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CONDUCT DISORDER IN GIRLS AND BOYS: THE IDENTIFICATION OF DISTINCT PSYCHOSOCIAL PROFILES

John J. O'Keeffe, Alan Carr & Paul McQuaid

INTRODUCTION

Conduct disorder (CD) is the second most common psychological problem in adolescent girls (Zoccolillo & Rogers, 1991), and female convictions for violent and gang-related crimes have quadrupled in the past five years (Calhoun, Jurgens & Chen, 1993). Given the dramatic increase in the numbers of adolescent girls becoming involved in serious crime there have been repeated calls for investigation of the correlates of female conduct disorder (Calhoun et al, 1993; Zahn-Waxler, 1993).

The two major systems for classifying psychological disorders, DSM-IV (APA, 1994), and the ICD-10 (WHO, 1996), require the presence of at least three of 15 symptoms which fall into the categories of aggression, property destruction, deceitfulness, and violation of rules for a diagnosis of conduct disorder to be made. Sub-classification of conduct disorders in both DSM IV and ICD 10 is made based on the presence of adequate or poor peer relations, and the presence or absence of concomitant emotional disorders. One problem in studying CD in girls is the lack of gender-specific criteria for CD which take into account known differences in male and female childhood cultures and base-rate differences in aggression and criminality.

Conduct disorder is more prevalent among males than females. O'Connor, Ruddle & O'Gallagher (1988) in a study of over 1300 6-12 year olds in Clare

found that 7% of girls had conduct disorders as assessed by the Rutter B Scale, while the rate for boys was 11%. In Rutter's epidemiological study on the Isle of Wight males were diagnosed with CD, on the basis of a structured clinical interview, at a rate of 6% and females at 1.6% (Rutter, Tizard & Whitmore, 1970). In Ontario, Offord, Alder and Boyle (1986) used the Achenbach Child Behaviour Checklist and the Survey Diagnostic Instrument in a stratified random sample of children and found that 4.1% of 12-16 year old girls had a conduct disorder. The rate for 12-16 year old males was 10.4%.

A number of investigations have found that girls show more covert behaviour problems such as running away or stealing whereas boys show more overt behaviour problems such as aggression and destructiveness (Epstein, Kauffman & Cullinan, 1985; Rhodes & Fisher, 1993; Zoccolillo & Rogers, 1991).

The course of CD for girls and boys is different. For girls, the onset of CD is typically in adolescence and recovery is more frequent, whereas for boys the onset is typically in childhood and CD is more likely to persist into adulthood (Loeber, 1990; Hinshaw & Anderson, 1996; Fenning & Carlson, 1995).

For both boys and girls, the presence of co-morbid conditions with CD is common. Myers, Burket, Lyles and Stone (1990) found that girls with CD had a variety of current and past diagnoses, including substance abuse, major depression, and anxiety disorders. The average number of lifetime diagnoses per participant was 4.7 and current diagnoses averaged 3.4 per case. CD has also been found to be predictive of teenage pregnancy (Kovacs, Krol & Voti, 1994; Zoccolillo & Rogers, 1991).

Co-morbid attention deficit hyperactivity disorder (ADHD) is more common in boys with CD than girls. However there may be gender differences in the expression of ADHD (Hinshaw, 1994). Boys may display greater levels of aggressive and anti-social behaviours and diagnosed girls tend to display higher rates of cognitive impairment, language dysfunction and compromised neurological status.

Correlates of CD in girls are similar to those in boys including family disorganization, parental psychopathology or criminality, and poverty (Zoccolillo, 1993; Henggeler, Edwards & Borduin, 1987; Bowker & Klein, 1983). However, there is some evidence that family disorganization may be greater for girls with CD (Henggeler et al, 1987). Also, there is some evidence to suggest that females are more likely than males to have experienced sexual abuse (Bowers, 1990).

