

are three elements that may assist a systematic approach to the problem. Firstly, sampling has to ensure adequate variability within high-risk groups. Secondly, measurement has to document that variability. Thirdly, known risks associated with established pathways can be used as a starting point for asking whether there are further risks operating additively or in interaction with them.

The developmental pathways approach can also address the question of whether different risks are expressed as overt psychopathology at different time points. Risks coming on line at different times suggest different mechanisms. There is no doubt that much of the risk for adult psychopathology is already evident in childhood. For example, early adolescent depression strongly predicts recurrences in adult life [Harrington et al., 1990]. Equally, we have suggested [Hill et al., 2004] that risks for depression in women associated with moderately severe sexual abuse are not evident until young adult life. This could be explained if, for example, the emotional dysregulation associated with the abuse was intensified by the demands of adult sexual relationships, thus increasing the risk for depression once those relationships start.

Antisocial Personality Disorder and Adult Violence

Antisocial personality disorder (ASPD) is also generally preceded in childhood by antisocial problems in association with wider social dysfunction [Hill, 2002; Moffitt et al., 2002]. Prospective general population studies have provided invaluable data on the childhood antecedents of adult antisocial behaviours and associated psychiatric disorders and social dysfunction [Farrington, 1994; Fergusson and Lynskey, 1998; Moffitt et al., 2002; Robins and Price, 1991]. However, within these samples, the numbers of individuals with severe persistent violence are low and therefore they have limited statistical power to examine the processes underpinning the behaviours of the most violent offenders. The focus is on whether or not individuals are antisocial or violent, but not on variations in the degree of violence, its type, or context. Furthermore, previous studies have not addressed the question of whether there are also risks associated with these variations that have their effect independently of antisocial problems. We were interested to determine whether there may be childhood adversities associated with adult violence that are not manifested in antisocial behaviour problems during childhood.

Determinants of Violence in Different Contexts

A further question concerns whether there may be different childhood antecedents of different types of violence. A wide range of typologies of violence has been proposed and studied [Athens, 1980; Barratt et al., 1999; Henderson, 1986; Megargee, 1966; Polk, 1994; Rasche, 1993; Toch and Adams, 1994]. From a developmental perspective the relationship context is likely to be important. Different kinds of relationships make different demands on emotion regulation, communication, assertiveness and intimacy, and probably involve different processes [Hill et al., in press]. In particular, the demands within family and partner relationships are probably very different to those in wider social interactions. The possibility that there may be distinctive causal processes for domestic violence is suggested by the literature linking exposure to interparental violence to violence within partner relationships [Delsol and Margolin, 2004]. A limited literature contrasts those who are violent only within partner relationships with those who are more generally violent [Fals-Stewart et al., 2005]. Saunders [2003] summarised the position with regard to domestic violence as follows: *Typology research indicates that the type of childhood trauma experiences, whether emotional rejection or loss or physical abuse, and whether from mother or father, may set in motion different pathways to different types of offenders. More research is needed on these developmental pathways.* As far as we are aware, studies have not examined whether there are different pathways to violence in different relationship domains within an antisocial group.

Rationale and Questions Addressed in This Study

There are some indications regarding the childhood adversities that may be associated with different pathways to adult violence. Parental violence, either in the form of physical abuse towards the child or violence between parents, and interparental discord, have been linked consistently to externalising problems in children [Cummings and Davies, 2000; Fergusson and Horwood, 1998; Hill, 2002; Jaffee et al., 2004]. Given the strong link between childhood externalising problems and adult ASPD, we hypothesised that physical abuse and interparental violence would be associated with violence seen in several social domains. In addition, we hypothesised a specific link between experiencing domestic violence during childhood and being a perpetrator of partner violence as an adult. Examination of the specific effects of type of maltreatment

requires the separate identification of different forms of maltreatment and the joint examination in relation to the outcome [Higgins and McCabe, 2001; Saunders, 2003]. Therefore, in this study we enquired about interparental discord, childhood sexual abuse and neglect as well as physical abuse and interparental violence.

