ATTACHMENT AND CONDUCT PROBLEMS: USING THE CHILD ATTACHMENT INTERVIEW TO EXAMINE THE RELATIONSHIP IN MIDDLE CHILDHOOD AND EARLY ADOLESCENCE.

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Overview

This volume intends to investigate the relationship between attachment and conduct problems and is presented in three parts.

Part I reviews the literature investigating the link between attachment and conduct and externalising behaviours in early childhood. 33 papers investigating this link are reviewed and their findings discussed. The majority of studies found an association between insecure attachment and increased externalising behaviour problems. There were, however, several differences in the results and these are discussed in terms of sample differences, gender, measurement of behaviour problems, type of insecure attachment and potential interactions with other variables.

Part II is an empirical paper examining this relationship in middle childhood and early adolescence. Data was collected from a sample of 113 9-16 years olds regarding their attachment security, teacher and parent reported conduct problems, intelligence and cumulative contextual risk. The results showed a significant relationship between conduct problems and attachment however when control variables were considered this result only remained significant for teacher reported conduct problems. There was however a significant interaction between attachment and cumulative risk. Results are discussed considering the limitations of the study and the nature of the interaction.

Part III is a critical appraisal of the research. There is further discussion of the strengths and limitations of the study and of future directions for research. The clinical implications and personal reflections of the research process are considered.

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PART I

DOES INSECURE ATTACHMENT IN INFANCY LEAD TO LATER EXTERNALISING BEHAVIOUR? A REVIEW OF THE LITERATURE.

1.0 Abstract

This review investigates the role of attachment security in the development of later externalizing behaviour problems. 33 studies were identified which have examined this relationship and these are discussed in terms of their key findings. The majority of these studies broadly support the idea that attachment insecurity and behaviour problems are linked. Differences in the findings across studies are discussed with consideration of the level of risk of the sample, gender of the children within the sample, type of measurement of behaviour problems, specific attachment classifications and the interaction of attachment with other variables. Future research investigating the nature of the interaction of attachment with other variables, particularly environmental risk, is suggested, as is further research into the mechanisms by which attachment influences future behaviour and the role of internal working models.

1.1 Introduction

Interest in the early origins of disruptive behaviour and externalising problems has grown over the years due to the remarkable stability of these behaviours over time (e.g. Olweus, 1979). Externalising problems in early childhood have been found to be highly likely to persist into later childhood and adolescence and are then found to be quite resistant to intervention, with an overall effect size of therapeutic interventions currently being close to zero (Lipsey, 1995). Thus, understanding the antecedents of early childhood aggression is seen by many as crucial in affecting change and this period is seen as critical to future development and adaptation (Campbell, 1995).

Attachment is one aspect of the parent-child relationship that has been thought to have an important impact on children's development. Bowlby (1969) described the attachment relationship as a base upon which later models of self and the attachment figure are created and which in turn influence a child's relation to others and their environment. Thus, a securely attached child is thought likely to develop positive views of others as responsive and available and a view of themselves as valuable. Where a child's attachment needs have not been adequately met, the world may appear unpredictable or significant others unavailable and they are likely to develop mistrustful and anxious opinions of others as unable to care for them or help them. This is thought to leave the child less able to deal with difficult situations and developmental challenges (Bowlby, 1973). Indeed, empirical studies have largely supported this theory for a range of developmental outcomes, with securely attached children being shown to be, for example, more socially competent, empathic and cooperative (Belsky & Cassidy, 1994)

and have more advanced language development (Van Ijzendoorn, Dijkstra & Bus, 1995).

The relationship of attachment to externalising behaviour problems has been investigated by many researchers, who have tested Bowlby's proposal that an insecure attachment leads to a mistrustful view of others and an anger and resentment about unmet needs (Bowlby, 1973). This in turn is thought to lead to an interpretation of others actions as hostile (Suess, Grossmann & Sroufe, 1992) and may then produce an aggressive response. However, the results of empirical studies that have examined this hypothesis have been heterogeneous (Keller, Spieker & Gilchrist, 2005) and these theoretical predictions have not always been supported (e.g. Goldberg, Gotowiec & Simmons 1995; Marchand & Hock, 1998). This paper systematically reviews studies that have investigated the association between early attachment and externalising problems in childhood and summarises the trends and inconsistencies in this large and expanding evidence base.

1.2 Articles included in this review

1.2.1 Selection of articles

It was decided that due to the large body of research in the area of attachment theory and children's development, this review would focus solely on the prediction of externalising behaviours and aggression from the two most frequently used and well validated methods for measuring attachment, the Strange Situation Procedure (Ainsworth, Blehar, Waters & Wall, 1978) and the Attachment Q-Set (AQS, Waters & Deane, 1985). In order to narrow the scope of the review, it focuses solely on early and

middle childhood rather than adolescence. While not necessarily statistically independent, studies that measured pro-social behaviour and social competence were considered conceptually distinct from the development of externalising behaviour and aggression and hence were excluded. Thus, this review is confined to studies which explicitly examine externalising or problem behaviours and their relation to attachment.

Two methods of identifying papers were used, namely, a systematic PsychInfo search and a detailed examination of reference lists of influential papers on attachment and behaviour problems in order to check for any papers missed by the PsychInfo search. The search terms used to identify these articles were broad, to ensure as many articles as possible were identified. This was especially important as pilot searches had shown narrower terms to miss articles known to be relevant. The search engine used was Ovid Webspirs 5.1 and databases searched were the 28 that make up PsychInfo. The search was for all articles whose abstract contained the word 'attachment' and one of several terms describing behaviour problems: 'externalising, externalizing, aggression, conduct, psychopathology, opposition, competence, social functioning, prosocial, anti-social and antisocial'. The search was further limited to articles whose participants were aged under eighteen and to articles which were empirical papers and published in journals.

The search therefore consisted of all papers which included attachment and some description of pro- or anti-social behaviour in the abstract. The search was limited to include only papers relating to children and adolescents and therefore included papers with all measures of attachment at all ages up to and including adolescence and included outcomes such as social competence and prosocial behaviour. Although these areas are not a focus of this review, some studies investigating these areas also collected data

regarding behaviour problems and externalising behaviour and hence were included in an initial round of screening for suitability. This initial search yielded 487 articles. These were reduced to the 33 included within this review by two methods. Firstly, the abstracts of all were read and articles which clearly did not fall within the general criteria listed above were removed. That is, articles in which attachment and/or behaviour problems were not measured or where measurements were of the wrong type or age (e.g. measurement of attachment by questionnaire in adolescence) were excluded. This phase also removed several articles where issues of attachment were merely discussed and the concept was not measured. At the end of this phase, 83 articles remained which could have been relevant from their abstract. Uncertainty about whether a paper qualified from a reading of the abstract typically occurred because the method of measurement of attachment was not mentioned or whether behaviour problems were measured was unclear. The full texts of these articles were examined to ascertain their relevance to this review and from these 33 articles were retained. The main reasons for articles not being relevant were that a different measure of attachment was used, that the focus was on social competence and not externalising or aggression specifically or that the direct relationship between these two concepts was not examined but was mediated by another variable e.g. examining the effects of maternal depression on attachment and behaviour problems but not the relationship between the latter two.

Of the articles remaining, the majority (26) used the Strange Situation Procedure as the measurement of attachment in infancy and then followed children up some years later to assess future behaviour problems.

1.2.2 Overview of studies

The thirty three papers found using the methods above are briefly summarised in Table 1.1. Of these papers, twenty six found some effect of attachment either alone or in an interaction, supporting the idea that attachment in early childhood has a role in the development of externalising behaviour problems. However, these effects vary greatly; some studies found an effect in a low risk sample (e.g. Burgess, Marshall, Rubin & Fox, 2003) while others did not (Bates, Maslin & Frankel, 1985). Some found an effect in boys but not girls (Lewis, Feiring, McGuffog & Jaskir, 1984) whereas some found an effect in both (e.g. DeMulder, Denham, Schmidt & Mitchell, 2000). Some found a main effect of attachment (e.g. Cicchetti, Rogosch & Toth, 1998) while others found it to be significant only when considered as one variable within a regression model or in an interaction with other variables in an analysis of variance (e.g. Lyons-Ruth, Easterbrooks & Cibelli, 1997). Some studies found an effect in parental reports of problem behaviour (Rothbaum, Rosen, Pott & Beatty, 1995) while others found only an effect in teacher report (Schmidt, DeMulder & Denham 2002) and some studies particularly implicated avoidant attachment in the development of problem behaviours (e.g. Belsky & Fearon, 2002b) whereas others found disorganised attachment to pose a greater risk (e.g. Carlson, 1998). Moreover, seven studies did not find an effect of attachment at all. In the narrative review that follows, the papers will be reviewed under a number of conceptual themes, relating to 1) methodological issues, 2) risk versus low risk environments, 3) gender and respondent differences, 4) specific attachment classifications and 5) interactions found with other variables. In so doing, the review

attempts to integrate the different findings, suggest conclusions which can be drawn and identify areas for future research.

1.3 Methodological Issues

Examining the details of the studies in Table 1.1 it is clear that there are several possible methodological reasons for the variation in results which should be considered. Firstly, the sample sizes of the studies vary widely from smaller studies with 30-50 participants (e.g. Wood, Emmerson & Cowan, 2004; Rothbaum et al., 1995) to very large studies of over 1000 children (e.g. Belsky & Fearon, 2002a; Howes & Ritchie, 1999). Clearly, such large differences will influence the power of the analysis and the generalisability of results found. In some cases it will also affect the analyses which can be carried out. An example of this is in the case of Marchand and Hock (1998) who found a significant relationship between attachment and externalising problems in correlation analyses but were unable to enter attachment into a regression equation to ascertain if it predicted a significant amount of the variance in externalising problems when other variables such as maternal depression were considered. This was due to the sample size being too small after sex differences were found (each gender was analysed separately instead). In 1991, Booth and colleagues (Booth, Rose Krasnor & Rubin, 1991) found attachment security to have a lack of predictive power for later behaviour problems in a study designed to test the differential power of attachment security in low and high risk samples. They used an observational measure of mother and child and child and peer interaction to assess the children's behaviours and found a trend towards secure children using less aggressive strategies than insecure children. However, this did

not reach significance (p>.07). There were also signs that middle class securely attached children showed still less aggression, however this was also not significant. It appears that one reason for this could be the small sample used. There were 38 children in total but since they were from two different populations the numbers in each group were 20 and 18. This study thus lacked sufficient power to detect a small or medium effect as significant. Thus, sample sizes should be considered carefully when examining the results because they could be preventing the detection of an effect, as is possible in Marchand and Hock's study. It is also possible that a smaller sample could find a significant association which is not generalisable to the wider population.

A further issue discussed in several of the studies reviewed here (e.g. Cicchetti et al., 1998; Keller et al., 2005) is that of relying solely on maternal reports of behaviour problems. This has the advantage of ensuring a respondent with an in-depth knowledge of the child but may also lead to common informant and method variance (Keller et al., 2005). This is not an issue in the measurement of attachment using the measures in this review since it is assessed independently in both. However, in the studies reviewed here which have used more than one respondent to gather information, five have found a different effect of attachment on behaviour problems as reported by parents and teachers (Fagot & Kavanagh, 1990; Lyons-Ruth et al., 1997; Goldberg, Corter, Lojkasek & Minde, 1990; Schmidt et al., 2002; Rothbaum et al., 1995). These are discussed in more detail below, however it highlights the fact that results based on maternal or teacher reports may not provide consistent findings.