These findings from previous investigations suggested the following hypotheses which were tested in this study. It was expected that girls with CD would show more covert symptomatology, more co-morbid depression, greater family dysfunction and more frequent history of sexual abuse. Boys were expected to show more overt conduct problems, more co-morbid ADHD and learning difficulties.

METHOD

Data were collected from archival files in situ at two juvenile remand and assessment centres.

Participants

Twenty female and 20 male delinquents matched for age and socio-economic background, who had been charged with status and non-status offences and detained in two remand and assessment centres participated in this study. Thus, these youngsters represent some of the most extremely antisocial youngsters in the Republic of Ireland. Cases were included in this study if they attended the assessment and remand centres between 1991 and 1995; if they were aged between 10 and 18 years at the time of assessment; and if they received a research diagnosis of conduct disorder by fulfilling at least three criteria from the

DSM-IV and ICD-10 diagnostic checklists for CD. File numbers of 80 male CD cases and 80 female CD cases were drawn up by the Directors of both centres. From these lists of 80, 20 male and 20 female cases were randomly selected for inclusion in the study. If the inclusion criteria for a research diagnosis of CD were not reached or if there were major discrepancies in age or socio-economic status between a male and female case, a random selection from the original list of 80 cases was taken until data for 20 male and 20 female matched cases was compiled.

Demographic characteristics of these cases are set out in Table 6.1. The male and female participants did not differ significantly on the sociodemographic variables of age, parental occupation, number of parents living in the family house, number of siblings, and area of residence. From Table 6.1 it can be concluded that cases were an average of fourteen years of age and two thirds lived in the Dublin area. These children came from families with a large number of children (Mean = 6) and half came from single parent families. Two-thirds of the parents of these youngsters were unemployed.

Table 6.1. Demographic characteristics.

Variables		Males (N=20)	Females (N=20)
Age	Mean	13.45	14.40
	SD	1.43	1.57
Parental occupation	Unemployed	60%	65%
	Semi-skilled	25%	25%
	Skilled	5%	10%
	Other	10%	0%
Parents in house	One	60%	45%
	Two	40%	55%
Number of siblings	Mean	5.00	5.45
	SD	2.03	4.37
Area of residence	Dublin City	50%	60%
	Co. Dublin	15%	10%
	Outside Dublin	35%	30%

Instruments

Data for this study were extracted from client intake information sheets of both centres and abstracted from the clinical case notes using Diagnostic Criteria items for CD, ADHD and major depression from DSM-IV (APA, 1994), Loeber and Schmalings's (1985) Overt-Covert Behaviour scale, Axis 5 of ICD-10 (WHO, 1996), and both the Global Assessment of Functioning (GAP) and the Global Assessment of Relational Functioning scales from DSM-IV (APA,1994).

Item Sheet. The intake procedure at the remand centres required a standardized item sheet to be filled out on each new client. The following areas, which were coded onto the sheet were utilized in the present study: the child's age, gender, number of siblings, marital status of parents, parental occupation, area of residence, reason for referral, route of referral and primary ICD-9 diagnosis. Additional items were added to the data extraction sheet to elicit information on

the following: membership of a deviant peer group; use of alcohol or substance abuse; history of sexual abuse and sexual permissiveness.

Diagnostic criteria. Items listed as diagnostic criteria for CD, ADHD and major depression in DSM IV were abstracted from files using the following checklists and detailed instructions given in DSM IV for giving a diagnosis. For CD three of the following were required for a diagnosis to be made: bullying, initiating fights, used a weapon, cruelty to people, cruelty to animals, theft, coercive sex, firesetting, destroyed property, breaking and entering, lying, running away, and truanting. For ADHD six symptoms of inattention or six symptoms of hyperactivity are required. The symptoms of inattention are careless mistakes, poor attention, seems not to listen, failure to follow instructions, difficulty organizing schoolwork, avoids schoolwork, loses things necessary for work, distractible, and forgetful. The symptoms of hyperactivity and impulsivity are fidgeting, leaves seat inappropriately, excessive running about, difficulty keeping quiet, acts like driven by a motor, excessive talk, poor at turn taking, and interrupts often. For a major depressive episode, five of the following must be present including one of the first two symptoms listed: depressed mood, loss of pleasure or interest in most activities, failure to make expected weight gains or weight loss, insomnia or hypersomnia, psychomotor retardation or agitation, fatigue, feelings of worthlessness or guilt, loss of concentration, recurrent thoughts of death or suicidal ideation.