We recruited an antisocial sample in which all the subjects had been convicted of a violent offence, we assessed the severity and frequency of their recent violence, and we examined the role of childhood adversities in explaining variability in violence after accounting for the contribution of childhood conduct problems. We thus asked whether there were childhood risk factors for adult violence that were not also associated with earlier antisocial problems, and whether they made independent contributions after accounting for childhood conduct problems.

METHOD

Participants

To obtain a sample comprising only subjects who had committed acts of serious violence, men aged between 21 and 40 years were identified from prison data bases, who had been convicted of murder, attempted murder, manslaughter, wounding with intent to cause grievous bodily harm and wounding. Only prisoners who had been sentenced and had not served more than 2 years of that sentence were included, so that recent violence outside of the prison setting could be evaluated. Prisoners identified on the basis of these criteria ($n = 80$) were selected consecutively from the prison lists provided by three prisons. This yielded a very low number of individuals convicted of murder. To achieve a closer approximation to the distribution of prisoners in England and Wales sentenced for violent offences [Home Office, 2002], we carried out recruitment from a further three prisons for murder only ($n = 11$). On initial assessment, subjects who reported that they were appealing against their conviction ($n = 8$) or who were found to be suffering from a psychotic disorder ($n = 5$) were excluded. A further subject was excluded because of his poor command of English.

Of the 77 prisoners who met the inclusion criteria 61 (79%) agreed to participate. Seven prisoners declined to participate in childhood assessments following adult assessments, which meant that 54 (70% of those eligible) completed both the adult and the childhood assessments.

Measures

Each subject was interviewed about their current adult behaviours and psychosocial functioning and was interviewed retrospectively about their childhood behaviours, psychosocial functioning and their treatment in childhood by their parents. The two kinds of interviews were conducted by different interviewers blind to each other.

Self-report violence in adulthood. Violence was assessed using the Liverpool Violence Assessment [LiVA; Nathan et al., 2003]. The LiVA is an investigator-based interview in which the participants are asked to provide a detailed account of their functioning in three social domains: with the family, with partners and in wider social interactions. It is common for subjects with a history of violence to refer to it during the account, and only if it is not mentioned the interviewer goes on to ask specifically whether there have been incidents of violence. Thus, the interview aims to create an interested and sympathetic atmosphere, rather than one dominated by negative questions. The interviewer is free to ask whatever questions he/she thinks is appropriate, and is constrained only by the need to obtain adequate information to make ratings. There is a rating manual that lays out the information needed to make ratings for each scale. Specific examples of behaviours are required, and generalisations are not acceptable. Ratings are made over a 5-year period, which in this study was the 5 years before being imprisoned. Subscales document the frequency of violent acts, and the severity of the worst violence, and the overall scale (0–4) reflects both frequency and severity. We have previously reported high interrater reliability (Intraclass correlation coefficient (ICC) = 0.96) and associations of the LiVA overall score with officially recorded crime [Nathan et al., 2003].

Officially recorded adult offending. Officially recorded adult offending data were extracted from the Offenders Index. This UK Home Office database of offenders lists all those who have been convicted of “standard list” offences, that is, all indictable offences (i.e. those triable in a Crown Court) and some more serious summary offences (i.e. those triable in a Magistrates Court). The Index includes the type of offence, the date of conviction and the sentence. The number of offences per year from the age of 16 years was calculated. Offences were considered “violent” where there was violent contact between the subject and the victim (e.g. wounding and assault). Offences where contact or injury may not have occurred (e.g. affray,

threatening behaviour, robbery and possession of an offensive weapon) were not included.

Adult antisocial personality disorder. The ASPD section of the Structured Clinical Interview for DSM-IV [First et al., 1997] was administered by R.N. In rating ASPD the requirement that symptoms of conduct disorder (CD) be present was not used, so that the CD-ASPD pathway could be examined.