Authors	Sample Size (N) & Gender	Additional details on type of sample	Measure of attachment and age measured	Measure of behaviour problems (age measured)	Main Findings
Barglow, P., Contreras, J., Kavesh, L., & Vaughn, B. E. (1998).	N=84 (44 boys and 40 girls).	All infants from middle class two parent families. 85% Caucasian.	Strange Situation at 12 months.	CBCL (Parent). Preschool Interpersonal Problem solving PIPS test. Video-taped laboratory play. Personality Inventory for Children (parent) (Mean age 6 yrs 10ths)	Attachment security was significantly correlated to problem behaviours in boys but not girls and did not add significantly prediction to a regression equation for either boys or girls.
Bates, J.E., Maslin, C.A. & Frankel, K.A. (1985).	N =approx. 120 (size varies with analyses- approx. even gender)	84% middle or upper middle class.	Strange Situation at 13 months	Preschool Behaviour questionnaire – completed by mother and secondary caregiver (3 years).	Attachment security did not predict later behaviour problems.
Belsky, J., & Fearon, R. M. P. (2002a).	N=1053	A subset of the NICHD Study of Early Child Care- intended to reflect demographic diversity.	Strange Situation at 15 months	CBCL (Parent) Adaptive social behaviour inventory (Parent) (3 years)	Attachment security predicted later behaviour problems when SES was not controlled for, when it was security did not significantly predict behaviour.
Belsky, J., & Fearon, R. M. P. (2002b).	N=946	A subset of the NICHD Study of Early Child Care- intended to reflect demographic diversity. Subset reported may under-represent more socially disadvantaged populations.	Strange Situation at 15 months	CBCL-(Mothers) Adaptive Social Behaviour Inventory (Parent) (3 years)	Significant interaction of attachment and risk on behaviour problems. Seemed A classification (not D/C) increased behaviour problems sharply in presence of 2/more risks. A needs less environmental risk to get behaviour problems increase than B/C/D.
Booth, C. L., Rose Krasnor, L., & Rubin, K. H. (1991).	2 Groups: 1) N=20 (11 boys and 9 girls) 2) N=18 (10 boys and 8 girls)	Group 1-high risk sample-of significantly lower social status, younger maternal age, lower educational level and more single parents than Group 2 (low risk).	Strange Situation at 20 months	Observational coding of mother and child behaviour and child behaviour with peer (4 years).	Found trend of secure being less aggressive than insecure but not quite significant. Appears from means that this is especially true of insecure low SES children but this interaction was not significant.
Burgess, K. B., Marshall, P. J., Rubin, K. H., & Fox, N. A. (2003).	N=121-146 for different analyses	All infants were from middle class families. 94% Caucasian.	Strange Situation at 14 months.	Play Observation Scale Colorado Child Temperament Inventory (parent) CBCL (parent)	Post-hoc tests showed that avoidant (A) infants had significantly higher externalizing scores compared to both ambivalent (C) and securely (B)

				(4 years)	attached infants.
Carlson, E. A. (1998).	N=157 (92 boys and 65 girls)	Recruited from public health clinics. 69% single, 39% not completed high school, 80% Caucasian, 36% unemployed	Strange Situation at 12 and 18 months	Behaviour Problem Scale and Preschool Behaviour Questionnaire (teacher) (4½ years) CBCL (teacher) (grades 1,2,3,6)	Found disorganisation of attachment related to preschool behaviour problems but not externalising problems at school.
Cicchetti, D., Rogosch, F. A., & Toth, S. L. (1998).	N=156 (89 boys and 69 girls)	104 mothers had a history major depressive disorder. 52- No psychiatric history. 74.3% in highest SE strata.	Attachment Q-Set at 20 months	CBCL (Parent) at 20 months	Found consistent main affect of attachment security on behaviour problems- int and ext $p<.001$ predicted by father and mother report.
DeMulder, E. K., Denham, S., Schmidt, M., & Mitchell, J. (2000).	N= 94 (51 boys and 43 girls)	Predominantly middle or upper middle class families. 87% intact families, 82% Caucasian.	Attachment Q-Set at 35-58 months	Adapted Q-Set for behaviour with teacher Social Competence and Behaviour Evaluation-Short Form (teacher) (at 35-58 months)	For boys and girls, security with mother was significantly related to teacher reports of anger-aggression; for boys, security with mother accounted for 15% of the variance and for girls this was 12%.
Egeland, B., & Hiester, M. (1995).	1) N= 29 children in day care before 12 months. 2) N- 40 home reared children	A subset of a longitudinal study of high risk poverty in families. 80% White.	Strange Situation at 12 months	Mother-child lab observation at 42 months. CBCL (teacher) in kindergarten; 1st; 2nd, 3rd and 6th grades.	Found insecure attachment predicted internalising/externalising /aggression in 1st grade but not in kindergarten where was an interaction with day care (secure did worse in day care than at home, insecure did not)
Erickson, M.F., Sroufe, L.A. & Egeland, B. (1985).	N=96 (52 boys and 44 girls)	Selected for risk of later problems. Low SES, low educational level, young age, lack of support, chaotic living conditions and high level of life stress.	Strange Situation at 12 and 18 months	Child observation; Preschool Behaviour Questionnaire and Behaviour Problem Scale completed by teacher or child care provider (at 5 years)	Insecurely attached children were more likely to be placed in behaviour problem group especially if classified as insecure at both time points.
Fagot, B.I., & Kavanagh, K. (1990).	N=109 (57 boys and 52 girls)	Cross section of population-matched the population for ethnicity, occupation, family size and income.	Strange Situation at 18 months	Parent telephone interview for toddlers' behaviours at 24 months-interactive behaviour code. Home observation at 27 months Teacher-observer rating scale CBCL (mother) at 30 mo and 4yrs	Found no relation between attachment status and mother, father or observer ratings of behaviour but found teachers rated avoidant girls as sig. more difficult than all other groups.
Fagot, B. I., & Leve, L. D. (1998).	N=156 (82 boys and 74 girls)	Cross section of population-matched for ethnicity. Not a risk sample but not without	Strange Situation at 18 months	CBCL (parent & teacher) (5 years) Home and lab observation of child and parent. (5 years)	Attachment classification did not significantly add to variance predicted by home environment, single parent

		risk.			status and previous behaviour problems.
Goldberg, S., Corter, C., Lojkasek, M., & Minde, K. (1990).	N varies from 29 to 69 for various analyses	Low birth weight sample: Recruited at birth if weighed less than 1.5 kg and survived 72 hours.	Strange Situation at 12 months (corrected age)	Richman-Graham Behaviour checklist- mother report at 4 years Preschool behaviour questionnaire-teacher report at 4 years.	Mother and teacher ratings of behaviour were not significantly correlated. Attachment was related to medical risk but not correlated with anything else.
Goldberg, S., Gotowiec, A., & Simmons, R. J. (1995).	3 Groups: N= 51 healthy (38% girls); N=40 CF (33% girls) and N=54 CHD (30% girls).	3 groups, one- congenital heart disease, one- cystic fibrosis and one- healthy. 90% white, middle class.	Strange Situation at 12 months	CBCL (Parent) at 24 and 36 months.	No significant differences between attachment classifications on externalising scale of CBCL.
Howes, C., Matheson, C. C., & Hamilton, C. E. (1994).	N=84 (43 boys and 41 girls)	Primarily European American and middle class. All from intact families.	Strange Situation at 12 months	Child observation and scoring on 4 variables- observed gregariousness, complex play, hostile aggression and instrumental aggression at 4yrs.	Found no relation between maternal attachment at 12 months and behaviour at age 4.
Howes, C., & Ritchie, S. (1999).	N=3062 from 5 studies (1592 boys and 1470 girls)	Range in age and ethnic background. Generally a high risk sample children of low income, family poverty or emotional problems.	Attachment Q-Set (age varies from toddlers to preschool)	Behar Preschool Behaviour Questionnaire and CBCL (teacher) (age varies from toddlers to preschool)	Found children classified as resistant or avoidant/resistant scored higher on measures of behaviour problems- internalising, externalising and total problems.
Hubbs Tait, L., Osofsky, J. D., Hann, D. M., & McDonald Culp, A. (1994).	N=44 (20 boys and 24 girls)	Adolescent mothers aged 14-18 years at time of birth. 64% Caucasian, 89% receiving public assistance when child was 13 months.	Strange Situation- 13 months	CBCL (mother) at 54 months	Both insecurity and disorganisation of attachment and maternal depression predicted significant amounts of the variance in both externalising and internalising problems.
Keller, T. E., Spieker, S. J., & Gilchrist, L. (2005).	N=169 (93 boys and 76 girls)	Recruited pregnant adolescents aged 12-17 and followed them up until child was 54 months old.	Strange Situation at 12 months	Behaviour Problems Index at 24 and 30 months CBCL (Parent) at 36 and 54 months	Found that secure attachment was a protective factor and insecure attachment was a risk factor but only in combination with other variables.
Lewis, M., Feiring, C., McGuffog, C., & Jaskir, J. (1984).	N=113 (57 boys and 56 girls)	White middle class sample. Average of 15.3 years of formal education for fathers and 13.8 for mothers.	Modified Strange Situation procedure-	Child Behaviour Profile-(mother report) at 6 years.	80% of males showing pathology at 6 were insecure at 1 year. 40% of insecure boys developed psychopathology 6% of secure boys

			one sep/ reunion at 12 months		did- no relationship for females
Lyons Ruth, K., Alpern, L., & Repacholi, B. (1993).	N=62 (37 boys and 25 girls)	Subset of a previous study of low income families. Risks included psychiatric hospitalisation and child maltreatment.	Strange Situation at 18 months	Preschool Behaviour Questionnaire (PBQ) (teacher) at 5 years.	Disorganised infants accounted for 71% serious hostile behaviour in preschool however this was still a minority of all disorganised infants.
Lyons Ruth, K., Easterbrooks, M. A., & Cibelli, C. D. (1997).	N=50 (30 boys and 20 girls)	Subset of previous study of low income families. Almost half under official poverty level. 49% single parents, 80% white.	Strange Situation at 18 months	CBCL (parent and teacher) at 7 years.	CBCL externalising scores reported by teachers were significantly predicted by four variables one of which was disorganised attachment. None of the predictors predicted significant amounts alone and parent report did not predict any significantly
Marchand, J. F., & Hock, E. (1998).	N =46 (23 boys and 23 girls)	White middle class sample. Average age-mothers 34 years and fathers 36 years. Education- mothers 16 years and fathers 15 years.	Attachment Q-Set at 4 years	CBCL-(mother) Observer ratings on behaviour scale on the Bayleys (at 4 years).	Attachment was correlated with externalising scores however sample sizes would not allow entry into regression model for externalising problems.
Munson, J. A., McMahon, R. J., & Spieker, S. J. (2001).	N=103 (50 boys and 53 girls)	Recruited pregnant adolescents aged 14-20.	Strange Situation at 12 months	CBCL (parent) – five times between preschool and third grade (9 years).	Children with avoidant and disorganised classifications were found to be significantly more likely to have externalising problems.
Pierrehumbert, B., Miljkovitch, R., Plancherel, B., Halfon, O., & Ansermet, F. (2000).	N=40 (19 boys and 21 girls)	Randomly selected from the population. Uptake 30%. Details of SES and ethnicity not reported.	Strange Situation at 21 months	Translated CBCL (parent) and PTQ temperament questionnaire at 5 years	Avoidant attachment significantly predicted both internalising and externalising problems.
Renken, B., Egeland, B., Marvinney, D., Mangelsdorf, S., & et al. (1989).	N=191 (106 boys and 85 girls)	Minnesota Mother Child Project- a group of children considered at high risk for future caretaking problems.	Strange Situation at 12 and 18 months.	CBCL (teacher) 1st -3rd grades Devereux elementary school behaviour rating scale. Classroom observation	Avoidant attachment significantly predicted aggression in boys but not girls.
Rothbaum, F., Rosen, K. S., Pott, M., & Beatty, M. (1995).	N=36 (18 boys and 18 girls)	White middle or upper middle class sample.	Strange Situation at 18-24	CBCL (mother, father and teacher) at mean age 7 years	Attachment security significantly correlated with mothers' ratings of behaviour not teachers or fathers.