Overt-Covert Behaviour Rating Scale. For the type of behaviour problems listed in any case file, Lober and Schmalings' (1985) scale allows the case to be reliably coded along a hypothetical bipolar continuum from overt antisocial problems such as fighting, to covert behavioural problems such as stealing. Overt problems include hyperactive, impulsive, demanding, threatens, temper tantrums, attacks people, argues, loud, cruel, fights, teases, poor peer relations, irritable, moody, screams, sulks and jealous. Covert problems include stealing, firesetting, lies, runs away, truant, and keeps delinquent company. Covert symptomatology

has been associated with more extreme family dysfunctionality (Loeber et al, 1983). Following Byrne and Carr (1995) the numbers of overt and covert behaviours were extracted for each case from the clinical case notes. The total number of conduct problems for each case was also determined by counting the number of behaviour problems listed from both overt-covert scale and the DSM IV list of criteria for CD.

Abnormal Psychosocial Situations. These were coded using the axis 5 categories of the World Health Organization (1996) ICD 10 multi-axial classification system for children and adolescents. The axis contains the following nine general categories: abnormal intrafamilial relationships, parental mental disorder, inadequate or distorted intrafamilial communication, abnormal qualities of upbringing, abnormal immediate environment, acute life events, societal stressors, chronic interpersonal stress associated with school or work, and stressful events resulting from the child's disorder. Within each category a number of adverse psychosocial situations are listed and reliable operational definitions for each are given. For example, under abnormal qualities of upbringing a situation of particular relevance to this study was inadequate parental supervision and control. Axis 5 has undergone extensive field trials and its reliability has been established (WHO, 1996).

Global Assessment of Functioning (GAF) Scale. This scale considers social, psychological and educational functioning on a hypothetical continuum of mental health and illness provided for individuals in DSM-IV (APA, 1994). A score of 100 is given where cases show superior functioning and a score of 1 is given in cases where the individual is a persistent danger to the self or others. Levels of functioning on a 100 point scale between these extremes are operationally defined on the GAF. Each case in this study received a scale score indicating global functioning.

Global Assessment of Relational Functioning (GARF) Scale. This scale was used to indicate an overall judgement of the functioning of the family of each case on a hypothetical continuum ranging from competent, optimal relational functioning to a disrupted, dysfunctional relationship. The GARF scale permits the rater to record the degree to which a family meets the affective or instrumental needs of its members in the following three areas: problem solving skills in negotiating goals, rules and routines and in resolving conflict; organization and the ability to maintain interpersonal roles and subsystem boundaries; and emotional climate including the ability to show empathy and mutual affective responsiveness. A score of 100 is given where families have clear but flexible routines, clear roles and a positive emotional climate. A score of 1 is given in cases where the families have negligible routines, unclear roles and a negative emotional climate. Levels of functioning on a 100 point scale between these extremes are operationally defined on the GARF. Each case in this study received a score indicating global functioning. Preliminary reliability and validity data, as well as historical perspective on the scale's development have been reported by the Group for the Advancement of the Family Committee on the Family(1996).

Procedure

Following ethical approval of the study by the boards of the remand and assessment centres, data were extracted from case notes using an abstraction system which included all of the instruments listed in the previous section. Data were taken from the clinical case notes and put on IBM record sheets. Where data were missing or there was an ambiguity about the status of a case on a particular variable the clinician who managed the case was contacted and asked to supply the missing information.