Childhood maltreatment. The Childhood Experiences of Care and Abuse [CECA; Bifulco et al., 1994] was used to assess recalled parental neglect, physical abuse, child sexual abuse and interparental tension and violence. Childhood experiences before the age of 16 years are rated in the CECA on four- and five-point scales, and dichotomised into binary variables reflecting the presence of moderate or severe adversity. Neglect concerns the degree to which the parents provide for the child's material, social, educational and emotional needs. The neglect scale is rated from information such as whether the child could go to the parent if upset or happy, whether the parent ensured the child was fed and adequately clothed, whether the parents attended to the child when ill and whether the parents were interested in important aspects of the child's life such as school, friends and birthdays. Physical abuse is rated on the basis of accounts of violence in the home directed to the subject by an older household member, usually an adult. Physical punishment is excluded if there was no possibility of it causing injury. Being grabbed or shoved also does not contribute to this rating. Threats, unless with a weapon, are not rated. Sexual abuse is defined as age-inappropriate sexual contact in which the perpetrator abuses his or her position of power, which would be deemed frightening or distasteful by most children. The degree of conflict between parent figures in the home is measured by the interparental tension and violence scales. Accounts of overt quarrelling, arguments and rows contribute to the rating of tension. Also, a tense atmosphere created by parents not talking to each other for days or weeks at a time are included. Interparental violence refers to actual physical violence between parents.

The reliability and validity of the CECA is high [Bifulco et al., 1994, 1997] when the interview is administered and rated by trained interviewers. The interviewers had received extensive training and had already contributed to a previous study using the CECA [Hill et al., 2001, 2004].

Childhood psychopathology. Recalled emotional and behavioural problems before the age of 16 years were assessed using the Retrospective

Recall of Childhood Psychopathology [Holmshaw and Simonoff, 1996]. This investigator-based interview is a modification of the Child and Adolescent Psychiatric Assessment [Angold et al., 1995] and inquires about recalled psychiatric symptomatology in childhood. The interview is arranged in sections covering the major child and adolescent disorders with screening questions followed by more detailed investigation. The measure was validated by comparing recalled symptoms with information abstracted from childhood psychiatric records [Holmshaw and Simonoff, 1996; Simonoff et al., 2004]. κ coefficients based on agreement for a positive response to the screening question plus one other symptom were above 0.6 in every symptom area except hyperactivity ($\kappa = 0.5$). In the study reported here CD was rated on the basis of the presence of three or more of the symptoms required for a DSM-IV diagnosis. Raters were trained by the authors of the Retrospective Recall of Childhood Psychopathology and ratings were reviewed regularly.

Data Analyses

Means were compared using two-sided independent group *t*-tests, and 2×2 contingency tables were analysed with χ^2 tests with odds ratios (ORs) and 95% confidence intervals (CIs). Predictors of violence were examined jointly in multiple linear regression and of ASPD in logistic regression. Analyses were conducted in the same way for each of overall violence, social violence, partner violence and family violence. Hierarchical entry was used with ASPD and CD in the first two blocks and childhood adversities examined in the third block using the forward stepwise procedure. The distributions of the rate of officially recorded offending and officially recorded violent offending were skewed. These scores were corrected by square-root transformation.

Mediation was examined using the approach described by Baron and Kenny [1986]. This was used as an analytic framework, acknowledging that childhood experiences and behaviours entail bidirectional influences, and that it was not always possible to determine temporal sequences in this study. CD was considered as the mediator between childhood adversities and ASPD if it was associated with both of them, and the childhood adversity was associated with ASPD. A mediation model was accepted if the childhood adversity variable no longer contributed to a regression model once CD has been entered. A similar procedure was used to

assess ASPD as a mediator between CD and violence. We interpreted childhood adversities that contributed to the model after the putative mediators had been accounted for, as suggestive of pathways and mechanisms for violence that are distinct from those involving CD and ASPD.

RESULTS

Sample Characteristics

The sample of 54 men comprised subjects convicted of wounding with intent to cause grievous bodily harm ($n = 23$), murder ($n = 13$), wounding ($n = 12$), attempted murder ($n = 5$) and manslaughter ($n = 1$). The mean age of the group was 29.16 years ($SD = 5.74$).

Forty-two (78%) subjects met the adult criteria for ASPD. The mean LiVA score was 1.89 ($SD 1.22$). Thirty-eight (70%) subjects met the criteria for childhood CD according to their retrospective reports. The frequencies of retrospectively reported childhood adversities were as follows: sexual abuse, 15% ($n = 8$); neglect, 24% ($n = 13$); physical abuse, 65% ($n = 35$); interparental tension, 43% ($n = 23$); interparental violence 28% ($n = 15$).