			months		
Schmidt, M. E., DeMulder, E. K., & Denham, S. (2002).	N=49 (26 boys and 23 girls)	Predominantly middle and upper middle class and Caucasian.	Attachment Q-Set at 3 years	Preschool socio-affective profile (teacher). CBCL (mother) Both at 5 years	Main effect of attachment on aggression and social competence as rated by teachers. No effects of attachment on mother rated CBCL or on externalizing problems generally.
Shaw, D. S., Owens, E. B., Vondra, J. I., & Keenan, K. (1996).	N=100	Low SES mothers from a nutritional supplement programme. Mothers were between 17 and 30 years. 73% were unemployed and 60% were single.	Strange Situation at 12 and 18 months.	CBCL (Parent) at 3 years and 4¾ years –looked at externalising problems and aggression scale.	Sig. relationship between 12 month attach and aggression with D being sig. more likely to be over clinical cut off on aggression compared to A, B and C. Disorganised attachment- a significant predictor of age 5 aggression in regression. In logistic regression disorganised attachment was also a predictor of externalising problems.
Suess, G. J., Grossmann, K. E., & Sroufe, L. A. (1992).	N=39 (18 boys and 21 girls)	All social classes, the majority being middle class.	Strange Situation at 12 and 18 months both parents.	Modified form of Minnesota preschool affect checklist –child observation. Social perception test.	Avoidant attachment was more likely to lead to behaviour problems than secure attach to mother. Problems could not be predicted from father attachment.
Vondra, J. I., Shaw, D. S., Swearingen, L., Cohen, M., & Owens, E. B. (2001).	N=165 (89 boys and 76 girls)	Recruited from a nutritional supplement programme- low income required. 55% single, 20% teenagers at birth.	Strange Situation at 12 and 18 months.	CBCL (Parent) at 3 ½ years.	12 and 18 month attachment classifications did not significantly predict behaviour problems over 24 month classifications, however children with stable secure attach at all 3 points had sig. fewer ext problems than stable insecure at all 3 points.
Weiss, S. J., & Seed, M. S. J. (2002).	N=110 (63 boys and 47 girls)	Low birth weight children- less than 2.5kgs at birth. Ethnically diverse, range of incomes and education level.	Attachment Q-Set at 24 months.	CBCL (Parents) at 2 years.	Attachment was significantly correlated with externalising and internalising problems. Attachment contributed to 13% of the variance of problems.
Wood, J. J., Emmerson, N. A., & Cowan, P. A. (2004).	N=37	Primarily Caucasian, socioeconomic background varied widely.	Attachment Q-Set at 3 years.	Child Adaptive Behaviour Inventory (Teachers) at 4-5 years	Lower attachment security was associated with increased externalising problems.

Table 1.1: Overview of studies included for review.

Finally, two further sources of variation between the studies are the age of the child at which attachment was measured and the age at which behaviour problems were measured. The Strange Situation Procedure has been used in the majority of studies and carried out for the most part when the child was aged between 12 and 18 months. However three studies used the Strange Situation with older children (Pierrehumbert, Miljkovitch, Plancherel, Halfon, & Ansermet, 2000- 21 months; Rothbaum et al., 1995- up to 24 months; Booth et al., 1991-20 months) and the Attachment Q-set can be used at a range of ages. Studies in this review have used the Q-set to assess attachment in children aged between 20 months and 58 months. An important implication of this is that some studies looked at the effect of concurrent attachment (as measured using the Q-set) on behaviour. Thus, the potential effect of age of measurement of attachment is in some cases confounded with the possible effect of employing a cross-sectional design.

Measurement of behaviour problems occurred at a still wider range of ages. Some studies measured behaviour problems in the same sample at several time points up to age 11 (e.g. Egeland & Hiester, 1995; Carlson, 1998), whereas some measured early behaviour problems only (e.g. Cicchetti et al., 1998-20 months; Weiss & Seed, 2002- 24 months). This wide variation needs to be considered carefully when comparing the results of the different studies as it could be another important reason for differences found. It does not appear, however, that the age at which behaviour problems are measured influences simply whether or not an effect has been found. The studies which did not find an effect of attachment on behaviour problems looked at behaviour problems at a range of ages from 2 to 6 years (e.g. Goldberg et al., 1995- 2 years; Barglow, Contreras, Kavesh & Vaughn, 1998 -6 years). Similarly, an effect of

attachment has been found to be significant in studies looking at externalizing problems at ages ranging from 2 years to beyond 6 years (Weiss & Seed, 2002- 2 years; Lyons-Ruth et al., 1997- 7 years).

1.4 Risk versus Low Risk Samples

An important distinction often drawn in the existing literature on attachment and psychopathology is that between high and low risk samples (e.g. Belsky & Fearon, 2002b). Several authors have argued that a relationship between attachment and behaviours problems is more marked in high risk samples than low risk ones and that this may explain some of the null findings in the literature (e.g. Bates et al., 1985). The term high risk is generally used to denote a sample containing participants with multiple social risk factors such as being a single parent family, the mother being a teenager at the time of birth, low family income, the mother being from a minority ethnic group, low level of maternal education, a history of child maltreatment or maternal psychiatric hospitalisation (Lyons-Ruth, Alpern & Repacholi, 1993). In contrast, the term low risk generally refers to participants without these risk factors who are middle or upper middle class and from the majority ethnic group. There are several issues to consider when examining the different results found in these different samples. Firstly, it is possible, and in fact likely, that samples described as high risk will differ from each other; some may have a greater degree of risk than others. The extent to which this is the case is difficult to ascertain but it is important to keep in mind when discussing the studies. Furthermore, the samples have other variations as well as level of risk and these are also likely to effect results found.

In this review, twelve studies have been carried out within samples described as high risk, eleven within low risk samples, nine within samples which contain a wide range of risk levels and one study specifically comparing a high risk sample with one of low risk (Booth et al., 1991). When looking at studies which have and have not shown an effect of attachment on the development of behaviour problems, all twelve of the studies carried out in high risk samples found some effect of attachment. In comparison, seven studies out of eleven in low risk samples found an effect and in studies with a range of risk levels, seven out of nine found an effect. Therefore, of the seven studies within this review that did not find an effect of attachment upon behaviour problems, none were within a high risk sample, one was a comparison study of a high and low risk sample, two were in a mixed sample and four were in a low risk sample. It is striking that all studies carried out with high risk samples found effects and suggests that the type of sample used will, to some extent, influence the strength of the effects found.

1.4.1 Studies within low risk environments which did not find an effect of attachment

Bates et al. (1985) were the first group of researchers not to find that early attachment predicted behaviour problems in 3 year-olds. They suggested this could be due to the relatively healthy nature of their normal sample. Certainly, compared to some studies, Bates et al. (1985) used a fairly large sample size (N=120 for the follow up analyses), which would suggest that low power may not be the primary problem. Furthermore, Bates et al. assessed behaviour problems from two perspectives, mother and secondary caregiver, so restrictions in the type of outcome measurement would not

seem to be a likely cause of the null finding. It is necessary to consider, however, the potential influence of disorganisation on the sample as this study was carried out before the introduction of this classification. This issue is discussed in more detail in section 1.6. Howes and colleagues (Howes, Matheson & Hamilton, 1994) also found no association between attachment at 12 months and behaviour problems at 4 years as measured by observers, finding no difference in rates of hostility and aggression between children who were securely or insecurely attached as measured using the Strange Situation. They also measured attachment at 4 yrs using the Cassidy and Marvin (1988, cited by Howes et al., 1994) system which also had no relationship to the children's hostility or aggression ratings. Given the use of different measures of attachment and observer ratings of behaviour it seems this null finding could again be due a low risk sample being used. On the other hand, reliance on relatively brief observational instruments may underestimate the degree of problem behaviour that might be identified by a longer sampling frame or by adults who know the children well. Barglow et al. (1998) measured attachment security and problem behaviours in a sample of middle class, intact families and found that attachment did not significantly correlate with problem behaviour and did not significantly predict problem behaviours in a regression analysis, where maternal sensitive responsiveness was the only significant predictor for both boys and girls. Goldberg et al. (1995) investigated the effects of attachment on internalising and externalising problems in predominantly white, middle class children with congenital heart disease, cystic fibrosis or with neither condition. They found no correlation between attachment and externalising problems in any group. Goldberg et al. (1995) suggest that effect sizes demonstrate a pattern showing avoidant attachment to be more predictive of externalising problems than secure and other

insecure patterns however sample sizes in each insecure group were too small to illustrate this statistically. This raises a further methodological point which is that even with relatively large overall sample sizes (in this case N= 145) the numbers of children in each insecure attachment category, especially the resistant group, are still likely to be too small to detect a significant effect. This of course may be particularly problematic in low risk samples, where the uneven distribution of security versus insecurity may be more acute. This is discussed in more detail in section 1.6. However, the fact that most of this sample was at medical risk may also be relevant to the null finding. In a separate study Goldberg et al. (1990) investigated the role of attachment and other variables in predicting behaviour problems at 4 years in a sample of children with low birth weight. Both maternal and teacher reports of behaviour problems were investigated, however, attachment was not found to correlate with either of these. Goldberg et al. suggest that this could, in part, be due to the measures used and problems with using the Strange Situation Procedure with a medically high risk sample who may still have residual motor deficits. This idea is supported by the results of Weiss and Seed (2002) who found that attachment accounted for a significant proportion of the variance in externalising problems in low birth weight children using the Attachment Q-Set with children at 24 months, that is, 12 months older than Goldberg et al's (1990) sample. It should be noted however that the sample recruited by Weiss and Seed included children up to 1kg heavier than the Goldberg group and this may have also influenced results. Both studies conducted by Goldberg and colleagues therefore used children at medical risk and found no effect of attachment. Although Goldberg et al.'s (1995) study was conducted within a sample with low contextual risk; this could also indicate that there are different variables acting within medically at-risk populations which exert more influence over the

development of behaviour problems than attachment. Therefore, it can be seen that the pattern of findings across studies is broadly consistent with the idea that attachment has a weaker effect on externalizing behaviour problems in low risk conditions. Several other study variables may also play a role in null findings, such as the medical status of the children or the sample size, however, it is noteworthy that effects have been found in small samples (e.g. Pierrehumbert et al., 2000- N = 40; Rothbaum et al., 1995- N = 36).

1.4.2 Possible explanations for the effect of risk on findings

There are two main reasons why risk might play a moderating role in the association between attachment and externalising behaviour problems. In considering these it is necessary to look in more detail at the studies which have shown an effect in a low or mixed risk sample. One possible reason could be a raised incidence of disorganised (D) attachment in high risk samples (Van Ijzendoorn, Schuengel, & Bakermans-Kranenburg, 1999), which in turn may be more likely to lead to behaviour problems. The D classification is found in relatively low numbers in low risk samples and therefore is often excluded from the analysis or lacks power within the analysis to show anything other than a very large effect. Furthermore, studies often examine only a split between insecure and secure attachments and therefore may have used forced classifications without including D. Thus, if the D classification specifically leads to behaviour problems it would make sense that effects were found more readily within high risk samples where there are likely to be larger numbers of D children and analyses can be carried out on them as an individual group. There is some evidence in support of this idea; in a high risk sample, Lyons-Ruth et al. (1993) found a specific effect of

disorganisation on behaviour problems. They found that disorganised infants scored significantly higher on levels of hostile behaviour at age 5 than did avoidant or secure infants. Furthermore, two of the studies which used low risk samples and did not find an effect were carried out without investigating the disorganised classification. Bates et al. (1985), described above, studied the relationship prior to the introduction of the disorganised classification, meaning it is possible that either there were D children within the sample but they were assigned to different classifications or that due to the low risk nature of the sample there were not D children present. Furthermore, Barglow et al. (1998), described above, studied the relationship using only a secure/ insecure split. This also could have masked an effect of disorganisation since children in both the secure and the insecure group could have been classified that way.