RESULTS

To test the hypotheses listed at the end of the introduction, the statistical significance of differences between male and female groups was assessed using t-tests for interval scale variables and chi square tests for categorical variables. To determine which subset of variables discriminated significantly between the male and female groups, and most accurately classified cases as males or females, a discriminant function analysis was conducted. Finally, to identify factors which predicted overt, covert and total number of behaviour problems, a series of stepwise multiple regression analyses were conducted.

In presenting the results group differences in symptomology will be dealt with first. In the second section learning difficulties will be addressed. The third section will deal with group differences in psychosocial characteristics. In the fourth section the results of the discriminant function analysis will be given. Finally, the results of a number of exploratory regression analyses will be given.

Behaviour problems

From Table 6.2 it may be seen that males showed significantly more behaviour problems overall and more overt behaviour problems than females. The groups did not differ significantly in the number of covert behaviour problems. However, the ratio of covert to overt behaviour problems was significantly higher for girls compared with boys. Females had almost 4 times as many covert behaviour problems as overt symptoms (covert: overt ratio = 3.94:1). Males had only slightly more covert than overt behaviour problems (covert:overt ratio = 1.43:1).

Table 6.2. Number of behaviour problems shown by boys and girls.

Variable	Male (N=20)	Female (N=20)	t	p
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Total number of behaviour problems	M	16.08	13.10	2.69	.05
	SD	4.18	2.65		
Overt behaviour problems	M	3.78	1.75	5.47	.001
	SD	1.30	1.02		
Covert behaviour problem	M	4.35	4.60	0.55	NS
	SD	1.69	1.15		
Ratio of covert to overt behaviour problems	M	1.43	3.94	3.71	.001
	SD	1.03	2.84		

Specific behavioural problems shown by boys and girls are presented in Table 6.3. Compared with females, significantly more males showed the following specific behaviour problems: physical cruelty to other people, bullying, using a weapon, and destroying the property of others. There was a near significant trend ($p=.06$) for more boys to have initiated physical fights in comparison with girls. Significantly more girls than boys lied or were members of deviant peer groups and there was a near significant trend ($p=.06$) for more girls to have run away, compared with boys.

Learning difficulties

From Table 6.4 it may be seen that significantly more boys than girls had co-morbid ADHD. While no girls had this co-morbid diagnosis, co-morbid ADHD was present in almost a third of the boys. In contrast, the average intelligence level of the girls (mean IQ =70.8) was approximately 9 IQ points lower than that of the boys (mean IQ=79.6) and this difference was statistically significant.

Table 6.3. Specific behaviour problems shown by boys and girls.

Behaviour problems listed as diagnostic criteria for conduct disorder in DSM IV	Male (n=20)	Female (n=20)	χ^2	p
Aggression				
Has been physically cruel to people	60%	0%	17.14	.001
Bullies, threatens, or intimidates others	80%	40%	6.67	.01
Has used a weapon that can cause serious physical harm to others	35%	5%	5.63	.02
Often initiates physical fights	60%	30%	3.63	.06

Has forced someone into sexual activity	5%	0%	1.03	NS
Has stolen while confronting a victim	10%	10%	0	NS
Has been physically cruel to animals	0%	0%	0	NS
Destruction of property				
Has deliberately destroyed others' property	65%	25%	6.46	.01
Has deliberately engaged in fire setting	15%	5%	1.11	NS
Deceitfulness or theft				
Often lies to obtain goods or favours or to avoid obligations	20%	50%	3.96	.05
Has stolen items of nontrivial value without confronting the victim	75%	90%	1.55	NS
Has broken into someone's house, building or car	65%	50%	0.92	NS
Serious violations of rules				
Deviant Peer Group	70%	95%	4.32	.04
Has run away from home overnight at least twice	30%	60%	3.63	.06
Uses alcohol or other substance abuse	65%	75%	0.48	NS
Sexual Promiscuity (more than 3 partners or sex for money)	10%	15%	0.23	NS
Often stays out at night despite parental prohibitions, (before 13 yrs)	70%	75%	0.12	NS
Is often truant from school, beginning before age 13 years.	60%	50%	0.04	NS

However, the groups did not differ in their average reading ages which were at the 10 year level, about 4 years behind their average chronological age.