Childhood Predictors of Adult Antisocial Personality Disorder

A diagnosis of childhood CD based on retrospective reports was associated with adult ASPD (OR 15.0, 95% CI 3.2–69.8, $P < .001$). Of the childhood maltreatment variables, only retrospectively reported exposure to interparental tension was associated with adult ASPD (OR 12.1, 95% CI 1.4–102, $P = .008$). Interparental tension was also associated with childhood CD (OR 20.6, 95% CI 2.5–172, $P = .001$). When childhood CD was entered first in hierarchical logistic regression with adult ASPD as the dependent variable, interparental tension no longer made a significant contribution consistent with the hypothesis that childhood CD is a mediator of the association between childhood interparental tension and adult ASPD.

Childhood Predictors of Overall Adult Violence

The rate of officially recorded adult offending was greater among subjects who met the criteria for childhood CD ($t(52) = 2.72$, $P = .009$) based on retrospective reports. There was a nonsignificant association between retrospective reports of childhood exposure to interparental tension and violence and elevated officially recorded offending. There

was no association between the childhood variables and the annual rate of officially recorded violent offending.

Retrospective reports of childhood CD were associated with overall adult violent behaviour assessed using the LiVA in a simple comparison of means (Table I). Adult ASPD was also associated with overall adult violence (mean difference 1.35, 95% CI 0.64–2.08, $P < .001$). When adult ASPD was entered first into linear regression with overall adult violence as the dependant variable, childhood CD no longer made a significant contribution, consistent with adult ASPD as a mediator of the association between childhood CD and adult violence (Table II).

We next examined whether there were additional childhood psychosocial risks for violence that were not mediated via childhood CD and ASPD. In simple bivariate analyses each of the retrospectively reported indices of parental neglect, child sexual abuse, interparental tension and interparental violence were significantly associated with adult violence (Table I), so they were considered jointly in multiple linear regression. After accounting for the contribution of CD and ASPD, retrospective reports of a history of interparental violence increased the variance explained by 10% (Table II).

TABLE I. Associations Between Childhood Psychosocial Factors and Mean LiVA Overall Violence Scores

	<i>N</i>	Mean LiVA score	Mean difference	95% CI of the difference		<i>P</i> value
Conduct disorder						
No	16	1.19				
Yes	38	2.18	0.99	0.44	1.56	.001
Neglect						
No	41	1.68				
Yes	13	2.54	0.86	0.10	1.61	.027
Physical abuse						
No	19	1.79				
Yes	35	1.94	0.15	-0.55	0.86	0.66
Sexual abuse						
No	46	1.74				
Yes	8	2.75	1.01	0.10	1.92	.030
Parental tension						
No	31	1.39				
Yes	23	2.57	1.18	0.58	1.78	<.001
Parental violence						
No	39	1.56				
Yes	15	2.73	1.17	0.49	1.85	.001

Mean scores were compared using independent samples, two-sided *t*-tests.

LiVA, Liverpool Violence Assessment; CI, confidence interval.

TABLE II. Prediction of Overall Violence from Antisocial Personality Disorder, Conduct Disorder and Childhood Adversities

Model	Step	ΔR^2	ΔF	df	<i>P</i>	Variables	β	<i>P</i> value
CD after ASPD	1	0.22	14.4	1.52	<.001	ASPD	.47	<.001
	2	0.02	1.5	1.51	.22	ASPD CD	.37 .18	.013 .22
Childhood adversities after ASPD and CD	3	0.10	7.6	1.50	.008	ASPD CD IPV	0.32 0.13 0.33	.024 .33 .008

Analyses were conducted using multiple linear regression with hierarchical entry of independent variables. ASPD, antisocial personality disorder; CD, conduct disorder; IPV, interparental violence.

