obtained at delivery, and when the children were later traced for follow-up at the age of 3 years, 1,037 (91% of the eligible births, of whom 52% were boys and 48% were girls) participated in the assessment and formed the base sample for the longitudinal study. With regard to social origins, the children's families were representative of the social-class and ethnic distribution in the general population of New Zealand's South Island. With regard

to racial distribution, the study members are of predominantly European ancestry. Fewer than 7% identify themselves as Maori or Polynesian.

Published cross-national comparisons of rates of social problems lend confidence about the generalizability of behavioral findings from the Dunedin study to other industrialized nations (these studies were reviewed by Wright, Caspi, Moffitt, & Silva, 1998). Specifically, comparisons between New Zealand and the United States have shown very comparable prevalence rates for infant mortality, childhood psychiatric disorders, adult major depression, antisocial personality, alcohol dependence, self-reports of delinquent offenses, and victim reports for assault, rape, robbery, burglary, and auto theft. Past-year prevalence rates of any physical violence toward a partner in the Dunedin sample at age 21 were 37.2% for women and 21.8% for men. Magdol et al. (1997) showed that Dunedin rates are comparable to rates for married and cohabiting respondents under the age of 25 in the 1985 National Family Violence Survey and between the ages of 18 to 24 in the National Youth Survey, two representative American surveys (Fagan & Browne, 1994, Table 2, p. 138).

The Dunedin sample has been reassessed with a diverse battery of psychological, medical, and sociological measures with high rates of participation at ages 3 (n = 1,037), 5 (n = 991), 7 (n = 954), 9 (n = 955), 11 (n = 925), 13 (n = 850), 15 (n = 976), 18 (n = 1,008), and most recently 21 (n = 992). The basic procedure involves bringing each study member into the research unit within 60 days of his or her birthday for a full day of individual data collection. The various research topics are presented in different private interview rooms as standardized modules by different examiners in counterbalanced order throughout the day. In addition to the day-long assessments of the study members, data are gathered from sources such as parents, teachers, and courts.

Of the 1,037 original study members, 941 provided data about their intimate relationships at age 21. Data were missing for 17 study members who had died since the age of 3 years, 9 who were not located, 19 who refused to participate in the age 21 assessment, 9 for whom there were too many missing items to be included in our analysis, and 42 who were interviewed in the field or by telephone with a short version of the protocol that did not include questions about partner abuse. The 941 study members who participated in the intimate relations interview were compared with the 96 study members from the original birth cohort of 1,037 who did not. The two samples did not differ in sex composition, $\chi^2(1, N = 1{,}037) = 1.33$, $p = .25$, social class at birth, $t(939) = 0.78$, $p = .44$, or history of adolescent problem behavior, $t(958) = 0.26$, $p = .79$. It is thus unlikely that systematic attrition biased our results.

For the purposes of our research, an intimate relationship was defined as a relationship with a romantic partner during the past 12 months that had lasted at least 1 month. Of the 941 study members, 83% reported that they were involved in such an intimate relationship during the past 12 months. These study members were then asked all subsequent questions about partner abuse in reference to the person they identified as their intimate partner. Study members who had more than one intimate relationship in the past 12 months reported about their current or most recent partner. Another 8.5% of the study members reported that they were not involved in an intimate relationship that met our criteria during the past 12 months but that they had dated *at least* once or twice a month during the past 12 months. These study members were then asked all subsequent questions about partner abuse in reference to their dating experience. Study members who neither were involved in a relationship nor had dated during the past 12 months (n = 80) could not be asked questions about partner abuse. In all, we obtained data about partner abuse from 861 study members. The average length of the relationships about which the study members reported was 16.7 months (SD = 17.33). Of the relationships, 60% had lasted for more than 6 months, 44% had lasted for more than 12 months, and 26% had lasted for more than 2 years.

Measuring Partner Abuse at Age 21

The set of questions about partner abuse was embedded in a 50-min standardized interview about intimate relationships that was conducted by female interviewers. Partner abuse was assessed by a series of questions about whether certain behaviors had occurred in the relationship during the past 12 months. Both positive and negative strategies for negotiating disagreements were included. The items were drawn from previous research on partner conflict (Hudson, 1987; Margolin, Burman, John, & O'Brien, 1990; Margolin, Fernandez, Gorin, & Ortiz, 1982; Straus, 1990a).

Study members were asked to enter their responses to each question on a private answer sheet while the interviewer read each item aloud. This procedure was designed to allow privacy while overcoming any problems with illiteracy. Following the procedure of Hornung et al. (1981), the respondents first reported their behaviors toward their partners (yielding data about perpetration) and later reported their partners' behaviors toward them (yielding data about victimization). Response options for each item were "yes" versus "no." Although this was the first follow-up at which the study members were asked about partner abuse, they have in the past repeatedly reported to us sensitive topics such as their sexual behavior, illegal behavior, substance abuse, and symptoms of mental disorders. Because there has never been a violation of confidentiality, this sample is willing to provide frank reports. Printed brochures about how to get help for physical abuse were available as was referral information for those requesting it.

We constructed two partner-abuse scales (Moffitt et al., 1997). The individual items in these two scales are displayed in Table 1. The *Physical Abuse* scale includes all 9 physical violence items in the Conflict Tactics Scales (CTS, Form R; Straus, 1990a) plus 4 additional items that capture other physically abusive behaviors. When sample members reported about perpetration (i.e., their own behavior toward their partner), the Physical Abuse scale had a reliability of .76; when they reported about victimization (i.e., their partners' behavior toward them), reliability was .82. The *Psychological Abuse* scale consists of 2 items from the CTS and 18 additional items that capture controlling, terrorizing, demeaning, and other psychologically abusive behaviors. When sample members reported about perpetration, the Psychological Abuse scale had a reliability of .84; when they reported about victimization, reliability was .87. To illustrate the extent of abusive behavior in the sample, Table 1 shows the percentage who reported they had perpetrated each item (Magdol et al., 1997, showed that item percentages are similar for perpetration and victimization and for men and women).