Table 6.4. Co-morbid learning and attentional problems.

		Males (N=20)	Females (N=20)	χ^2 or t	p
Co-Morbid ADHD		30%	0%	7.03	.01
IQ	M	79.65	70.83	2.21	.03
	SD	13.11	11.29		
Reading Age	M	10.30	10.01	0.31	NS
	SD	2.14	3.61		

Psychosocial factors

From Table 6.5 it may be seen that the groups differed in term of psychosocial factors. The average score for the girls on the global assessment of relational functioning scale was significantly higher than that of the boys, indicating that the girls' families were less dysfunctional than those of the boys. The girls' mean score of 51 is reflective of families in which periods of satisfactory functioning occur, but these are disrupted by unresolved family conflicts which compromise the capacity of families to communicate effectively, solve problems and maintain a supportive emotional climate. The boys' mean score of 39 is reflective of families in which episodes of satisfactory functioning are rare and where relational patterns fail to adequately meet the needs of family members. There were near significant trends for more of the boys to have come from families characterized by parental mental disorder ($p=.06$) or intrafamilial discord ($p=.08$) compared with the girls. 70% of boys came from families characterized by parental mental disorder compared with 40% of girls. 85% of boys came from families characterized by intrafamilial discord compared with 60% of girls. However, the boys and girls did not differ in the overall number of adverse psychosocial situations to which they had been exposed.

A number of areas of intergroup similarity evident in Table 6.5 deserve mention. Inadequate parental supervision or control (88%), anomalous parenting situations (80%) and communication problems were the three most common problems in the families of both girls and boys. Almost a quarter of cases had been sexually abused (23%) and almost half of boys and girls had been physically abused (45%) with about the same number experiencing privation or neglect (43%). Both males and females presented with equal levels of co-morbid depression (15%).

Table 6.5. Global assessment of relational functioning, personal functioning and adverse psychosocial circumstances in boys and girls

Variable		Males (N=20)	Females (N=20)	χ^2 or t	p
Global assessment of relational functioning	M	39.40	51.30	2.23	.03
	SD	14.69	18.77		
Global assessment of functioning	M	45.85	52.00	3.39	.07
	SD	10.18	10.93		
Number of abnormal psychosocial circumstances	M	7.50	6.50	1.31	NS
	SD	2.70	2.10		
Parental mental disorder/deviance		70%	40%	3.63	.06
Intrafamilial discord among adults		85%	60%	3.13	.08
Experiential privation		55%	30%	2.55	NS
Inadequate parental supervision/control		80%	95%	2.05	NS
Inadequate parental supervision/control		80%	95%	2.05	NS
Hostility toward or scapegoating child		10%	25%	1.55	NS
Anomalous parenting situation		80%	80%	0.00	NS
Inadequate or distorted intrafamilial communication		80%	90%	0.78	NS
Isolated family		55%	40%	0.90	NS
Lack of warmth in parent-child relationship		55%	60%	0.10	NS
Parental handicap/disability		25%	15%	0.63	NS
Parental overprotection		45%	30%	0.96	NS
Physical child abuse		45%	45%	0.00	NS
Child sexual abuse (within the family)		25%	20%	0.14	NS
Co-morbid depression		15%	15%	0.00	NS

Discriminant function analysis

A discriminant function analysis was conducted to identify that subset of variables which reliably classified cases as male or female. The following variables were entered as predictors into this analysis: IQ, comorbid ADHD; total

number of behaviour problems; number of covert behaviour problems; number of overt behaviour problems; GARF score; GAF score; and the total number of adverse psychosocial circumstances present. The ratio of variables to cases was 1:5, which is far from the optimal level of 1:10, so the results of this analysis should be interpreted with caution (Hair, Anderson, Tatham & Black, 1994). A stepwise discriminant analysis was performed in which the variables differentiating the groups were entered in stepwise progression, the largest discriminative variable being entered first.