TABLE III. Associations Between Childhood Adversities and Adult Violence in Different Social Domains (Social, Partner and Family)

	<i>N</i>	Mean (SD) LiVA score for social relationships	<i>P</i>	Mean (SD) LiVA score for partner relationships	<i>P</i>	Mean (SD) LiVA score for family relationships	<i>P</i>
Conduct disorder							
No	16	0.75 (0.77)	<0.001	0.50 (0.63)	0.78	0.56 (0.81)	0.50
Yes	38	1.92 (1.38)		0.55 (0.65)		0.74 (0.89)	
Neglect							
No	41	1.37 (1.26)	0.041	0.49 (0.60)	0.32	0.71 (0.93)	0.74
Yes	13	2.23 (1.42)		0.69 (0.75)		0.62 (0.65)	
Physical abuse							
No	19	1.57 (1.35)	0.99	0.26 (0.45)	0.009	0.58 (0.96)	0.51
Yes	35	1.58 (1.36)		0.69 (0.68)		0.74 (0.82)	
Sexual abuse							
No	46	1.46 (1.29)	0.12	0.50 (0.62)	0.31	0.63 (0.85)	0.27
Yes	8	2.25 (1.49)		0.75 (0.71)		1.00 (0.93)	
Parental tension							
No	31	1.06 (1.06)	0.001	0.39 (0.56)	0.043	0.48 (0.81)	0.046
Yes	23	2.26 (1.39)		0.74 (0.69)		0.96 (0.88)	
Parental violence							
No	39	1.26 (1.21)	0.004	0.36 (0.54)	0.001	0.51 (0.79)	0.017
Yes	15	2.40 (1.35)		1.00 (0.65)		1.13 (0.92)	

LiVA, Liverpool Violence Assessment.

Childhood Predictors of Adult Violence in Different Social Domains

Simple analyses suggested striking differences in the associations of retrospective reports of childhood ASPD, childhood CD and childhood adversities with adult social violence, partner violence and family violence (Table III). Adult ASPD was associated with violence in adult social relationships (mean difference 1.70, 95% CI 1.23–2.17, $P < .001$) and adult family violence (mean difference 0.67, 95% CI 0.12–1.21, $P = .017$), but not adult partner violence. Retrospective reports of childhood CD, interparental tension and violence were each associated with adult social violence, whereas the strongest predictors of adult partner violence were retrospective reports of childhood physical abuse, interparental violence and family violence. The

contribution of reports of childhood CD to adult social violence was markedly reduced when entered after adult ASPD, consistent with a mediation model (Table IV). Retrospective reports of childhood interparental violence explained an additional 7% in the variance of adult social violence after accounting for the effects of childhood CD and ASPD. Thus, the patterns of association with adult social violence were very similar to those for adult overall violence. By contrast, and consistent with the simple analyses, multiple linear regression adult ASPD and retrospective reports of childhood CD did not predict adult partner violence, but there were substantial contributions from childhood interparental violence and physical abuse (Table V). The findings for adult family violence were less consistent with predictions from adult ASPD but not from childhood CD in simple analyses, and additional

TABLE IV. Prediction of Social Violence From Antisocial Personality Disorder, Conduct Disorder and Childhood Adversities

Model	Step	ΔR^2	ΔF	df	<i>P</i>	Variables	β	<i>P</i> value
CD after ASPD	1	0.28	20.6	1.52	<.001	ASPD	.53	<.001
	2	0.02	1.5	1.51	.23	ASPD CD	.45 .17	.002 .23
Childhood adversities after CD and ASPD	3	0.07	5.1	1.50	.028	ASPD CD IPV	0.40 0.13 0.26	.004 .33 .028

Analyses were conducted using multiple linear regression with hierarchical entry of independent variables. ASPD, antisocial personality disorder; CD, conduct disorder; IPV, interparental violence.

TABLE V. Prediction of Partner Violence From Antisocial Personality Disorder, Conduct Disorder and Childhood Adversities

Model	Step	ΔR^2	ΔF	df	<i>P</i>	Variables	β	<i>P</i> value
CD after ASPD	1	0.01	0.55	1.52	.46	ASPD	.10	.46
	2	0.00	0.02	1.51	.89	ASPD CD	.11 .17	.49 .89
Child adversities after ASPD and CD	3	0.27	9.2	2.49	<.001	ASPD CD IPV PA	.04 -.16 .43 .27	.78 .30 .001 .037

Analyses were conducted using multiple linear regression with hierarchical entry of independent variables. ASPD, antisocial personality disorder; CD, conduct disorder; IPV, interparental violence; PA, physical abuse.