Developmental Antecedents of Partner Abuse

In the present study, we examined 24 individual and family characteristics that were hypothesized to predict partner abuse. The variables were measured in early childhood, in middle childhood, and in adolescence. Early childhood characteristics were measured at birth and at ages 3 and 5. We averaged equivalent measures from ages 3 and 5 whenever possible, to increase the reliability of our measures. Middle childhood characteristics were measured at ages 7 and 9; we averaged equivalent measures from ages 7 and 9 when possible. Adolescent characteristics were measured at age 15. The means and standard deviations for all early childhood, middle childhood, and adolescent characteristics are shown in Table 2.

There were two measures of *family socioeconomic resources.* Social class was measured at birth and at ages 7–9 and 15 by the socioeconomic status of the parents' occupations on a 6-point scale designed for New Zealand (Elley & Irving, 1976). Family structure was measured at ages 9 and 15 as a dummy variable coded as 1 if the sample member lived with both biological parents. At birth, the measure was a dummy variable

Table 1
Item Content of the Physical and Psychological Partner Abuse Scales and Percentage of the Sample Reporting Perpetrating Specific Acts

Scale and item	Perpetration rate (%)
Physical Abuse	
Physically twisted your partner's arm	4.7
Pushed, grabbed, or shoved your partner[a]	24.6
Slapped your partner[a]	12.5
Physically forced sex on your partner	0.8
Shaken your partner	8.7
Thrown or tried to throw your partner bodily	2.0
Thrown an object at your partner[a]	7.3
Choked or strangled your partner[a]	0.7
Kicked, bitten, or hit your partner with a fist[a]	9.3
Hit or tried to hit your partner with something[a]	4.7
Beaten your partner up[a]	1.0
Threatened your partner with a knife or gun[a]	0.2
Used a knife or gun on your partner[a]	0.1
Any physical abuse	31.9
Psychological Abuse	
Damaged a household item or some part of the home out of anger	11.2
Deliberately disposed of or hid an important item of your partner's	6.4
Got very upset if dinner/housework/home repair work was not done	21.2
Purposely damaged or destroyed your partner's clothes/car/other	3.5
Insulted or shamed your partner in front of others	17.1
Locked your partner out of the house	7.0
Told your partner that he/she could not work or study	2.6
Tried to stop your partner from seeing/talking to family or friends	5.8
Restricted your partner's use of the car or telephone	3.7
Made threats to leave	32.1
Tried to turn family, friends, or children against your partner	3.1
Ordered your partner around	27.8
Frightened your partner	19.9
Treated your partner like he/she was stupid	19.8
Given in to your partner but planned revenge	11.3
Ridiculed your partner	13.3
Threatened to hit or throw something at your partner in anger[a]	17.1
Told your partner he/she was ugly or unattractive	5.7
Became abusive after using drugs or alcohol	10.6
Thrown, smashed, hit, or kicked something in a disagreement[a]	16.4
Any psychological abuse	70.1

[a] Denotes an item from the Conflict Tactics Scales.

coded as 1 if hospital records indicated that the child was born to a married mother.

There were five measures of *family relations.* Negative mother–child interaction was assessed at age 3 (Henry, Moffitt, Robins, Earls, & Silva, 1993). The mothers were observed during 1-hour testing sessions, and the observer assigned 1 point for each of eight parenting dimensions if the mothers appeared negative or inappropriate (e.g., if the mothers' expressions of affect were consistently negative or harsh, if their evaluations of their children were constantly critical or derogatory, or if they were rough or inconsiderate in physically handling the child). Points across the eight dimensions were summed; reliability was .71. Family conflict was measured at ages 7–9 and 15 with the Moos Family Relations Index (FRI; Moos & Moos, 1981), completed by mothers of the sample members. The Conflict subscale of the FRI contains items such as "In our family, we believe you don't ever get anywhere by raising your voice" and "Family members sometimes hit each other." Reliability (.85) and validity for this scale in the Dunedin study have been described by Parnicky, Williams, and Silva (1985). We constructed a measure of harsh discipline at ages 7–9 from a checklist of disciplinary behaviors. Parents were asked to indicate if they engaged in 10 behaviors, such as "smack [your child] or hit him/her with something," "try to frighten [your child] with someone like his/her father or a policeman," and "threaten to smack, or to deprive [your child of something]." The reliability of this scale was .71. Parent–child attachment was measured at age 15 with a 12-item self-report measure from the Inventory of Parent Attachment (Armsden & Greenberg, 1987). The items measure adolescents' trust, communication, and alienation in their relationships with parents. Reliability (.82) and validity of this scale in the Dunedin study have been described by Nada-Raja, McGee, and Stanton (1992). Mothers' mental health problems were measured with a 24-item questionnaire that was completed by the mothers of sample members when the sample members were aged 7–9 and 15. The questionnaire was developed by Rutter, Tizard, and Whitmore (1970) to sample a variety of common symptoms of emotional disturbance. Reliability (.78) and validity for this scale in the Dunedin study have been described by McGee, Williams, and Silva (1986).