Two variables were identified in this analysis and, in order of entry, these were the number of overt behaviour problems ($F(1,63) = 26.3$, Wilk's Lambda = .58, $p < .001$) and IQ ($F(1,63) = 16.44$, Wilk's Lambda = .52, $p < .001$). The final Wilk's lambda of .52 indicates that the discrimination between the two groups was far from complete. The canonical correlation between the two predictor variables and the dependent variable (gender) of .69 suggests that 38% of the variance between the two groups was accounted for by the discriminant function.

Exploratory regression analyses

To assess which sub-groups of variables best predicted total number of behaviour problems, the number of covert behaviour problems, the number of overt behaviour problems, and ratio of covert to overt behaviour problems, a series of four stepwise multiple regression analyses were conducted, one for each of the variables. For each of these analyses the following variables were included as predictors: gender; IQ, reading age; comorbid ADHD; GAF; GARF; and total number of abnormal psychosocial situations. The ratio of variables to cases was about 1:5, which is far from the optimal level of 1:10, so the results of these analyses, which are presented in Table 6.6, should be interpreted with caution (Hair, Anderson, Tatham & Black, 1994).

From Table 6.6 it may be seen that 14% of the variance in the total number of behaviour problems was accounted for by gender. For the ratio of

covert to overt behaviour problems, 24% of the variance was also accounted for by gender. 52% of the variance in the number of overt behaviour problems was accounted for by gender and co-morbid ADHD and no significant predictors of the number of covert behaviour problems were identified.

Table 6.6. Predictors of overt, covert and total conduct problems identified in multiple regression analyses

Dependent Variable	No of Steps	Predictive Factors	Adjusted R ²	F	df	p
Total behaviour problems	1	Gender	.14	7.11	1,36	.01
Overt behaviour problems	2	Gender ADHD	.40 .52	26.30 21.43	1,36 2,35	.001 .001
Covert behaviour problems	0					
Ratio of covert to overt behaviour problems	1	Gender	.24	12.92	1,36	.001

DISCUSSION

Our first hypothesis was that girls would show more covert behaviour problems and boys would show more overt behaviour problems. For girls, we found that it was not the number of covert problems that distinguished them from boys, but the greater ratio of covert to overt behaviour problems. Girls had a 4:1 ratio of covert to overt behaviour problems and a distinctive pattern characterized by lying, running away and delinquent gang membership. Boys showed more conduct problems overall, and in support of our hypothesis had more overt behaviour problems. Specifically they showed higher levels of cruelty, bullying, destructiveness, weapon carrying and initiating fights. The results of the regression analyses further confirmed the importance of gender in determining the number of overt behaviour problems and the ratio of covert to overt behaviour problems.

We expected greater co-morbidity for ADHD and learning difficulties in boys but found that, while co-morbid ADHD was far more common among boys, girls had markedly lower IQ scores. The discriminant function analysis further supported the importance of low IQ as key element of the female profile. The analysis identified the total number of behaviour problems and IQ as the two variables that could best be used to classify cases accurately as male or female, with girls having fewer behaviour problems and a lower IQ than boys.

We expected to find that girls came from more dysfunctional families but found quite the opposite. Girls came from less dysfunctional families. Girls also showed better psychological adjustment than their male counterparts and did not show a higher incidence of depression as expected. However these differences need to be interpreted within the context of the more global finding that for both boys and girls, lack of parental supervision, an anomalous parenting situation and family communication difficulties were present in more than three quarters of all cases. Also, half of the group studied had experienced some form of child abuse or neglect, a finding that went against our expectation that girls would have a more frequent history of sexual abuse.