However, evidence against this hypothesis comes from studies which used 'forced' A/B/C classifications and still found effects of attachment. Burgess et al. (2003) conducted one such study, in a low risk sample which included only 4 children out of 121 classified as disorganised; they therefore used forced ABC classifications throughout. In post hoc tests they found that avoidant children had significantly higher scores on externalising and aggression scales than secure or resistant children at age four years. Lewis et al. (1984), prior to the introduction of the disorganised classification, found that, in a middle class, low risk sample, insecure boys were significantly more likely to have behaviour problems aged 6 than secure boys. Furthermore, within a high risk sample of adolescent mothers, Hubbs-Tait and colleagues (Hubbs-Tait, Osofsky, Hann & Culp, 1994) found that children with either insecure (A or C) or disorganised attachment in infancy were more likely to show externalising problems at 54 months. Thus, while some studies find greater externalising problems in disorganised children,

this does not appear to be sufficient to explain the differences in findings between high and low risk samples. Further discussion of different attachment classifications and their effects can be found in Section 1.6 of this review.

The second possible explanation is that attachment and environment interact in some way to lead to a greater effect of attachment being found when there are other risk factors present. It has been suggested that in environmentally stressful conditions, secure attachment acts as a protective factor buffering the child against the negative impact of the environment and that insecure attachment acts as a risk factor, compounding the effects of the environment. A study which illustrates this possibility clearly is Belsky and Fearon (2002b). In this study, the authors looked at the interaction of contextual risk and attachment on behaviour and found that although increasing amounts of risk increased behaviour problems for all children, insecure avoidant children developed behaviour problems at a lower level of contextual risk than all other groups. The interaction of attachment and socio-economic variables is discussed in more detail in Section 1.7.

1.5 Further differences found in the relationship between attachment and behaviour problems

1.5.1 Gender of child

The gender of the children within the sample may have some effect on the relationship found between attachment and behaviour problems. Of the studies reviewed here, six found some differences in this relationship due to gender. Possible reasons for this will be discussed; however, it is noteworthy that six further studies that found an

overall relationship did not find an interaction with child gender (Howes & Ritchie, 1999; Lyons-Ruth et al., 1993; Lyons-Ruth et al., 1997; Keller et al., 2005; Schmidt et al., 2002; Munson, McMahon & Spieker, 2001). The remaining studies either do not report examining gender differences or did not find an effect of attachment at all regardless of whether they examined gender. Thus the evidence that gender has an effect on this relationship is equivocal at present.

Two of the earliest studies examining attachment and behaviour problems, Lewis et al. (1984) and Renken and colleagues, (Renken, Egeland, Marvinney, Mangelsdorf & Sroufe, 1989), began the debate about possible sex differences in the effect of attachment on behaviour problems. Both of these papers found insecure attachment predicted later externalising behaviour problems but only in boys. Neither found a significant relationship in girls. Two later studies also seem to support this idea. Barglow et al. (1998) did not find that attachment correlated with later behaviour problems when considering the whole sample. However, when separating the children by gender, they found that attachment and externalising problems were significantly correlated in boys but not girls suggesting a stronger relationship between the two in boys. Further, DeMulder et al. (2000) found that insecurity significantly predicted anger and aggression in both boys and girls but that for boys this was a stronger relationship with more of the variance being predicted.

However, these results were contradicted by two further studies, Fagot and Kavanagh (1990) and Suess et al. (1992). Fagot and Kavanagh found that it was girls classified as insecure avoidant who were rated as most difficult to deal with by teachers and observers. Notably however, Fagot and Kavanagh also collected ratings from both parents and these ratings did not show any significant effect of attachment. Suess et al.

(1992) measured attachment to mother and father and found that attachment to mother alone predicted later behaviour problems, specifically hostility, impulse control and reactive aggression as observed by independent coders. They found, however, that this relationship was much stronger for girls who were insecurely attached to their mother. Within the literature these differences have been explained as the result of different socialisation practices for boys and girls. At this stage in development children tend to focus their social lives within same-sex groups or dyads (Maccoby, 1999, cited by Schmidt et al., 2002) in which they continue the socialisation learned within the family unit, which has been shown to be affected by their gender. Lewis et al. (1984) give the example of aggression in their study by hypothesising that there is an optimal level of aggression which can be shown by six year olds and levels above or below this could be considered pathological. In their study, boys with an insecure attachment classification scored higher in this scale than secure boys and were thus labelled as aggressive. However, insecure girls scored lower on the scale than secure girls. They raise the question whether in fact the secure girls are displaying an optimal level of aggression and this is inhibited in insecure girls due to differences in socialisation for the different genders. They thus hypothesise that insecurity affects levels of aggression in both girls and boys but in different (opposite) ways. Fagot and Kavanagh (1990) also suggest that the ratings given to children on measures of behaviour problems could be affected by different ideas about male and female role expectations. Thus, for example, a female child who is not interacting as much socially with her peers will be judged to be deviating further from her role expectation than a male showing the same behaviour and may therefore be rated as more pathological (Fagot & Kavanagh, 1990).

These are thus several possible reasons why gender differences may have been found in the relationship between attachment and behaviour, however as mentioned above a number of papers have failed to find gender differences and still further studies have not reported gender differences. Further research is clearly needed to investigate the effects of gender, ideally at different ages, where the effects of socialisation may be exerting different levels of influence.

1.5.2 Behaviour problems reported by teacher, parent or caregiver

Of the studies reviewed here, only seven have behaviour problems rated by more than one respondent who knew the child. Of these studies, three did not find any effect of attachment on behaviour problems (Bates et al., 1985; Goldberg et al., 1990; Fagot & Leve, 1998) and four found different effects reported by different respondents (Fagot & Kavanagh, 1990; Lyons-Ruth et al., 1997; Schmidt et al., 2002; Rothbaum et al., 1995). It is noteworthy that Goldberg et al. (1990), who did not find an effect, also reported that mother and teacher ratings of behaviour problems were not significantly correlated with each other. Rothbaum et al. (1995) found an effect of attachment on mother's ratings of problem behaviour but not teacher's or father's ratings. Each of the other three papers however, found an effect of attachment on teacher's ratings of problem behaviour and no relationship between parent's ratings and attachment classification. Schmidt et al. (2002) discussed their finding of significant results only for teacher's ratings in terms of the differing relationships the two respondents have with the child and the child's varying behaviour depending on their environment. They reported that within their sample there was low variability in mother's ratings of problem behaviours with less

than 10% of the sample scoring above the clinical cut-off point and that this could have contributed to the difference in results. Fagot and Kavanagh (1990) also suggest that different behaviour in different settings could be responsible for the different responses. Thus, given the high incidence of variation within the small number of studies which have used multiple respondents it seems further research is needed which includes multiple respondents in order to clarify the results.

1.6 Specific Attachment Classifications

Of the twenty six papers reviewed which found some relation between attachment security and problem behaviours, sixteen attempted to look in more detail at which particular attachment classifications could lead to more externalising problems. Originally, research focused on the insecure avoidant attachment classification (A), which is characterised in the Strange Situation Procedure by a lack of proximity seeking and avoidance of the parent on reunion. It has been thought that avoidant attachment is a reflection of a history of unresponsive care-giving which leads an infant to avoid activating the attachment system for fear of rejection. It has been suggested that this leads to a belief that others are consistently uncaring and they may interpret neutral behaviour as hostile. This in turn could lead to engagement with others which is hostile, dismissing and aggressive (Goldberg et al., 1995; Renken et al 1989). It is thought that in comparison to the other main insecure classification of resistant attachment (C), children with an A classification will be more likely to show externalising behaviour. This is because a resistant classification is thought to be a result of inconsistent care-giving whereby the caregiver is sometimes available to the child's needs and sometimes

not. Thus the child becomes preoccupied with gaining the attention of their caregiver and remains dependent upon them and unable to use them as a secure base to explore the outside world. This is thought to lead to a lack of confidence and internalising problems in later years rather than externalising behaviours (Goldberg et al., 1995).

There are however several issues relating to the investigation of these theoretical predictions which have lead to the empirical evidence remaining unclear. The first of these was the introduction of a fourth attachment classification in 1990 (Main and Soloman, 1990). This is the Disorganised (D) classification introduced due to small but consistent numbers of children being unclassifiable within the original Strange Situation system. This was particularly evident in high risk samples where the disorganised classification has subsequently been shown to occur in larger numbers of children. It is thought that disorganisation is associated with parental frightening or frightened behaviour connected with unresolved loss, trauma or parental maltreatment (Main & Hesse, 1990). Disorganisation is not thought to be a fourth organised category but rather a situation in which a child has not been able to develop an organised attachment strategy although there may be features of secure, avoidant or resistant attachment present. The disorganisation classification is applied to children in conjunction with a 'forced' or 'best-fitting' ABC classification. There may be differences between these various forms of disorganisation i.e. D/A; D/B and D/C but due to small numbers found in each sample, differences in outcome of these groups have not been examined. However, in low risk samples disorganised infants are more likely to have underlying secure features than in high risk samples where the underlying classification is likely to be insecure, indicating that differences are present (Lyons-Ruth, Repacholi, McLeod &

Silva, 1991). Studies undertaken before the introduction of this category clearly were unable to take it into account thus complicating the picture of which attachment classification, if any, is particularly predictive of later behaviour problems. A further issue is the small number of children found with resistant classifications in the majority of samples. This has lead to an inability to include this classification in many analyses and thus a lack of evidence for the predictive or non-predictive power of this classification. In low risk populations this is also true of disorganised children and often results in the insecure classifications being collapsed into one category (e.g. Barglow et al., 1998). If not collapsed, the numbers of children in each category tend to be small and may not have sufficient statistical power to detect effects.

A final issue of note in attempting to look at the individual effects of different insecure attachment classifications is the different methods of classifying attachment. As mentioned above, this review specifically focuses on evidence derived from the use of two well validated methods of assessing attachment, the Strange Situation Procedure and the Attachment Q-Set, however, while the Strange Situation assigns discrete categories of attachment to each child, the Attachment Q-set assigns continuous scores from a hypothetically 'most secure' child to a hypothetically 'least secure'. Some researchers have used factor or cluster analysis to assess the characteristics of insecurity in more detail (e.g. Cicchetti et al., 1998) however these will differ from each other and from the Strange Situation classifications and these differences should be considered.

1.6.1 Avoidant classification

In support of the theoretical predictions outlined above, the majority of empirical evidence has indicated that an avoidant attachment classification is particularly predictive of later behaviour problems. Erickson and colleagues (Erickson, Sroufe & Egeland, 1985), researching before the introduction of the D classification, found some evidence of the unique risk of an avoidant classification on later problem behaviours. In a high risk sample they assessed teachers' ratings of preschool behaviours for children who had received a stable attachment classification at both 12 and 18 months in the Strange Situation Procedure. They found that insecure avoidant infants differed substantially from secure infants on a range of measures. Avoidantly classified children were found to have significantly higher total scores on the Preschool Behaviour Questionnaire (Behar & Springfield, 1974, cited by Erickson et al., 1985) and on their own Behaviour Problem Scale than both secure children and insecure resistant children. They were also found to be significantly more hostile than resistant children, significantly more likely to give up and to cry than secure children and were rated as significantly more exhibitionistic and impulsive than both secure and insecure resistant children. These results however, must to treated as tentative due to small sample sizes (N=10 in each insecure group).

Also before the introduction of the Disorganised category, Renken et al. (1989) found further evidence of avoidant classifications being associated with behaviour problems in the same high risk sample as Erickson et al. (1985). Using multiple regressions they found an avoidant attachment classification significantly predicted aggressive behaviour in boys but not girls. They found that resistant attachment did not

predict aggressive behaviour in either males or females. However, they also found that avoidant attachments were significantly predictive of passive withdrawal in boys and that neither withdrawal nor aggression was predicted by avoidant attachment styles in girls. This may be related to the fact that girls' scores were clustered at low ends of both scales thus providing less variability.