There were three measures of *educational achievements.* IQ was measured at ages 7–9 with the Wechsler Intelligence Scale for Children–Revised (WISC-R; Wechsler, 1974). Reliability (.96) and validity for this scale in the Dunedin study have been described by Moffitt, Caspi,

Table 2
Intercorrelations of Developmental Antecedents of Partner Abuse

Measure of family socioeconomic resources	1	2	3	4	5	6		*M*	*SD*
1. Social class at birth	—							3.51	1.34
2. Social class at 7–9	.75**	—						3.31	1.24
3. Social class at 15	.53**	.63**	—					2.91	1.23
4. Born to married mother	−.05	.01	.01	—				0.96	0.19
5. Both parents present at 9	.12**	.15**	.15**	.25**	—			0.83	0.38
6. Both parents present at 15	.10**	.13**	.14**	.28**	.69**	—		0.72	0.45
Measure of family relations	7	8	9	10	11	12	13	*M*	*SD*
7. Negative mother–child interaction at 3	—							0.19	0.39
8. Family conflict at 7–9	.01	—						3.50	1.84
9. Family conflict at 15	.04	.51**	—					3.32	2.08
10. Harsh discipline at 7–9	.03	.22**	.23**	—				1.86	2.33
11. Parent–child attachment at 15	−.13**	−.11**	−.22**	−.10**	—			21.54	5.73
12. Mother's mental health problems at 7–9	.07*	.23**	.13**	.22**	−.03	—		1.86	2.26
13. Mother's mental health problems at 15	.08*	.19**	.19**	.24**	−.10**	.56**	—	2.83	3.26
Measure of educational achievements	14	15	16	17	18			*M*	*SD*
14. Stanford–Binet IQ at 5	—							107.27	15.30
15. WISC-R at 7–9	.64**	—						106.87	13.20
16. Reading achievement at 7–9	.51**	.60**	—					42.75	15.58
17. Reading achievement at 15	.43**	.54**	.73**	—				91.40	14.29
18. Age at leaving secondary school	.31**	.33**	.28**	.33**	—			17.50	0.96
Measure of problem behaviors	19	20	21	22	23	24		*M*	*SD*
19. Difficult temperament	—							1.10	1.56
20. Conduct problems at 7–9	.34**	—						5.57	4.39
21. Conduct problems at 15	.16**	.40**	—					6.22	6.17
22. Aggressive delinquency at 15	.04	.21**	.15**	—				0.37	1.08
23. Juvenile police contact	.08	.20*	.10**	.33**	—			0.35	1.43
24. Substance abuse at 15	−.04	.07	.17**	.55**	.26**	—		0.74	1.47

Note. WISC-R = Wechsler Intelligence Scale for Children–Revised.
* $p < .05$. ** $p < .01$.

Harkness, and Silva (1993). At age 5, IQ was assessed with the Stanford–Binet Intelligence Scale (Terman & Merrill, 1960). Details about this scale in the Dunedin study have been described by Silva (1986). Reading achievement was measured at ages 7–9 and 15 by the Burt Word Reading Test (Scottish Council for Research in Education, 1976) renormed for children in New Zealand. Reliability (.86) and validity for this scale in the Dunedin study have been described by Williams and Silva (1985). Age at leaving secondary school was the age at which the sample member left high school. Education is compulsory until age 15 in New Zealand.

There were five measures of *problem behaviors*. Difficult temperament was assessed at ages 3–5 by psychological examiners in a testing session involving cognitive and motor tasks. Following the testing session, examiners rated each child's behaviors. On the basis of factor analyses of the ratings, Caspi, Henry, McGee, Moffitt, and Silva (1995) identified a dimension that reflected individual differences in reactions to stress and challenge, impulse control, and the ability to persist in problem solving. Children who scored high on this factor were emotionally labile, irritable, negativistic, rough, inattentive, and had difficulty concentrating. Reliability (.75) and validity for this scale have been described by Caspi et al. (1995). The measure of conduct problems at ages 7–9 was based on combined parent and teacher ratings of items from the Antisocial and Hyperactivity subscales of the Rutter Child Scales (RCS; Rutter et al., 1970). Reliability (.91) and validity for the scale in the Dunedin study have been described by McGee, Williams, and Silva (1985). At age 15, conduct problems were measured with the Conduct Disorder subscale of the Revised Behavior Problem Checklist (Quay & Peterson, 1987) completed by parents when sample members were age 15. The items in this subscale reflect aggressive and interpersonally alienated behaviors, such as bullying, quarreling, disobeying, and teasing others. Reliability (.95) and validity for this scale in the Dunedin study have been described by Williams and McGee (1994). Aggressive delinquency was measured at age 15 with self-reports of aggressive behavior that were obtained in a private, individual structured interview, developed for use in New Zealand. Items for the scale of aggressive behaviors inquired whether the participant had set fire to a building, hit a parent, fought in the street or in another public place, struggled to escape from a policeman, used force or threats to extort money, or used a weapon in a fight. Reliability

Table 3
Correlations of Physical Abuse at Age 21 With Selected Childhood and Adolescent Characteristics