For the group as a whole, the emergent profile of an intellectually limited youth from socially disadvantaged background is broadly similar to the Irish male cohort examined by Hart (1969). Youths in this study were likely to come from large families and over half came from single-parent households, which mirrors the findings reported by O'Mahony Cullen & O'Hara (1985). This demographic profile of the current cohort differs somewhat from the profile of youths with CD studied by Byrne and Carr (1995) in that it is an older population from a greater percentage of single-parent households, with a greater number of children per family, and a higher reported incidence of parental unemployment. It is instructive to note that two of the above three Irish studies (Hart's and O'Mahoney's) were conducted on a remand population, while Byrne and Carr's study focused on a child guidance population. The differences in demographic profiles would suggest that the current study should be interpreted in the light of

the juvenile delinquency literature more so than the literature on conduct disorder in the general population.

The high co-morbidity of CD with learning disabilities is consistent with a wide range of international literature (e.g. Moffit, 1993, Eme & Kavanagh, 1995), as is the finding of a significant prevalence of reading disorders (Moffit, 1993, Lynman, Moffit & Strouthamer-Loeber, 1993). One of the interesting features of the current population is that, although male and female youths with CD had similar low reading ages (mean age = 10.2 years), the significantly higher intellectual functioning of the male sample meant that, compared to females, the male population presented with significantly lower levels of reading ability than age and level of functioning would predict. This gender discrepancy is consistent with evidence from neurological studies such as those outlined by Eme and Kavanagh (1995), and contend that males are at greater risk for reading difficulties due to the differential functional organization of the brain for language (Shaywitz et al, 1995). Although numerous studies attest to the gender difference in reading disorders in the general population (Maugham, 1995) it interesting to note that this pattern continued to find expression in a CD population.

The predicted findings of a higher male than female CD co-morbidity with ADHD complements a wealth of parallel findings by Abikoff and Klein (1992) and others and, taken together with the data on reading disabilities, lend credence to the theories of neuropsychological, and biopsychological aetiologies to CD outlined by Moffitt (1993).

Somewhat surprising, in the context of the international literature, was the finding that females in this study had significantly lower IQ's than their male counterparts. Although Moffit (1993), Eme and Kavanagh (1995) and numerous others have outlined the greater risk to males of neurological disorders, no previous study examining the gender specific cognitive profiles of conduct disordered youths was found in the literature search.

While a correlational methodology cannot imply causation, the etiological significance of the observed difference in cognitive patterns of males and females strongly suggests that ADHD and reading disorders are part of the male pathway to CD, while low intellectual functioning seems to characterize the females who have developed CD.

The findings of Byrne and Carr (1995) of the prevalence of inadequate parental control and anomalous parenting situations in a CD group were replicated. In a finding which was significant but contrary to the predicted direction, males were found to have come from significantly more dysfunctional family backgrounds than their female counterparts. This finding contradicts those of a similar study on the dysfunctional family relations of female juvenile delinquents, (Henggeler et al, 1987), but are consistent with findings by Bowker and Klein (1983).

The present study contained sampling and methodological shortfalls which would limit the generalizability of results. The major methodological limitation of this study was that the reliability with which the variables were assessed was not established. The confidential nature of the data involved, with the corresponding stringent rules of access meant that in-situ inter-rater reliability was not established for research diagnosis of CD, status on the GAF, GARF, overt-covert behavioural scales, and presence or absence of adverse psychosocial circumstances. However, with respect to research diagnosis of CD, cases were only included in the study if more than three items from the DSM-IV diagnostic tables were expressly mentioned in the case files.

With respect to reliability of overt-covert figures, a correlation of scores on the overt scales with scores for the DSM-IV subscales measuring *aggression* and *destruction* yielded an r value of 0.75 and a similar correlation of the covert scale with DSM-IV scores for *deceit* and *violation of rules* yielded a strong positive relationship ($r = 0.74, p < .05$). These figures suggest a promising sign of internal consistency.