Suess et al. (1992) also found that an avoidant classification specifically related to subsequent behaviour problems including aggression, hostility and impulse control, this time within a low risk sample, suggesting avoidant attachment styles are related to behaviour problems across settings. However, this study did not include the disorganised classification within its ratings and contained no children receiving a resistant classification. Therefore it is not possible to say if the effect would have been found for insecurity more generally or if it was in fact specific to avoidant attachment.

In a study completed following the introduction of the D classification and including it, Goldberg et al. (1995) found that the only significant differences in parent-reported CBCL scores came from differences between avoidant and secure children, with avoidant children showing more aggression and higher total behaviour problem scores. However, scores on the whole externalising scale were not significantly different. Goldberg et al. (1995) discuss the limitations of sample size on this finding particularly in relation to the resistant attachment classification. Pierrehumbert et al. (2000), studying a low risk sample only found a small number of D classifications and so were unable to include them in their study; they found that children with avoidant classifications showed significantly more externalising problems than children with secure or resistant classifications. However, they also found avoidant children more likely to have internalising problems than resistant and secure children which would not be expected

theoretically. Burgess et al. (2003) also had a very small number of disorganised children and consequently did not consider them in analyses. In post hoc tests they found that avoidant children scored significantly higher on ratings of externalising problems and aggression than both secure and resistant children.

Since these papers could not consider children with a D classification firm conclusions cannot be drawn. A paper which compared these two classifications is Munson et al. (2001). Here, the developmental trajectory leading to externalising problems was examined with many possible variables considered. However, resistant attachment could not be considered due to small numbers within the sample. They found that both avoidant and disorganised attachment predicted future externalising problems over secure attachment however the predictive power of avoidant attachment was marginally more significant ($p<.01$ compared with $p<.05$ for disorganised attachment). In a study with a very large sample size (N=1149), Belsky and Fearon (2002b) were able to compare the effects of each of the four attachment classifications on the development of later behaviour problems. They found that children with an avoidant classification were more likely to develop behaviour problems in situations with less contextual risk than children with secure, resistant or disorganised classifications. That is, avoidant children had a lower threshold for having an adverse reaction to contextual risk. Finally, a recent study by Keller et al. (2005) examined risk trajectories for problem behaviour and found several significant interactions with attachment style. When they looked at specific attachment styles, they found avoidant children had the highest probability of being within the problem trajectory and that avoidant attachment alone significantly interacted with gender, infant negativity and low risk environments to increase the likelihood of being within the problem trajectory. This supports the findings

of Belsky and Fearon (2002b) that children with an avoidant classification may not require the same level of contextual risk to develop problem behaviours.

In summary, nine papers investigating the differences in outcome in different insecure attachment styles found some evidence that avoidant attachment is a particular risk factor for the development of externalising behaviours. However, since five of these papers do not include the disorganised classification within their analyses and considering, theoretically, that the disorganised classification would be the alternative classification expected to lead to problem behaviours, this evidence must be considered tentatively. This is particularly salient when considering the following papers where the disorganised classification *was* found to be a risk factor.

1.6.2 Disorganised Classification

Four papers carried out in high risk populations all found disorganised attachment to be predictive of future behaviour problems. The first of these papers is Lyons-Ruth et al. (1993). They compared disorganised attachment with secure and avoidant attachment and found children with a D classification had higher rates of hostile behaviour than either A or B children who did not differ significantly from each other. They found that the majority of D children had a 'forced' classification of A (60%) however when these forced classifications were analysed there were no significant differences in behaviour problems. Shaw and colleagues (Shaw, Owens, Vondra & Keenan, 1996) compared all 4 categories of attachment with each other and also found a significant effect of disorganised attachment at 12 months on aggression at

five years (though not on externalising problems more generally). No other differences in outcome were related to attachment classifications. Further evidence of the impact of a D classification comes from a study by Lyons-Ruth et al. (1997) which found four variables together predicted 30% of the variance in externalising problems as reported by teachers. One of these variables was disorganised attachment; other attachment classifications did not add significantly to the model. Finally, Carlson (1998) also found a significant association between disorganised attachment and preschool behaviour problems and no relation between these problems and other attachment classifications. However, they failed to find an association with externalising problems in school age children for any attachment classification.

As mentioned above these studies all used high risk samples, which although useful for ensuring higher numbers of disorganised children, raises questions about how generalisable the results are to the general population. As seen in Lyons-Ruth et al. (1997), and discussed earlier in this review, attachment is often found to be a significant predictor in conjunction with other variables e.g. psychosocial risk factors and it could be that without the presence of these, in a low risk sample, disorganised attachment may not be a risk factor to the same extent. It is also the case that in high risk populations, the 'forced' classification of disorganised infants is primarily insecure (avoidant or resistant) whereas in lower risk groups it is often secure (Carlson, Cicchetti, Barnett, & Braunwald, 1989). This raises the question of whether a disorganised-secure child would be at equal risk of behaviour problems as a disorganised-avoidant child, something that has not been tested empirically in any of the reviewed papers.

1.6.3 Resistant Classification

In direct contrast to theoretical predictions, two papers found resistant (C) attachment in infancy to predict behaviour problems over and above A, B and D classifications. However, one of these papers, by Howes and Ritchie (1999), is the only one described in this section to use the Attachment Q-set to assess attachment. Different authors have used different methods of creating categories from the continuous score obtained in the Q-set. Howes and Ritchie (1999) have used factor analysis to do this for a very large sample (N= 3062) and developed six categories from scales produced: Avoidant, resistant, avoidant-resistant, near secure, secure and unclassifiable. They found that children with resistant and avoidant-resistant attachments had higher externalising scores than children with avoidant, near secure or secure classifications. Given the very large sample used in this study the results can be viewed as having considerable power. However, using a different measure to the other studies in this section could have lead to this different result. The difference could also be due to the Q-set and behaviour questionnaires being used concurrently at 4/5 years compared to the Strange Situation which is carried out at 12/18 months with longitudinal follow-up of subsequent behaviour problems. It could be that the current attachment classification of children with behaviour problems is different to their classification in infancy. The second paper to find an effect of resistant attachment is Rothbaum et al. (1995) who found that mothers' reported more internalising and externalising behaviour problems in children with resistant attachments compared to secure children. They found that avoidant children were rated as in-between these two groups but not significantly different from either. However, this study used a small sample of 36 of whom only 4

children were classified as insecure resistant. It could be therefore that this result is due to specific characteristics of the sample rather than resistant attachment in general causing more problem behaviours.

One further study found results which suggest that resistant attachment is significantly less likely to lead to future behaviour problems. Lewis et al. (1984) found no significant differences between attachment classifications for boys but for girls found that C children had significantly fewer externalising problems than both A and B children. This raises the possibility that it is not that avoidant girls are more likely to show externalising behaviour but that resistant girls are less likely, possibly due to the lack of confidence and increased dependence they are theoretically likely to develop (Goldberg et al., 1995).

1.6.4 Summary

Reviewing the literature it remains far from clear whether specific attachment classifications are more likely to lead to future externalising problems. Most of the current evidence is in support of the theory that avoidant attachment styles are more likely to lead to externalising problems than resistant attachment styles. However, when considering the different findings in favour of disorganised and avoidant attachment the picture is more confused. Several factors need to be considered including the introduction and inclusion of the D classification, type of sample used and method of measuring attachment. Several studies finding an avoidant classification more of a risk for behaviour problems have not compared A with D, either because they were

conducted prior to its introduction or due to small numbers within the sample. Furthermore the majority of studies finding D classification to be a major risk have been carried out in high risk samples raising questions about the generalisability of the results. That is, is a D classification a risk factor when found in conjunction with other, possibly socio-demographic, variables or is it a risk factor in all cases but that small numbers in a low risk sample prevent illustration of this? Further research is needed to clarify these issues, in particular, future studies using very large samples like that of Belsky and Fearon (2002b) would be useful in providing a meaningful comparison of A and D classified children while considering other factors such as environmental risks.

1.7 Interactions

While comparisons between studies can point to factors that might be responsible for variations in the strength of the relationship between attachment and behaviour problems, direct empirical tests of interactions are generally more compelling. As mentioned in section 1.4, inconsistent results found in the studies reviewed seem to suggest that attachment and externalising behaviour are not linked in a direct relationship but one that is moderated by other variables. Studies such as that by Fagot and Leve (1998) support this. In their sample, they found that attachment did not predict externalising problems and that parental coerciveness predicted the largest amount of variance. This was in a sample they describe as "...although this was not a risk sample, this does not mean it was a sample without risk." (Fagot & Leve, 1998, pp 558). They cite family composition changing and contact with social services as risks present within the sample by the follow-up. Given this and a relatively large sample size (N= 147) the

fact that attachment did not predict externalising problems signals further evidence against a simple, direct relationship between the two. This has lead to a change in the design of studies so that more recent papers have examined the trajectories taken by children and what conditions make it more or less likely that children will take a problem trajectory (e.g. Keller et al., 2005) rather than examining the direct effect of attachment alone (e.g. Fagot & Kavanagh, 1990).

Several earlier papers did examine other variables which they felt may influence the relationship. For example, Erickson et al. (1985) examined the quality of the home environment and maternal interaction to examine why certain children did not show the expected pattern of security predicting fewer behaviour problems. They found that where secure children had more behaviour problems they had fewer age-appropriate play materials at home and mothers who provided significantly less support and encouragement than secure children without behaviour problems. Lewis et al. (1984) also examined the differences between insecure boys who did and did not develop behaviour problems (although they found a significant link between insecurity and behaviour problems, 60% of insecure boys did not show behaviour problems above a clinical cut-off level). They found that insecure boys scoring below the cut-off were likely to have less life stress, more friends and were more likely to have been a planned pregnancy than those who developed behaviour problems. Thus, these earlier studies gave an indication that the link between attachment and future behaviour is not direct but involves several other factors. Two later papers aimed to examine a possible interaction between maternal depression and attachment status on later child behaviour. Cicchetti et al. (1998) examined the interactions and various effects of contextual risk, maternal depression and attachment on later behaviour problems. They found that all

three variables were highly correlated but that they did not interact significantly to predict behaviour problems. As mentioned in Table 1 above, this study did find a significant main effect of attachment on externalising problems. Munson et al. (2001) investigated the relationship between maternal depression, child gender and attachment on externalising behaviour over time and found that all had a significant effect. They found an interaction between maternal depression at different time points and avoidantly attached children's externalising behaviour at the concurrent time point. Whereas securely attached or disorganised children's externalising scores did not fluctuate in relation to the variation in their mothers' depression scores, avoidant children's scores did significantly relate to their mothers' concurrent level of depression. That is, if their mother's depression increased in severity, their externalising problems also increased. Since Munson et al. found no interaction between average depression scores over all time points and attachment classification this interaction could go some way to explaining why other studies e.g. Cicchetti et al. (1998) failed to find an interactive effect. Thus it appears from this study that avoidantly attached children may be more sensitive to their current environment and relationships and that this may impact on their behaviour accordingly. This interaction also demonstrates the complexities of the relationship between attachment and externalising problems and the importance of studies which examine changes over time. A further study which illustrates this is Belsky and Fearon (2002b). This study was designed to examine the effects of several types of contextual risk on the relationship between attachment security and later cognitive and socio-emotional functioning. Contextual risk was measured using several indicators, for example, family income, maternal education, maternal depression and minority status. All measures of risk were standardised and summed to create an overall