Risk factor	Male perpetrator (n = 345–434)	Male victim (n = 345–435)	Female perpetrator (n = 319–425)	Female victim (n = 318–424)
Family socioeconomic resources				
Social class at birth	−.11*	−.11*	−.06	−.06
Social class at 7–9	−.13**	−.10*	−.04	−.06
Social class at 15	−.11*	−.08	−.02	−.00
Born to married mother	.00	.01	−.04	.00
Both parents present at 9	−.18**	−.22*	−.02	−.04
Both parents present at 15	−.10*	−.11*	−.11*	−.10*
Family relations				
Negative mother–child interaction at 3	.05	.06	.08	.10*
Family conflict at 7–9	.04	.11*	.15**	.02
Family conflict at 15	.07	.09	.19**	.17**
Harsh discipline at 7–9	.02	−.02	.18**	.10*
Parent–child attachment at 15	−.16**	−.17**	−.23**	−.19**
Mother's mental health problems at 7–9	.03	.11*	.07	−.03
Mother's mental health problems at 15	.07	.15**	.04	.01
Educational achievements				
Stanford–Binet IQ at 5	−.07	−.06	−.02	−.10*
WISC-R at 7–9	−.12**	−.11*	−.01	−.01
Reading achievement at 7–9	−.14**	−.10*	−.06	−.03
Reading achievement at 15	−.16**	−.14**	−.05	−.04
Age at leaving secondary school	−.29**	−.25**	−.17**	−.19**
Problem behaviors				
Difficult temperament at 3–5	.05	.05	.09	.13**
Conduct problems at 7–9	.14**	.15**	.07	.03
Conduct problems at 15	.16**	.22**	.19**	.14**
Aggressive delinquency at 15	.22**	.24**	.35**	.35**
Juvenile police contact	.12*	.05	.08	.20**
Substance abuse at 15	.22**	.23**	.24**	.24**

Note. WISC-R = Wechsler Intelligence Scale for Children–Revised.
* $p < .05$. ** $p < .01$, two-tailed.

(.88) and validity for this scale in the Dunedin study have been described by Moffitt and Silva (1988). Juvenile police contact from ages 10–16 was based on records of police contacts that were obtained from police departments throughout New Zealand. The number of police contacts in this sample ranged from 0 to 18. Substance abuse was measured at age 15 with a variety score based on self-reports of buying alcohol underage, being drunk in a public place, smoking marijuana, sniffing glue, and using other drugs. Reliability (.78) and validity in the Dunedin study have been described by Moffitt and Silva.

Results

Childhood and Adolescent Predictors of Physical Abuse in Young Adulthood

Table 3 displays the correlations between physical abuse at 21 and selected background characteristics of the sample members in early childhood, middle childhood, and adolescence.[1] Results are shown separately for men and women and for perpetration and victimization.[2]

Physical abuse among men. The first column of data in Table 3 displays the correlations between background characteristics and subsequent physical abuse by men toward their partners. The results in the first column of data indicate that 15 of the 24 antecedents were significantly associated with physical abuse at age 21. Both family and individual factors were predictive of physical abuse. Among our measures of family socioeconomic resources, growing up in a lower status home and growing up without both biological parents present predicted men's physical abuse toward their partners. Among our measures of family relations, only weak attachment to parents during

[1] Respondents could decline to answer blocks of questions by topic. Also, the data were gathered from multiple sources (e.g., trained observers, parents, teachers, and school records). As a result, many variables had some missing data, ranging from 0% to 23% (for whether both parents were present at age 9), with most variables missing data for 3% to 9% of the sample. To check for bias, we used missing-data indicators (Little & Rubin, 1987). For each variable with missing data, we created a corresponding dummy variable that indicated which cases were missing (1 = *missing*, 0 = *observed*). We then assigned an arbitrary value to respondents who were missing the original variable, so they would not be ejected as missing from the analysis. Next we entered each recoded variable and its missing-data indicator in four regression equations predicting physical abuse (perpetration, victimization) and psychological abuse (perpetration, victimization). Four of the 84 missing-data indicators were statistically significant, a rate expectable by chance, suggesting that our results were not biased by missing data.

[2] Because partner abuse may differ in casual versus serious relationships, we reran the analyses in Tables 3 and 4, excluding all sample members who reported on dating relationships lasting 1 month or less. No correlation coefficient in this report changed by more than .03.

adolescence predicted men's later physical abuse toward their partners. Individual factors also posed significant risk for men's subsequent physical abuse. With respect to educational achievements in adolescence, we found that poor reading ability and leaving school early predicted men's physical abuse. In middle childhood, low IQ and poor reading ability predicted men's subsequent physical abuse. With respect to problem behaviors in adolescence, we found that conduct problems, aggressive delinquency, juvenile police contact, and substance abuse were predictive of physical abuse at age 21. In middle childhood, conduct problems were associated with men's subsequent physical abuse toward their partners.

The second column of data in Table 3 displays the correlations between background characteristics and reports by men of victimization by their partners at age 21. These correlations show that 13 of the 15 predictors of perpetration were also predictors of victimization. In addition, having a mother with mental health problems in childhood or in adolescence and family conflict in middle childhood were significant predictors of men's victimization but not of perpetration. The predictors of perpetration and victimization may be similar because perpetration and victimization were highly correlated (for men, $r = .60, p < .001$); men who perpetrated physical abuse were 9.6 times (95% confidence interval [CI] = 5.8–15.9) as likely to be victims of abuse as men who were not perpetrators, $\chi^2(1, N = 436) = 90.7, p < .001$.

Physical abuse among women. The third column of data in Table 3 displays the correlations between background characteristics and subsequent physical abuse by women toward their partners. For women, 9 of the 24 antecedent characteristics were significantly associated with physical abuse perpetration at age 21. Both family and individual factors were significantly linked to later abuse, but the correlations for women differed somewhat from those for men. Among measures of socioeconomic resources, the absence of a biological parent in adolescence was the sole predictor of women's subsequent partner abuse. Among our measures of family relations, family conflict and weak parent–child attachment in adolescence were associated with partner abuse, as were family conflict and harsh discipline during middle childhood. Turning to individual factors, leaving school early was the only significant cognitive-achievement measure that predicted women's physical abuse toward their partners at age 21. Among our measures of problem behaviors, adolescent conduct problems, aggressive delinquency, and substance abuse were associated with women's subsequent physical abuse toward their partners at age 21.