TABLE VI. Prediction of Family Violence From Antisocial Personality Disorder, Conduct Disorder and Childhood Adversities

Model	Step	ΔR^2	ΔF	df	<i>P</i>	Variables	β	<i>P</i> value
CD after ASPD	1	0.11	6.08	1.52	.017	ASPD	.32	.017
	2	0.01	0.48	1.51	.50	ASPD CD	.38 -.11	.018 .48
Child adversities after ASPD and CD	3	0.07	4.45	1.50	.04	ASPD CD IPV	.34 -.15 0.28	.031 .33 .04

Analyses were conducted using multiple linear regression with hierarchical entry of independent variables. ASPD, antisocial personality disorder; CD, conduct disorder; IPV, interparental violence.

variance explained by reports of childhood interparental violence (Table VI).

DISCUSSION

We found that variability in violence among violent offenders was in part related to diagnoses of adult ASPD and to diagnoses (based on retrospective reports) of childhood CD. This suggests that childhood CD and its associated mechanisms are not only associated with whether an individual is likely to become antisocial, but also how violent. However, there was an additional contribution to the prediction of violence from retrospective reports of exposure to interparental

violence during childhood that was not mediated via childhood CD. We have interpreted this as indicating either that the risk associated with interparental violence is expressed during childhood in ways that are not captured by the CD diagnosis, or that it only becomes evident in adult life. These analyses of overall violence, however, obscured differences in the antecedents of violence in different social domains. The contrast between social violence and partner violence was particularly striking. Both were strongly associated with reports of a history of interparental violence, but only social violence was associated with reports of childhood CD and adult ASPD. All the variance in partner violence explained by the model was accounted for by interparental violence (20%) and

physical abuse (7%). Family violence was intermediate in that it was associated with ASPD (but not CD) and with exposure to interparental violence during childhood.

The study was unusual in examining for indicators of pathways from childhood to adult violence, within a violent sample. There was substantial variability of 5-year patterns of violence ranging from relatively infrequent violent behaviours that were unlikely to cause significant injury, to frequent severe violence. Selection from computerised lists of prison inmates convicted for violent offences increased the likelihood that the sample was representative of the violent male prison population in UK. It cannot, however, be assumed to be representative of violent men more generally, nor of men in special hospitals. The findings cannot be generalised to women. The study design did not account for genetic influences, and so common genetic effects on recalled parenting and family adversities and on adult violence are likely to have contributed to the associations.

It is not possible to time events accurately using retrospective methods, and no attempt was made to determine whether the adverse childhood experiences antedated the conduct problems. Retrospective recall of childhood adversities and behaviours have been criticised on the grounds that memories of childhood can be unreliable, and individuals with low levels of psychopathology may underestimate adversities [Maughan and Rutter, 1997]. Equally, prospective methods may not be suitable for assessing child maltreatment except where it is reported to child protection agencies, thus limiting the scope of prospective general population studies. Furthermore, the limitations of retrospective methods may be mitigated where detailed interview methods are used to detect serious adversities [Hardt and Rutter, 2004]. Both the retrospective measures in this study used detailed investigator-based interviews, to elicit accounts of child maltreatment, parental discord or violence and behaviour problems. Information derived from each measure has been examined in relation to external sources of information, and the agreement has been good [Bifulco et al., 1997; Holmshaw and Simonoff, 1996]. The findings in this study are unlikely to have arisen from effects of underreporting by individuals lacking psychopathology because all the subjects had been convicted of a violent offence, and there were high rates of alcohol and drug abuse in the sample that were not associated with the overall violence scores [Nathan et al., 2003]. It is, however, possible that there was some underreport-

ing of interparental violence throughout the sample because the rate (28%) was lower than might be expected on the basis of published figures [Fergusson and Horwood, 1998]. Equally, the difference may arise from different thresholds for interparental violence. The likelihood of systematic bias leading to associations between childhood and adult variables was also reduced through having independent interviewers for childhood experiences and adult functioning. However, the subjects were the only source of information, so it was not possible to eliminate effects of shared method variance.