index of cumulative risk. Belsky and Fearon found a significant interaction between attachment and risk showing that although children in each attachment group showed increasing behaviour problems with increasing amounts of risk, this increase happened at lower levels of risk for avoidant children than for secure, resistant or disorganised children. That is to say, it appeared that avoidantly attached children were more vulnerable to contextual risk and required a lower level of it to develop behaviour problems on a scale only seen in children with different classifications at high levels of contextual risk. Shaw et al. (1996) also attempted to examine risk factors leading to the development of externalising problems and aggression. They found that there was a significant interaction between infant difficultness and disorganised attachment on levels of aggression. They reported that levels of aggression were approximately two standard deviations higher for those children with both a disorganised attachment and who had been classified by their mothers as difficult on the Infant Characteristics Questionnaire (Bates et al., 1979, cited by Shaw et al., 1996) compared to children with one or neither of these classifications. A further study attempting to examine interactions between risk and protective factors which could influence the development of problem behaviours was carried out by Keller et al. (2005). They investigated a sample of adolescent mothers and looked at many variables including parental characteristics such as maternal antisocial behaviour, parental role confidence and expectations about child behaviour and child characteristics such as infant negativity and plotted a problem behaviour trajectory. They found attachment combined with several variables to either significantly increase or decrease a child's chances of being within the problem behaviour trajectory. Insecure attachment alone was not sufficient to increase these chances significantly but in combination with family ecology it was found that insecure attachment and a multi-

problem family environment increased the likelihood of falling within the problem trajectory to twice the level expected by chance. A securely attached child in the same environment was no more likely than chance to fall within the problem trajectory. This seemingly protective aspect of a secure attachment was also shown in combination with infant negativity. An insecurely attached child judged to be negative was significantly more likely than chance to be in the problem trajectory and securely attached children with the same levels of negativity were not. Similarly a secure attachment and positive parenting together significantly reduced the likelihood of falling within the problem trajectory. These patterns remained significant when three domains were evaluated. Secure attachment in a multi-problem family environment without positive parenting acted as a protective factor reducing the chances of falling within the problem trajectory compared to insecure attachments which increased this chance. They also found that avoidant attachment specifically interacted with family environment, infant negativity and gender to increase the chances of falling within the problem trajectory if the family environment was negative, infant negativity high and the child was male.

These studies investigating interactions give much important information about the relationship between attachment and externalising behaviour problems. Firstly, they seem to go some way to explaining the variety of results found in studies investigating the relationship in a linear manner. Many of the interactions reported above would not have been discovered except using the interactive and risk trajectory models described and these interactions could indeed have been present in other samples but not found. The results also highlight the complexity of the relationship between the two variables and the need for further research to examine these interactions and replicate the findings described.

1:8 Conclusions and directions for future research

The articles reviewed here demonstrate the heterogeneity of findings in research on attachment and its links to aggression and externalising disorders. Overall, however, the results offer broad support for Bowlby's (1969) predictions that attachment plays an important role in the development of psychopathology with very few papers finding no relationship at all between the two concepts. There is considerable variation in the results reported here in terms of the strength of relationship, whether it is a direct relationship or interaction, the type of sample employed, and the nature of the specific effects found. However, the majority of papers have found that attachment style does have some association with externalising problems and from current research it appears that avoidant attachment is particularly implicated in the development of aggressive and disruptive behaviour. Future research is needed to determine the exact nature of this relationship and it appears from current research that using a developmental pathway model examining many different potential risk and protective factors that are focused within the child, parent and environment would be useful in clarifying the role that attachment plays. It also appears that using reports from multiple respondents and examining potential gender differences would provide helpful information. Collecting information at several time points about potential risk and protective factors which could lead to a child developing and maintaining externalising problems may also clarify this relationship as the study by Munson et al. (2001) shows.

Further research on the mechanisms by which this relationship occurs would also be useful. It has been widely hypothesised that attachment classifications lead to the development of particular internal working models which influence children's

interpretations of situations and their information processing (Main, Kaplan & Cassidy, 1985). However, there has been relatively little empirical research to examine these models (Belsky, Spritz & Crnic, 1996). Thus, further research is needed to examine the nature of internal working models. Another possibility is that attachment insecurity could lead to the development of other attributes such as impulsivity or problems with language development which then in turn influence behaviour.

Finally, within the articles reviewed here there is some evidence to suggest a cumulative positive or negative effect of being consistently securely or insecurely attached over different time points (e.g. Vondra, Shaw, Swearingen, Cohen & Owens, 2001) but further research into the effects of stability or instability of the attachment relationship and the differential effects of concurrent or past attachment style on behaviour problems could advance understanding in this field.

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PART II

EMPIRICAL PAPER

ATTACHMENT AND CONDUCT PROBLEMS: USING THE CHILD ATTACHMENT INTERVIEW TO EXAMINE THE RELATIONSHIP IN MIDDLE CHILDHOOD AND EARLY ADOLESCENCE.

2:0 Abstract

The relationship between attachment and conduct problems is examined in middle childhood and early adolescence. 113 children aged between 9 and 16 were interviewed using the Child Attachment Interview (Target, Fonagy & Schmueli-Goetz, 2003) to examine their attachment representations. Reports of conduct problems and antisocial behaviour were collected concurrently from their parents and teachers as was a measure of intelligence and information on the level of contextual risk they were living within. The results showed a significant relationship between conduct problems and attachment: however, when intelligence, age and gender were controlled for this result only remained significant for teacher reported conduct problems. There was a significant interaction between attachment and cumulative risk on parent reported conduct problems and the likelihood of receiving a diagnosis of conduct or oppositional defiant disorder whereby insecurely attached children with the highest levels of contextual risk were shown to have more conduct problems than all other groups. Reasons for these results and the nature of the interaction are discussed.

Since its earliest phases attachment theory has sought to understand the social relationship processes that contribute to the development of aggression and conduct problems. John Bowlby explicitly hypothesised that individuals whose attachment needs were not met by their caregiver would develop a view of the world as hostile and unpredictable and thus develop psychopathologies characterised by mistrust, anxiety and aggression (Bowlby, 1982). Consistent with Bowlby's thinking, studies that have used Ainsworth's Strange Situation (Ainsworth, Blehar, Waters & Wall, 1978) to measure variations in the quality of attachment have revealed links with externalizing behaviour problems in early childhood (e.g. Erikson, Sroufe & Egeland, 1985; Lewis, Feiring, McGuffog & Jaskir, 1984). Furthermore, a number of studies appear to show that attachment has its effects most strongly under conditions characterised by high levels of social and emotional adversity (e.g. Lyons-Ruth, Easterbrooks & Cibelli, 1997; Belsky & Fearon, 2002). Thus, secure attachment appears to protect children from risky environments, and insecure attachment may leave some children vulnerable to the social adversities that contribute to the development of aggressive or antisocial behaviour. However, despite these positive findings, the evidence base concerning the relationship between attachment and externalizing behaviour problems is far from consistent (e.g. Bates, Maslin & Frankel, 1985; Goldberg, Gotowiec & Simmons, 1995). While there are a number of possible reasons for this, one significant factor is that existing studies have relied upon measures of attachment and aggression that are conducted many years apart. If, as many have argued, attachment may change in lawful ways over the course of development, early insecure attachment should not always be expected to consistently predict adverse socio-emotional outcomes. While some long-term associations have been found, the lack of any validated measures of attachment beyond infancy or early

childhood has made it impossible to test whether concurrently assessed attachment is related to externalizing behaviour problems, or whether lack of association over time is due to lawful discontinuity. Recently, a new measure of attachment, based broadly on the Adult Attachment Interview, has been developed for school-aged children which helps to fill this measurement gap. The Child Attachment Interview (CAI, Target et al., 2003) shows promise as a valid measure of attachment in this age group. The current study aims to test whether insecure attachment, as assessed concurrently using the CAI, is associated with externalizing psychopathology in a mixed- to high-risk sample. Furthermore, the study aims to test the hypothesis that the relationship between attachment and externalizing behaviour problems is more evident under conditions of social-contextual risk.

The development of externalising behaviour is an important area of research because these problems are highly stable over time and have serious negative implications for the child, their family and wider society (Olweus, 1979). The term conduct disorder refers to persistent and serious antisocial behaviour. Conduct disorder is much more likely to be seen in deprived areas and low socio-economic groups. It is typical for conduct disordered children to be failing at school, have low self-esteem, lack social skills and have few non-conduct disordered friends. Conduct and oppositional defiant disorder are thought by most authors to be precursors of later antisocial behaviour and, in a subset of individuals, psychopathy (e.g. Saltaris, 2002). A review of over 400 trials found the average effect size of intervention for teenage antisocial behaviour to be zero (Lipsey, 1995). Thus, identifying antecedents of antisocial behaviour, to perhaps facilitate early intervention, is seen by many as important.

Attachment has been found to be linked to numerous aspects of children's development including language development and social competence (Belsky & Cassidy, 1994, Van Ijzendoorn, Dijkstra & Bus, 1995). Theoretically, it has been hypothesised that insecurity of attachment will lead to later conduct problems and criminological theories have considered the early parent-child relationship as relevant to the development of antisocial behaviour and criminality. Some have suggested that insecure attachments between parent and child lead to a lack of identification with authority figures (Saltaris, 2002).

Attachment and behaviour problems have been examined in two main types of studies; prospective studies have examined attachment in infancy and its relationships to later behaviour problems whereas cross-sectional studies have examined concurrent attachment and behaviour problems (DeKlyen & Speltz, 2000). In general, the theoretical predictions have been borne out in the literature (e.g. Erickson et al., 1985; Cicchetti, Rogosch & Toth, 1998). However, when examining studies which have measured attachment in infancy, several findings have suggested that the relationship not a direct one but is mediated by other factors. These include the fact that results in low risk populations have often shown no relationship (e.g. Bates et al., 1985; Barglow, Contreras, Kavesh & Vaughn, 1998) and more recent studies examining interactions between attachment and socio-demographic risk factors show a differential effect of insecure attachment at different levels of environmental stress (e.g. Belsky & Fearon, 2002). Furthermore, recent person-oriented analyses have shown insecure attachment to interact with several other variables to increase the likelihood of being on a conduct problem trajectory (e.g. Keller, Spieker & Gilchrist, 2005).

The results of studies investigating the impact of different insecure attachment categories in infancy have been difficult to interpret. Some studies have found that avoidant attachment is particularly implicated in the development of conduct problems (Munson, McMahon & Speiker, 2001; Erickson et al., 1985). However, the picture is complicated by the fact that disorganised attachment patterns were identified in 1990 (Main & Soloman, 1990) after several studies had taken place. Further, children with a disorganised or resistant attachment pattern only occur in low numbers in most samples meaning that many studies have examined only an insecure avoidant/secure split (e.g. Suess, Grossmann & Sroufe, 1992) or merely an insecure/secure split (e.g. Barglow et al., 1998). Studies which have examined disorganisation have shown mixed findings with some implicating disorganisation (e.g. Lyons-Ruth et al., 1997) and some finding avoidant attachment to be a greater risk factor (e.g. Keller et al., 2005). In addition to the uncertainty regarding which insecure category is at greatest risk for the development of behaviour problems, there is considerable inconsistency in the extent to which studies find associations between attachment and externalizing problems at all. While several studies do find such associations, others do not (e.g. Goldberg, Corter, Lojkasek & Minde, 1990; Howes, Matheson & Hamilton, 1994).

Notably, some studies have indicated that more recent attachment classifications are more predictive of behaviour problems than earlier assessments. For example, Vondra and colleagues (Vondra, Shaw, Swearingen, Cohen & Owens, 2001) found that attachment at 24 months was predictive of behaviour problems aged 3 years whereas attachment at 12 and 18 months did not significantly add to the variance in behaviour problems predicted. Concurrent attachment has been linked to behaviour problems in boys aged between 3 and 5 (Greenberg, Speltz, DeKlyen & Endriga, 1991; Speltz,

DeKlyen & Greenberg, 1999) whereby higher levels of concurrent insecurity were found in children with oppositional defiant disorder than matched controls. In a non-clinical sample, Cohn (1990) also found that insecure boys were more likely to be rated as having behaviour problems by their teachers at six years. However, this was not true for girls and replicates the findings of several studies examining concurrent attachment *and* attachment in infancy which have found a difference in the relationship to behaviour problems depending on gender (e.g. Lewis, 1985; Renken, Egeland, Marvinney, Mangelsdorf & Sroufe, 1989; Speltz, Greenberg & DeKlyen, 1990). Thus, like longitudinal studies, concurrent studies have found that the relationship between attachment and behaviour problems is not a simple, direct one. Associations tend to be modest and many other environmental, child and parent variables may play a role in mediating the relationship (DeKlyen & Speltz, 2000). However, all these studies are limited to the extent that they focus exclusively on preschool, or very early-school aged children. Furthermore, some have argued that modified separation-reunion procedures for preschoolers may not represent valid measures of attachment (e.g. Solomon & George, 1999).