The fourth column of data in Table 3 displays the correlations between background characteristics and reports by women of victimization by their partners at age 21. These results show that eight of the nine predictors of perpetration were also predictors of victimization. This similarity is not surprising because for women, as for men, perpetration and victimization were highly correlated ($r = .63, p < .001$); women who were victims of physical abuse were 13.0 times (95% CI = 7.9–21.4) as likely to perpetrate abuse as women who were not victims $\chi^2(1, N = 425) = 122.3, p < .001$. In addition to the eight correlates common to perpetration and victimization, negative mother–child interaction, low IQ, difficult temperament in early childhood, and juvenile police contact during adolescence, predicted women's victimization but not their perpetration.

Childhood and Adolescent Predictors of Psychological Abuse in Young Adulthood

Table 4 displays the correlations between psychological abuse at 21 and the same childhood and adolescent characteristics as in Table 3. Results are shown separately for men and women and for perpetration and victimization. In general, the results for psychological abuse resemble those for physical abuse. This similarity is not unexpected because perpetration of physical abuse and perpetration of psychological abuse were correlated at $r = .73$ for women and $r = .74$ for men.

Psychological abuse among men. The first column of data in Table 4 shows that the same variables that predicted physical abuse by men (Table 3) also predicted psychological abuse by men. In addition, family conflict and mother's mental health problems during adolescence were significant predictors of psychological abuse by young men at age 21. The second column of data in Table 4 shows that 13 of the 17 predictors of perpetration were also predictors of victimization. In addition, having a mother with mental health problems during middle childhood was a significant predictor of victimization but not of perpetration for men. For men, psychological abuse perpetration and victimization were highly correlated ($r = .72, p < .001$); men who perpetrated psychological abuse were 12.5 times (95% CI = 7.7–20.2) as likely to be victims of abuse as men who were not perpetrators, $\chi^2(1, N = 436) = 124.9, p < .001$.

Psychological abuse among women. The third column of data in Table 4 shows that all but one of the predictors of physical abuse (Table 3) also predicted psychological abuse by women. In addition, police contact in adolescence, conduct problems in middle childhood, and difficult temperament in early childhood were predictors of women's psychological abuse toward their partners. The fourth column of data in Table 4 shows that 9 of the 11 predictors of perpetration were also predictors of victimization. For women, psychological abuse perpetration and victimization were highly correlated ($r = .67$, $p < .001$); women who were victims of psychological abuse were 7.4 times (95% CI = 4.6–12.0) as likely to perpetrate abuse as women who were not victims, $\chi^2(1, N = 425) = 74.3$, $p < .001$. In addition to the 9 correlates common to perpetration and victimization, family conflict in middle childhood and negative mother–child interaction in early childhood were significant predictors of victimization but not of perpetration for women.

Multivariate Regression Analysis With Composite Measures for Domains

Thus far we have shown zero-order associations between each of the antecedent variables and the partner-abuse outcomes. In addition, we conducted multivariate regression analyses for which we constructed composite variables of (a) family socioeconomic resources, (b) family relations, (c) educational achievements, and (d) problem behaviors for the predictors of partner violence in young adulthood. The purpose of these multivariate analyses was to identify the unique developmental ante-

Table 4
Correlations of Psychological Abuse at Age 21 With Selected Childhood and Adolescent Characteristics

Risk factor	Male perpetrator (n = 344–433)	Male victim (n = 344–433)	Female perpetrator (n = 319–425)	Female victim (n = 317–423)
Family socioeconomic resources				
Social class at birth	−.11*	−.10	−.06	−.05
Social class at 7–9	−.13**	−.11*	−.05	−.06
Social class at 15	−.14**	−.09	−.05	−.05
Born to married mother	−.00	.04	−.05	−.03
Both parents present at 9	−.16**	−.11*	−.05	−.08
Both parents present at 15	−.11*	−.06	−.11*	−.12*
Family relations				
Negative mother–child interaction at 3	−.00	−.01	.06	.10*
Family conflict at 7–9	.09	.09	.09	.10*
Family conflict at 15	.12*	.11*	.18**	.20**
Harsh discipline at 7–9	.08	.06	.16**	.11*
Parent–child attachment at 15	−.23**	−.25**	−.20**	−.24**
Mother's mental health problems at 7–9	.05	.12*	.05	.03
Mother's mental health problems at 15	.12**	.18**	.04	.08
Educational achievements				
Stanford–Binet IQ at 5	−.06	−.08	−.06	−.04
WISC-R at 7–9	−.11*	−.08	−.02	.00
Reading achievement at 7–9	−.11*	−.10*	−.05	−.01
Reading achievement at 15	−.15**	−.11**	−.07	−.02
Age at leaving secondary school	−.28**	−.22**	−.16**	−.12**
Problem behaviors				
Difficult temperament at 3–5	.04	.05	.11*	.06
Conduct problems at 7–9	.16**	.11*	.11*	.07
Conduct problems at 15	.26**	.24**	.23**	.21**
Aggressive delinquency at 15	.30**	.24**	.27**	.23**
Juvenile police contact	.16*	.06	.15**	.15**
Substance abuse at 15	.27**	.21**	.21**	.20**

Note. WISC-R = Wechsler Intelligence Scale for Children–Revised.
* $p < .05$. ** $p < .01$, two-tailed.

cedents of partner abuse, after controlling for other developmental domains. As shown in Table 2, the developmental antecedents that predicted partner violence were intercorrelated within each of the four domains. Some correlations within a domain were stronger than others, but the strongest were primarily correlations between variables measured with the same instrument or measured at the same time. Because the variables were intercorrelated and shared common variance with the outcome of interest, we constructed composite variables for the regression analyses. We calculated z scores for each developmental antecedent and summed these standardized variables within each of the four domains.