A further limitation of this study, which was mentioned in the previous section, concerns the sample studied. Although the sample did indeed fulfil the

requirements for DSM-IV conduct disorder, this range of symptomology may not have been the underlying *primary* diagnosis, and thus may not be a typically representative sample of the CD population. Tentative support for the contention that this represents a relatively chronic population comes from comparing the average total behavioural problems reported by Byrne and Carr (1995, mean = 5.38, SD., 2.39) to those found in the current study (mean = 7.24, SD = 1.79), although these differences may also reflect age differences between the samples.

The study in its present form could not provide any information in relation to causality or pathways to CD which may involve gender-specific developmental trajectories. The small N of the study also reduces its generalizability and predictive power for the general CD population.

Perhaps the most important clinical implication arising from the current study is the treatment model suggested by the profiles of the young offenders. The high correlation of family dysfunction and CD severity points to the need for a family based approach to treatment. Preliminary evidence for a multisystemic approach which uses family therapy as a central organizing framework for coordinating multiple interventions including individual therapy, peer-group and school based interventions is promising (Henggeler & Borduin, 1990; Henggeler, Melton, & Smith, 1992). However, where youngsters cannot be contained within their own families, this approach is inappropriate. Unfortunately, remand centre-based treatment of young offenders may offer a forum within which to build a deviant peer network and develop antisocial skills. Thus, an alternative type of custodial treatment is required in these severe cases. One promising alternative to traditional custodial care is treatment foster care and preliminary evidence from a number of US based pilot projects is promising (Chamberlain, 1994; Chamberlain & Rosicky, 1995). In Ireland there is a need to develop multisystemic family therapy based services and treatment foster care services to deal with youngsters, both male and female, with conduct disorders.

Future research on the development and expression of CD should ideally adopt a prospective design, with assessment at several time points to examine whether there exists disparate gender-specific developmental trajectories on the pathway towards CD. The integration of interview, qualitative data in which the youths would give their own account of their development of CD would considerably add to the understanding of the disorder. It would be advisable to include a non-referred control group and a referred control group without CD in order to minimize the effects of baseline levels of aggressive and covert symptomology.

The current research suggests a tantalising link between female CD, gang membership and substance abuse disorder and also suggests that gender-specific cognitive profiles are important developmental considerations on the pathway towards CD. These relationships merit further more meticulous research.

In her description of different antisocial patterns in male and female adolescents Carolyn Zahn-Waxler (1993) divided them into an aggression-dominated male pathway, and an internalizing female pattern, calling her paper “Warriors and worriers”. The current study suggests that the dichotomization into “aggressive” male and “internalizing” female expressions of CD is too simplistic. In our study males showed more overt, aggressive behaviours and were more likely to use weapons, but females were more likely to be members of delinquent gangs, and were no more likely than males to have co-morbid emotional disorders. So the Irish male CD warriors are aggressive and carry weapons, but the Irish female CD girls hunt in packs and are not worried.

SUMMARY

In this study of 20 male and 20 female conduct disordered adolescents matched for age and sociodemographic variables, distinct psychosocial profiles were identified. Girls had fewer conduct problems overall because, compared with boys, they had fewer overt behaviour problems. Boys showed higher levels of

cruelty, bullying, destructiveness, weapon carrying and initiating fights. Girls had similar levels of covert symptoms to boys but had a significantly higher ratio of covert to overt behaviour problems than their male counterparts. The female pattern of conduct problems was unique and included deviant peer group membership, lying and running away. While co-morbid ADHD was common among boys, girls had significantly lower IQ scores. Girls came from less dysfunctional families and showed better psychological adjustment than their male counterparts. However, for both boys and girls, lack of parental supervision and family communication difficulties were present in more than three quarters of all cases, and half of the group studied had experienced some form of child abuse or neglect.

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