Having acknowledged the limitations of retrospective methods, the study illustrates their potential to provide pointers for prospective studies. Severe violence is not common, and only very large general population samples have an adequate representation of severely violent individuals to examine questions addressed in this study. There is a need, therefore, to identify high-risk cohorts for long-term study. If these are to enable us to identify factors in the emergence of violence in childhood and adult life, recruitment will have to make use of risk factors identifiable before the onset of antisocial behaviours. The findings from this study suggest that interparental violence should be one of the stratifying factors.

The category of ASPD has been criticised for being too broad, and too common among offenders, to be of value for making distinctions within forensic populations [Hare et al., 1991]. However this did not seem to be the case in this sample. The degree of violence, assessed using an index of severity and frequency over a 5-year period, was associated with ASPD. Furthermore, it seemed that, even within this antisocial group, there was a pathway to adult violence via ASPD and CD. This is consistent with the evidence of links between childhood conduct problems and adult violence from prospective longitudinal studies in the general population [Moffitt et al., 2002]. The comparability of these findings using retrospective methods, with general population prospective studies, provides support for their validity.

The question of whether the risk associated with experiencing interparental violence during childhood becomes apparent before adult life requires further investigation. Although the findings reported here suggest it is not expressed as CD, there are several alternative explanations that we were unable to evaluate in this study. Firstly, interparental violence may contribute to the risk of later adult violence only in conduct-disordered children. In this study, there were inadequate numbers reporting that

they had not suffered from conduct problems in childhood to test for an interaction between CD and experiencing interparental violence. Secondly, CD is a broad category that encompasses a wide range of antisocial behaviours [Hill, 2002]. There may be specific types of CD associated with parental violence in childhood and subsequent adult violence that were not identified using the retrospective interviews. In particular, the study did not include either retrospective or contemporary assessments of psychopathic disorders. Thirdly, there may be variations in the degree of violence shown during childhood that are associated with experiencing interparental violence and also predict subsequent high levels of violence. Equally, it is also plausible that there may be mechanisms associated with experiencing violence between adults in the family that come “on line” only in later adolescence or young adult life. Although violence may, in some respects, share effects with other childhood adversities such as marital discord [Cummings and Davies, 2002], it differs in that it breaches boundaries of permitted behaviours. Discord is a more intense and frequent form of disagreements that occur in most relationships. Violence is not acceptable to any degree in adult family relationships. The experience of such a breaching of the boundaries of acceptable behaviours by adults during childhood may be particularly relevant in the transition to adult life, and to the individual’s threshold for behaving in the same way. Reported associations between experiencing partner violence during childhood and the likelihood that a victim of sexual abuse will become a perpetrator lend support to this hypothesis [Salter et al., 2003; Skuse et al., 1998]. In relation to violence as assessed in this study, it may have contributed to a lowered threshold for the use of violence as a means of dealing with social interactions, or for a readiness to use violence that is likely to cause serious injury. This is consistent with studies that find that witnessing violence is associated with the belief that violence is an acceptable means of conflict resolution [Carlson, 1991; Shahinfar et al., 2001].

The differences in the antecedents of violence in contrasting social domains suggested different mechanisms. Social violence seemed to share risk factors and therefore mechanisms with ASPD. Partner violence, by contrast, was not associated with ASPD. This finding needs further investigation as associations of ASPD and childhood CDs with partner violence have been found in general population studies [Ehrensaft et al., 2003; Farrington 1994; Magdol et al., 1997]. The key to partner

violence seemed to be the experience of violence between parents during childhood. This would suggest specific mechanisms, for example, involving processes that simultaneously arouse attachment anxieties and anger [Follingstad et al., 2002]. The implications of these findings are that it is essential to assess adult violence in relation to the social domain in which it is seen, and to search for domain-based mechanisms. In turn, this will inform interventions designed to tackle specific processes in severe violence.

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