Although the composite variables were also intercorrelated, these correlations did not exceed .42 in absolute magnitude and were thus somewhat more moderate than the intercorrelations among the individual antecedents, which were as high as .75. The reliabilities for the composite variables were .65 for family socioeconomic resources, .58 for family relations, .80 for educational achievements, and .60 for problem behaviors.

We then examined the predictive links between the four composites and adult partner abuse. Table 5 shows zero-order correlations (r) for each composite developmental antecedent variable with physical and psychological partner abuse, perpetration and victimization, among men and women. For men, all four composite variables were significantly correlated with both perpetration and victimization, for both physical and psychological abuse. For women, zero-order findings highlighted the importance of family relations and problem behaviors. Table 5 also shows the unique effects of each composite on partner abuse (β) while controlling for the effects of the other composites. Problem behaviors had moderate-sized independent effects on perpetration and victimization, for both physical and psychological abuse, among men and women. Family relations and educational achievements also had significant independent effects, but the effects were smaller and less consistent across role, gender, and type of abuse.

Gender Interactions

Because not all effects were consistent in size and significance across the genders, we also tested for interaction effects between gender and each composite developmental antecedent on the prediction of abuse outcomes. The multivariate regression models used the entire sample. We first entered gender and the four composite antecedent variables and then entered four variables representing the multiplicative interaction between gender and each composite. Significant interactions are noted in Table 5. When physical abuse perpetration was the dependent variable, significant interactions ($p < .05$) showed that family relations and problem behaviors were more predictive for

Table 5
Zero-Order Correlations and Ordinary Least Squares Regression Coefficients for Composite Developmental Antecedents Predicting Partner Abuse in Young Adulthood

Developmental antecedent	Male perpetrator	Male victim	Female perpetrator	Female victim
Physical abuse				
Family socioeconomic resources				
r	−.16**	−.15**	−.08	−.07
β	−.05	−.05	.02	.02
Family relations				
r	.11*	.17**	.24**	.14**
β	−.01	.06	.15**[a]	.03
Educational achievements				
r	−.21**	−.18**	−.09	−.11*
β	−.11**	−.06	.03	.02
Problem behaviors				
r	.24**	.26**	.29**	.30**
β	.18**	.20**	.25**[a]	.30**[a]
Psychological abuse				
Family socioeconomic resources				
r	−.17**	−.11*	−.10*	−.10*
β	−.05	−.01	.00	−.03
Family relations				
r	.17**	.20**	.21**	.22**
β	.03	.10*	.10*	.13*
Educational achievements				
r	−.19**	−.16**	−.10	−.06
β	−.04	−.05	.04	.06
Problem behaviors				
r	.33**	.25**	.31**	.25**
β	.28**	.18**	.29**	.22**

[a] Gender interaction significant at $p < .05$.
* $p < .05$. ** $p < .01$.

women. When physical abuse victimization was the dependent variable, problem behaviors were more predictive for women. Of a possible 16 gender interactions, only these 3 were significant. Their significance should be interpreted cautiously until replicated.

Cross-Validation Study With Partner Reports of Abuse

We next substituted partner reports of abuse for self-reports of abuse to test if our predictive–longitudinal findings could be replicated and generalized beyond self-reports. Prior to the age 21 interview, study members were asked to bring in an intimate partner, defined as someone they had been dating seriously for at least 6 months or someone they were married to or living with. Of the 474 partners who met our criteria, 360 (76%) participated. These partners were the same individuals about whom the study members were reporting, and they formed the replication sample for our cross-validation test. The 360 study members whose partners participated did not differ from the 114 study members with eligible nonparticipant partners on educational attainment, $t(468) = 0.21$, $p = .83$, physical abuse, $t(464) = 0.45$, $p = .65$, or psychological abuse, $t(462) = 1.40$, $p = .16$. Study members with participating partners were in relationships of longer duration ($M = 26$ months) than study members whose partners did not participate, $t(470) = 2.46$, $p = .01$. Study members and their partners were interviewed separately and simultaneously by different interviewers, and confidentiality was guaranteed. Couples did not know before the interview day that they would be asked questions about partner abuse, thus eliminating the chance that they would confer about their responses prior to the interview. Before their individual interviews turned to the topic of partner abuse, participants were given the opportunity to decline that part of the interview. None of the participants refused. Correlations between partner reports and self-reports of abuse were .58 (physical abuse: male perpetrator vs. female victim), .54 (physical abuse: female perpetrator vs. male victim), .53 (psychological abuse: male perpetrator vs. female victim), and .56 (psychological abuse: female perpetrator vs. male victim); Moffitt et al., 1997).

Table 6 displays the results of the cross-validation analysis. The first column of data shows multiple correlations from regressions that were estimated by using self-reports of abuse as the outcome variables with all 24 developmental antecedents entered as predictors. To cross-validate these results, we correlated the abuse scores predicted by each of the eight regression equations with corresponding abuse outcome scores that were reported by each study member's partner. These correlations, displayed in the second column of data in Table 6, ranged from .30 to .51, averaging .37. A comparison between these two columns of Table 6 shows that the self-report equations pre-

Table 6
Cross-Validation of the Predictors of Partner Abuse, Using Self-Reports and Partner Reports as Independent Outcome Criteria

Abuse and perpetrator	Multiple *R*	Cross-validation *r*
Physical abuse		
Male perpetration	.44	.51
Male victimization	.46	.33
Female perpetration	.51	.37
Female victimization	.51	.30
Psychological abuse		
Male perpetration	.45	.40
Male victimization	.45	.37
Female perpetration	.46	.34
Female victimization	.42	.32

Note. All coefficients are significant at $p \leq .001$.

dicted partner reports of abuse outcomes well, although more modestly than equations specifically fitted to the self-report data. This suggests that even if the study members' abuse experiences are described by knowledgeable intimates, they are nonetheless moderately predictable from the same linear combination of childhood and adolescent antecedents. The cross-validation appeared to be about equally robust for victimization and perpetration, for males and females, and for physical and psychological abuse. The strongest similarity between developmental risk for self-reported and partner-reported abuse was for perpetration by men. In contrast, the weakest similarity between risk for self-reported and partner-reported abuse was for victimization of women. This finding is consistent with previous reports that background characteristics are inconsistently related to women's victimization (Hotaling & Sugarman, 1986).