Studies carried out in late adolescence using the well-validated Adult Attachment Interview (AAI) have also indicated that adolescents with conduct disorder are more likely to receive an insecure classification. However, these studies have also found mixed results regarding the specific insecure category most at risk. Rosenstein and Horowitz (1996) found more adolescents with dismissing classifications with a conduct disorder diagnosis and Allen and colleagues (Allen, Moore, Kuperminc & Bell, 1998) found more preoccupied classifications in this group of adolescents.

Well-validated measures of attachment across childhood do not yet exist (DeKlyen & Speltz, 2000). Attachment has been measured in slightly older children than with the Strange Situation Procedure by using measures such as the Main and Cassidy (1988) separation and reunion procedure and the Preschool Assessment of Attachment (PAA, Crittenden, 1994, cited by Vondra et al., 2001). There has, however, been a measurement gap between this period and later adolescence when the Adult Attachment Interview can be used reliably (e.g. Rosenstein & Horowitz, 1996). Semi-projective tests such as the Separation Anxiety Test (Shouldice & Stevenson-Hinde, 1992) and story stem completion (Bretherton, Ridgeway & Cassidy, 1990) have been used but issues of validity and low test-retest reliability have encouraged further work (Target et al., 2003). Studies in adolescence have tended to rely on questionnaire measures (e.g. Greenberg, Siegel & Leitch, 1983; Armstrong & Greenberg, 1987).

The Child Attachment Interview (CAI, Target et al., 2003) was developed due to this measurement gap and is intended to access the internal representations of attachment figures in children aged 8-13. Target et al. (2003) intended the instrument to aid the measurement of attachment representations in middle childhood. The interview asks children directly about their current relationships with their parents and yields scale scores for constructs such as emotional openness and overall coherence. Following coding children receive a classification with respect to mother and father separately. These classifications; Secure, Insecure Dismissing, Insecure Preoccupied and Disorganised, map onto the classifications given in the AAI and the Strange Situation Procedure. Thus, this study intends to examine the relationship between concurrent attachment relationships and antisocial behaviour problems in middle childhood and

early adolescence using the Child Attachment Interview to directly access children's internal representations of their current relationships with their parents.

When developing the instrument, Target et al. (2003) were mindful that verbal intelligence could potentially confound the results since the nature of the Child Attachment Interview is that it is a highly verbal tool. Furthermore, security of attachment is measured in some part by the overall coherence of the narrative. Within their original study, Target et al. (2003) found that verbal intelligence did not significantly differ between the secure and insecure children however, they stress that this was a normal sample. Verbal intelligence has been shown to be a predictor of poor outcome in adolescence when children with conduct disorder have been studied longitudinally. Lahey and colleagues (Lahey, Loeber, Burke & Rathouz, 2002) found that, amongst other predictors, higher child verbal intelligence predicted better outcome following childhood conduct disorder. Given this, it could be expected that the children with the poorest outcomes in the current sample may have lower verbal intelligence than those children with better outcomes. Consequently, verbal intelligence is measured within this study to examine its influence, if any, on attachment security within a sample likely to contain children with low verbal IQ scores.

The evidence reported above has pointed towards a non-linear relationship between attachment and externalising behaviour mediated by other variables. The findings have also suggested that a relationship between attachment and conduct problems is more likely to be found in a sample containing children with high levels of contextual risk (e.g. Erickson et al., 1985; Lyons-Ruth et al., 1997) and that often studies reporting null findings are carried out within samples with low contextual risk (e.g. Bates et al., 1985; Barglow et al., 1998). Rutter (1979) first described the idea that it is

not any one risk factor but the number of cumulative risk factors which adversely affect a child's development. He found, using risk factors such as maternal psychiatric disorder, large family size, over-crowding, low socioeconomic status and father's criminality, that the likelihood of a child developing a psychiatric disorder increased from 2% to 20% in situations with 0 or 1 risk factors to 4 or more respectively. Following this, Sameroff and colleagues (Sameroff, Seifer, Baldwin & Baldwin, 1993) found that a multiple environmental risk score accounted for a significant amount of variance in children's IQ scores after controlling for previous IQ and maternal IQ. Using a similar model, Belsky and Fearon (2002) looked at the mediating effect of cumulative risk on the relationship between attachment and behaviour problems in 3 year olds. They found a significant interaction between the two variables such that children with an avoidant attachment classification required a lower level of contextual risk to develop behaviour problems than children with all other Strange Situation Classifications. The current study will investigate this relationship further in middle childhood and early adolescence.

2:1:1 Aims of the current study

This study aims to assess therefore, whether, in a sample at risk for conduct problems, current rates of conduct problems and antisocial behaviour are linked to concurrent attachment styles as measured by the CAI and whether this relationship is moderated by contextual risk factors. More specifically, this study aims:

1) To test the association between attachment as measured by the CAI and control variables including full scale IQ, verbal IQ, gender and age.

2) Controlling for these variables, to test the association between attachment and conduct problems as reported by parents and teachers.
3) To test whether attachment is associated with an increased likelihood of a diagnosis of conduct disorder or oppositional defiant disorder.
4) To test whether the relationship between attachment and behaviour problems is moderated by contextual risk.

2:2 Method

2:2:1 Participants

The participants were 113 children recruited as part of a follow-up of two randomised trials. 64 children were from a clinical trial initially recruited from four CAMHS services in South London and Sussex. They were then aged between 3 and 7 and were referred with severe antisocial behaviour (98th percentile) and co-morbid hyperactivity (90th percentile). 49 children were recruited from a community trial run in primary schools in South London. They were then aged 5 and 6 and were selected for antisocial behaviour from the whole school population by teacher and parent questionnaire (mean 90th percentile). The children were being recruited together as a long-term follow-up of a behavioural parent group intervention which some children in each group received (Scott, 2005; Scott et al., in press). These stratified samples were selected in order to ensure a range of severity of conduct problems. At the time of the current study the children were aged between 9 and 16 years with the mean age being 12.1 yrs (s.d. 1.9yrs). The sample consisted of 35 girls (31%) and 78 boys (69%). The

ethnicity of the sample was as follows: 77% of the sample were White, North European, 13% of the sample were Black British, African or Caribbean and the final 10% of the sample were of mixed origin or British Asian.

2:2:2 Design

The larger study was a follow-up of two randomised trials. It was correlational in design, measuring child, parent and teacher variables at the same time point and examining the links between these.

Within the original studies the children were allocated to either a behavioural parenting group or to a control group. For the clinical sample this involved standard treatment and for the community sample this involved being giving a telephone number which could be rung for advice. Since the intervention was not being considered as part of this study, preliminary analyses were carried out to assess if there were significant differences in attachment style or any of the outcome measures depending on whether the child had the intervention or was in the control group (children who were allocated to the intervention but dropped out after one or two sessions were considered within the control group). Factorial ANOVAs were carried out to examine if there were significant differences in the behaviour problems reported for children in each group or if the effect varied according to CAI attachment classification. For parent reported behaviour problems there was no significant effect of previous intervention ($F_{(1, 96)} = .19$, $p = .66$), nor an interaction between attachment and previous intervention ($F_{(3, 96)} = .31$, $p = .73$). For teacher reported behaviour there was also no significant main effect of previous intervention ($F_{(1, 96)} = .05$, $p = .83$), nor an interaction between attachment and previous

intervention ($F_{(3, 96)} = .62$, $p = .61$). A Chi-Squared test revealed no association between previous intervention and attachment classification ($\chi^2 = 4.58$, $df = 3$, $p = .20$). Thus, it was concluded that previous intervention would not impact on the current study's results.

The sample described here represents a sub-sample selected by having completed a Child Attachment Interview at the time of writing. In order to ensure that this sub-sample did not differ significantly from other members of the sample who had been followed up but did not have a CAI coding completed (N = 53), independent samples t-tests were undertaken to examine any differences in the age, full scale IQ, verbal IQ and outcome measures of the sub-sample included and the sub-sample not included. None of these were significant. Chi-Squared tests were carried out to assess any differences in gender and diagnosis. These were also non-significant.

2:2:3 Ethics

Ethical approval was obtained from the South London and Maudsley/ Institute of Psychiatry Main REC for the wider project of which this study was a part. The letter granting ethical approval is shown in Appendix C.

2:2:4 Procedure

The data was collected by a team of five research workers and three doctoral trainees who visited each child in pairs. Each family was contacted by telephone and had the procedure explained to them. Home and school visits were then arranged and each family received these. Parent, teacher and child were all asked to complete measures.

Teachers were given a questionnaire booklet containing the *Strengths and Difficulties Questionnaire* (Goodman, 1997), *Antisocial Process Screening Device* (Frick & Hare, 2001) and other measures not considered within this study. This booklet took between 15 and 30 minutes to complete. Parents carried out an interview and completed two booklets of questionnaires. The interview consisted of questions on demographics, *Child and Adolescent Psychiatric Assessment Questionnaire* (Family Structure & Relationships, and ODD/CD section; Angold, Prendergast, Cox, Harrington, Simonoff & Rutter, 1995) and other measures which are not used in this study and therefore are not described further. The interview lasted between 2 and 2 and a half hours and was followed by the questionnaires. The first questionnaire booklet was entitled "You and Your Child" and contained the *Strengths and Difficulties Questionnaire* (Goodman, 1997), *Antisocial Process Screening Device* (Frick & Hare, 2001) and measures that are not considered in this study and so are not described further. The second questionnaire booklet was entitled "Your Situation" and contained the *Beck Depression Inventory II* (Beck, Brown & Steer, 1996) and other measures not used in this study. The children participating in the study were asked to complete psychometric tests, interviews and audio-computerised questionnaires. The psychometric tests (the WASI and WORD (Wechsler, 1999)) took approximately 45 minutes, the interview consisted of the *Child Attachment Interview* (Target et al., 2003) and *Social Attribution* (Dodge, Bates & Pettit, 1990) which is not used in this study and will not be described further. Interviews were conducted face to face in a private room and were videotaped, they took approximately 45 minutes. The questionnaires given to the children are not used in this study.

2:2:5 Measures

2:2:5:1 Independent Variables

Attachment: The Child Attachment Interview (CAI, Target et al., 2003). The Child Attachment Interview was developed drawing on principles from the Strange Situation Procedure and the Adult Attachment Interview. The interview is carried out face to face in a private room and the child is videotaped throughout. Interviews last between twenty minutes and an hour with most being about thirty minutes long. The structure of the interview is based on the Adult Attachment Interview but with questions adapted for children and designed to access attachment experiences occurring in the present rather than the past. It is a semi-structured interview which has 18 questions each followed by several prompts which attempt to elicit Relationship Episodes (REs). An RE is defined as any description of an interaction with parents. Children are assigned scale ratings between zero and nine on five positive scales, Emotional Openness, Balance of Positive and Negative, Use of Examples, Resolution of Conflict and Overall Coherence and three negative scales, Preoccupied Anger, Idealisation and Dismissal. A high score denotes much use of the concept within the interview. The constellation of these scale scores is used to assign an attachment category to the child with respect to their mother and father. Four categories which map onto corresponding categories in the Strange Situation and the Adult Attachment Interview are used: Secure, Insecure Dismissing, Insecure Preoccupied and Disorganised. If a child receives a classification of Disorganised they also receive a further sub-classification to indicate which group they would have been in had they not shown signs of disorganisation. Target et al. (2003) found the internal consistency of the scales to be $\alpha = .91$ for attachment to father and $\alpha = .92$ for attachment to mother. The interview was also shown to have a test-retest

reliability of .98 for attachment to mother and .69 for attachment to father. Inter-rater reliability was also found to be satisfactory with naïve raters achieving 80% agreement and good convergent validity was found with Adult Attachment Interview classifications of mothers agreeing with 69% of CAI classifications. Target et al. (2003) also found no significant differences in attachment classification in relation to IQ scores, gender, ethnicity or socioeconomic status.