Discussion

The present study has replicated and extended earlier research on the risk markers for involvement in an abusive partner relationship. This study has certain advantages. First, because measures of the correlates of partner abuse were obtained prospectively, we eliminated the potential omissions and distortions of retrospective reports. Second, because all of our predictor variables were measured prior to the study members' involvement with their partners, our results provided greater confidence about the temporal sequence from predictors to outcome. Third, we analyzed both psychological and physical partner abuse as outcomes, thus enabling us to examine similarities in the predictors of both forms of damaging behaviors. Fourth, we analyzed both male-to-female abuse and female-to-male abuse, to examine gender differences in the predictors of partner abuse. Fifth, we conducted a cross-validation test to show that the developmental antecedents of self-reported partner abuse can be replicated when study members' abuse outcomes are independently reported by their partners.

Our study has sampling limitations. The sample is restricted to one age group, young adults. However, rates of violent victimization by an intimate partner are highest among women between 19 and 29 years of age (U.S. Department of Justice, 1995), suggesting that prediction and explanation of partner abuse in young adulthood merits special attention. Our study was also limited in the choice of available measures. We analyzed measures of conflict and harsh discipline in childhood, but our archives did not include a direct measure of childhood exposure to violence between parents. We analyzed measures of partner abuse in the past year, as reported at age 21, but we lacked a measure of intimate violence in dating relationships during adolescence and thus could not assess partner violence across multiple past relationships. Controlling for partner abuse in adolescence would strengthen confidence in the causal relationship that is presumed by the temporal ordering of adolescent characteristics and young-adult partner abuse. Future prospective studies of intimate violence should collect data on relationships as early as possible (i.e., when dating begins during adolescence). Finally, our study was limited in the magnitude of the effects that we report. The correlations we found between antecedent characteristics and adult partner abuse were "small" to "medium," using Cohen's (1988) descriptive labels, and ranged from .10 to .29. However, it is important to note that these small correlations represent the *net* effects, without shared source variance (when the same person reports both predictor and outcome variables) and shared method variance (when predictor and outcome are reported in the same interview or on the same questionnaire). In retrospective surveys, method and source variance artificially inflate correlations (Bank, Dishion, Skinner & Patterson, 1990). Another way to consider the strength of our effects is to examine the overall variance explained when all predictor variables are entered in a multivariate model. The multiple *R*s from these regression equations predicting self-reported physical and psychological abuse ranged from .42 to .51, which are "medium" to "large," using Cohen's descriptive labels.

Our results address three questions posed in the introduction regarding (a) the identification of developmental predictors of partner abuse, (b) the earliest age at which risk markers can be identified, and (c) gender differences in risk markers.

What Are the Developmental Antecedents of Partner Abuse in Young Adulthood?

The results were consistent with our hypotheses that childhood and adolescent characteristics in the four domains of family relations, family socioeconomic resources, educational achievements, and problem behaviors can partially predict who is at risk for subsequent partner abuse in early adulthood. In each of the four domains, we found at least one predictor that was consistently related to partner abuse, regardless of whether the abuse was physical or psychological and regardless of whether the outcome was perpetration or victimization. We discuss these most consistent predictors here.

In support of our hypothesis (H1) that early family relations are associated with partner abuse in early adulthood, we found that close parent–child attachment at age 15 was consistently associated with low risk for subsequent partner abuse. This finding fits with retrospective studies that implicate conflicted parent–child relations in subsequent partner abuse. Young per-

sons who have experienced warmth, trust, and open communication in an earlier primary relationship are likely to bring these qualities to their adult relationships and are thus less likely to use abusive strategies in their current primary relationship.

In support of our hypothesis (H2) that earlier family socioeconomic resources are associated with partner abuse in early adulthood, we found that having parents with higher status occupations (for boys in middle childhood) and growing up in a household with both parents present (for boys in middle childhood and for girls in adolescence) were both related to low risk for subsequent partner abuse. The contemporaneous correlation between partner abuse and socioeconomic deficits that has been reported earlier has been taken to suggest that economic stress is a proximal risk factor for abusive behavior. The correlation of partner abuse and past socioeconomic deficits suggests that it is also a distal risk factor with long-term consequences.

In support of our hypothesis (H3) that earlier educational achievements are associated with partner abuse in early adulthood, we found that leaving school early was a consistent predictor of subsequent partner abuse. This finding replicates numerous studies that report contemporaneous correlations between adult educational attainment and partner violence. The implication of this finding is that in addition to early family socioeconomic resources, early individual human capital is a relevant predictor of involvement in an abusive relationship, thus highlighting the importance of programs that aim to prevent premature departure from school.

In support of our hypothesis (H4) that earlier problem behaviors are associated with partner abuse in early adulthood, three of our measures were consistently related to subsequent partner abuse. These were parent reports of conduct problems at age 15, self-reports of aggressive delinquency at age 15, and substance abuse at age 15. The correlations of partner abuse with earlier conduct problems and physically violent delinquent offending suggest that young persons who have a lengthy history of solving interpersonal problems in a coercive manner are likely to use similar tactics in their primary adult relationships. The correlation of partner abuse and earlier substance abuse is consistent with other research showing that early-onset substance abuse is closely linked with aggressive behavior (Zucker, Fitzgerald, & Moses, 1975). The link between early substance abuse and later partner abuse helps to address an unresolved question in the literature on partner abuse: Does reliance on drugs and alcohol precede partner abuse or is it a consequence of involvement in an abusive relationship? The contemporaneous correlation reported in other studies between current partner abuse and current substance abuse suggests that substance abusers are likely to abuse their partners. Our longitudinal correlation between current partner abuse and past adolescent substance abuse provides evidence that reliance on drugs and alcohol often precedes partner abuse. Thus, theoretical accounts of partner abuse and problem behaviors should incorporate both current and past substance abuse (Leonard & Senchak, 1996).

We also considered the independent effect of each of our four domains by using composite variables in multivariate regression models. In these models, problem behaviors across the three developmental periods were consistently related to partner abuse after controlling for the effects of the other domains. Family relations also had independent effects, although these were less consistent; these effects reached significance in four of the eight models in Table 5. Educational achievements had significant independent effects in only one model, the model predicting men's perpetration of physical abuse, and family socioeconomic resources made no unique contribution to later partner abuse. These results appear to support theorists who propose that early poverty and conflicted family relations affect adult behaviors indirectly through children's educational difficulties and problem behaviors (Fagan & Browne, 1994; Sampson & Laub, 1993).

How Early in the Life Course Can We Identify Risk Factors for Partner Abuse?

Our analysis of partner abuse in young adulthood included predictors from three earlier periods: early childhood, middle childhood, and adolescence. We examined adolescent characteristics because they preceded the onset of all partner relationships for which abuse was reported, and thus enabled us to establish a temporal order between predictors and outcomes. We reasoned that if these predictors existed in adolescence, they might be detected even earlier, so we tested whether corresponding variables in childhood were similarly predictive of partner abuse in adulthood. In general, childhood characteristics were less consistent than adolescent characteristics as predictors of partner abuse in early adulthood. Three fourths (67 of 88) of the adolescent characteristics were statistically significant. By contrast, 45% (29 of 64) of the middle-childhood characteristics were significantly related to adult partner abuse. Early childhood characteristics were the weakest predictors of partner abuse in adulthood, with only 23% (9 of 40) significant predictors.[3] These findings are consistent with the twin laws of longitudinal research: Behavioral prediction tends to improve as the age of the respondents increases and as the time interval between observations decreases (Caspi & Bem, 1990).

Are There Gender Differences in the Risk Factors for Partner Abuse?

In general, we found similar developmental antecedents of partner abuse for both men and women. There were, however, two notable exceptions. First, physical abuse perpetration was predicted more strongly by family relations for women than for men. This finding is in contrast to studies that have linked family relations to aggressive behavior for boys but not for girls (for a review, see Grych & Fyncham, 1990). However, our finding may be consistent with traditional gender-role socialization in which the primary role for women is in the family (Cohler & Grunebaum, 1981; Komarovski, 1950). The family relations domain, central to women's adult roles as kin keepers, may be especially salient in their developmental preparation for adult intimate partnerships. Second, both physical abuse perpetration and victimization were more strongly predicted by a history of

[3] By chance, four adolescent characteristics, three middle childhood characteristics, and two early childhood characteristics would have been significant at $p < .05$.

problem behaviors for women than for men. Studies have not consistently identified correlates of women's involvement as *victims* (Hotaling & Sugarman, 1986), and few studies have systematically investigated correlates of women's involvement as *perpetrators*. In a study that focused on the outcomes of troubled adolescent girls, we reported that girls who have conduct disorder are at significant risk for becoming pregnant and leaving their parents' home at a young age, then cohabiting with a series of men and becoming involved in a mutually violent relationship (Bardone, Moffitt, Caspi, Dickson & Silva, 1996); this suggests that family conflict and problem behaviors may be early links in a chain that leads young women into partner violence. However, the gender differences in risk that we report here should be viewed as preliminary findings until they are replicated by other studies.

Implications

Our findings about the developmental antecedents of partner abuse have implications for prevention research and for theory building. With respect to prevention, the finding that partner abuse in young adulthood is predictable from characteristics during the mid-adolescent years—and sometimes even before—suggests that early adolescence is not too soon to intervene to prevent later problems with partner abuse. Our findings thus place particular emphasis on the timing of primary preventions; we suggest that preventions should be scheduled to coincide with the onset of adolescent dating behavior. With respect to theory, our longitudinal study offered an opportunity to examine and identify which personal and family characteristics from our archives of prospective measures increased the risk of partner abuse among young adults. Although this article did not explicitly address any one specific developmental theory, our findings suggest that theory building in the study of domestic violence would profit by moving beyond its primary focus on exposure to family conflict (Reiss & Roth, 1993). A theory of partner abuse will need to consider the combined developmental influences of multiple factors, including socioeconomic deprivation, impoverished parent–child attachment, low intelligence, poor academic attainment, and a history of undercontrolled and aggressive conduct problems. It is interesting that each of these developmental antecedents has also been implicated in other kinds of adult antisocial behavior (Caspi & Moffitt, 1995; Loeber & Dishion, 1983; Robins, 1978). Our findings thus suggest that future research may need to examine whether the developmental origins of partner abuse are unique or are part of a constellation of characteristics that emerges relatively early in the life course and that more generally produces an antisocial lifestyle.

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