The CAI yields an attachment classification for both mother and father, however a Chi-Squared test revealed very highly significant agreement between these classifications ($\chi^2 = 209.06$, df = 9, $p < .0001$). Given this, and the fact that an attachment classification to father was not available for 9 children due to them not knowing or being in contact with their father, it was decided that maternal attachment classification would be used throughout. With respect to mother classification, the author has achieved reliability with one of the creators of the interview (Yael Schmueli-Goetz) (95% two way split; 95% three way split; 75% four way split) and the second research worker achieved reliability of 85% for a two way spilt; 80% for a three way split and 70% for a four way split.

The current sample was interviewed by 6 researchers who had all received training in administering the interview from its creators. The interviews were coded by two researchers. 81 interviews were coded by the author and 32 by another research worker. The two coders double-coded 10 of the interviews and achieved inter-rater reliability of 90% on a two-way split, 80% on the three-way split and 80% on the four way split for both mother and father. Disagreements were resolved with discussion and 4 interviews which coders were unsure of were watched and discussed with YSG.

Cumulative Contextual Risk Index. For this study, five variables which have been implicated as contextual risk factors in past research (Belsky & Fearon, 2002; Rutter, 1979) were used to create an index of cumulative contextual risk. Three of these variables related to the child's mother; psychosocial risk was measured by maternal depression level, socio-cultural risk was measured by single parent status and the age of the mother when she had her first child. Contextual risk was measured by level of overcrowding in the home and total family income.

Maternal Depression: Beck Depression Inventory II (BDI-II, Beck et al., 1996). This is a 21-item self-report questionnaire which assesses the severity of depressive symptoms by assessing the behavioural, cognitive, affective and somatic components of depression. Each item is scored on a scale of 0 to 3 and the total of these scores is summed to give an overall BDI-II score which ranges from 0 to 63. The internal consistency of the measure has been reported variously as .89 (Steer, Rissmiller & Beck, 2000) and .91 (Beck, Steer, Ball & Ranieri, 1996). Its validity has been established across a range of clinical populations (Beck, Steer & Garbin, 1988).

Single Parent Status. Within the demographic interview conducted at the time of this study, parents were asked about the current parenting set-up. This was divided into the options: 'Single Parent', 'Both birth parents at home', 'Living with long-term partner (>6 months)', 'Living with partner < 6 months', 'Not residing with partner of more than 6 months', 'Multiple partners residing since last contact' and 'Other'.

Young Parenthood. The age at which the index child's mother had her first child was calculated from demographic information. Being aged 18 or under was seen to be a risk factor.

Overcrowding. An index of overcrowding was created by dividing the total number of adults and children living in the home by the total number of rooms contained in the home. Thus, a higher number denoted a more overcrowded living situation. This information was recorded within the demographics interview.

Total weekly family income. This was recorded within the demographics interview and was grouped according to socioeconomic class.

Given that the focus was on cumulative contextual risk, a cut-off point was defined for each variable to define its risk status. Then for each case the number of risk factors qualified for was summed to create an index of cumulative risk from 0 to 5. For maternal depression and overcrowding risk status was defined as falling in the least favourable 25% of the sample. That is, the 25% with the highest scores of maternal depression and overcrowding. This included children with mothers with scores of over 15 on the BDI and an index of over-crowding over .63. For single parent status, all parents who selected the option 'Single Parent' were assigned to the risk group (N= 33, 31.7% of the sample). Similarly, for young parenthood, all mothers who were 18 or under at the time of birth of their first child were assigned to the risk group for that variable (N= 12, 11.5% of the sample). For total weekly income, the cut-off was set at a gross income of £275 or less weekly in accordance with income distribution data from

the Office of National Statistics (ONS, 2006). This included 33 children (31.7% of the sample).

Cumulative risk was summed for each child and it was found that 34 children had no risk factors, 29 children had one risk present, 25 children had two risks present, 11 children had 3 risks present and 5 children had four risks present. No children were found to have all 5 risk factors. For the purposes of statistical analyses it was decided to group the children into 4 groups; 0, 1, 2 and 3 or more risks present. These groups therefore contained 33%, 28%, 24% and 15% of the sample respectively.

2:2:5:2 Outcome Measures

The Strengths and Difficulties Questionnaire (SDQ, Goodman, 1997, Appendix B). This is a 25-item questionnaire which is widely used as a measure of pro-social behaviour and psychopathology in children aged 3-16 years. It is completed by parents and teachers and has five scales which examine Emotional Symptoms, Conduct Problems, Hyperactivity, Peer Problems and Prosocial behaviour. Parents and Teachers are asked to rate if behavioural descriptions are Not true, Somewhat true or Certainly true such as "Often fights with other children or bullies them" and "Has at least one good friend". A total problems score of between 0 and 40 is calculated from each scale and higher scores on depict difficulties. The predictive validity of the SDQ has been shown to be equal to that of the Rutter questionnaire (Goodman, 1997) and the Child Behaviour Checklist (CBCL; Achenbach, 1991; Goodman & Scott, 1999). Goodman and Scott (1999) report internal consistency as being good with Cronbach's alpha for the total score as .76 and test-retest reliability as being .85 for the total score. For this study, the conduct problems scale specifically is being used as an outcome measure. Goodman

(2001) reports the internal consistency of this scale as $\alpha = .63$ for parent report and $\alpha = .74$ for teacher report. Test-retest reliabilities are reported as .64 and .69 respectively.

Antisocial Process Screening Device (APSD, Frick & Hare, 2001). This is a 20 item questionnaire completed by parents and teachers. It was designed specifically to identify antisocial behaviour and psychopathology in adolescents as a childhood extension of the Revised Psychopathy Checklist PCL-R (Hare, 1991). Each item on the APSD is scored 0, 1 or 2 for 'not true at all', 'sometimes true' and 'definitely true' respectively. Five items are inversely scored and after these have been reversed a total score out of 40 is produced. A three factor structure has been identified which consists of 1) Narcissism, 2) Impulsivity/Conduct Problems and 3) Callous-Unemotional (Frick, Bodin & Barry, 2000). The internal consistencies of these scales are reported as 1) .83-.85; 2) .74-.64; 3) .76-.65 respectively. Items include "Seems to think that he/she is better or more important than other people" and "Acts without thinking of the consequence".

Creating an amalgamated outcome variable for parent and teacher scores. The Conduct problems scale of the SDQ and the total scale score of the APSD were correlated for both parent and teacher. The parents' scores on SDQ Conduct scale and APSD were strongly correlated ($r = .77$, $p<.001$) as were the teachers' scores on these measures ($r = .86$, $p<.001$). There were significant but modest correlations between teacher and parent reports (r scores ranged from .36 to .45), thus it was decided that these scores would be considered separately throughout. Due to the high correlations of the two measures for separate respondents, standardised scores were calculated for each

and the mean of these standard scores was calculated to give one continuous outcome measure for both parent and teacher. These variables were checked for normality and found to have significant skewness (Parent outcome variable, $z = 2.79$, $p<.01$; Teacher outcome variable, $z = 3.80$, $p<.01$). Therefore, transformations were carried out to reduce this in order for parametric statistical tests to be used. A square root transformation was carried out on the parent outcome variable and a log 10 transformation was carried out on the teacher outcome variable.

Child and Adolescent Psychiatric Assessment (Family Structure & Relationships, and ODD/CD section; Angold et al., 1995). This is a structured psychiatric interview that collects data on a wide range of psychiatric diagnoses including mood, anxiety and disruptive behaviour disorders. The CAPA is in a modular form so that different parts can be used separately and within this study, two sections were used: the Family Structure and Relationships section and the ODD/CD section. The CAPA focuses on the three months prior to the interview which is called the 'primary period' of time; however it also asks questions about infrequent events over a longer period of time. In this study the CAPA was administered and coded by five trained research workers and was then re-coded by a further research worker. Test-Retest reliability on the ODD/CD section has previously been shown to be 0.55 (Angold & Costello, 2000). This section of the CAPA results in a diagnosis of ODD or not and a diagnosis of CD or not and for the purposes of this study a diagnosis of either was used as a categorical outcome variable.

2:2:5:3 Covariates

Wechsler Abbreviated Scale of Intelligence (WASI; Wechsler, 1999). WASI is composed of four subtests: Vocabulary, Similarities, Block Design and Matrix reasoning. Vocabulary and Similarities are designed to measure verbal IQ while Block Design and Matrix reasoning are designed to measure performance IQ. The vocabulary subtest asks children the meaning of increasingly difficult words and the similarities subtest asks how a pair of words are similar to each other. The block design subtest requires children to copy a design made either by blocks or on paper using blocks with red and white sides. Finally, the matrix reasoning subtest requires children select a diagram from a choice of five which completes a larger diagram or sequence. The WASI scores have been shown to correlate well with the more detailed *Wechsler Intelligence Scale for Children* (WISC, Wechsler, 1991) with the verbal, performance and full scales correlating .82, .76 and .87 respectively. Internal reliability coefficients are also good with verbal and performance scales achieving α= .92-.95 and full scale scores α= .95-.91. Test-retest reliability has been shown to be between .88-.93 for the verbal, performance and full scale scores.

2:2:6 Missing Data

As mentioned above, all members of the sample used here had full CAI data (N= 113). They also had full data for control variables; age, gender and WASI scores. However, there were members of the sample with missing data on outcome and cumulative risk variables. Data was missing for a variety of reasons. Some teacher data was missing due to the child not attending school or parents not consenting to school being contacted and some parent data was missing due to parents refusing to take part

but allowing their child to. There was also data missing from questionnaires being completed illegibly, with pages missing or not returned. There were two stages to calculating missing data. Firstly, where questionnaires were missing raw item scores these were calculated using SPSS Missing Value Analysis when less than 5% of responses were missing. Estimation was conducted on a per-questionnaire basis (i.e. missing questionnaire responses were estimated from completed responses from the same questionnaire). Little's MCAR (Missing Completely AT Random) test was conducted prior to missing value imputation and none of these were significant (i.e. the missing data appeared missing at random). Secondly, where entire questionnaires were missing a decision was made as follows; the case was included in the analysis if it had data for at least 50% of the measures within a related domain (i.e. 2 out of the 4 continuous outcome measures and 3 out of the 5 cumulative risk measures). A total of 9 cases were excluded; this gave a sample size of 104 children for the majority of the analyses described below. 28 cases were missing either 1 or 2 outcome measures out of 4 and it was decided that this data be estimated. Again, Little's MCAR test was not significant. 20 cases had 1 cumulative risk measure out of 5 missing (no cases had 2 measures missing) and these values were estimated and again there was no significant pattern to the missing values. Categorical outcome data i.e. the diagnosis of CD/ODD was available for all of the 104 cases included in further analyses and hence was not estimated for any cases. Thus, when only attachment or age, gender and WASI scores are considered the sample size for analysis is 113. In all other analyses the sample size is 104.

2:2:7 Analysis

The relationship of attachment to control and risk variables was analysed using one –way independent samples analysis of variance for continuous variables and chi-squared tests for the categorical variables. The relationship between these control and risk variables and the outcome measures, parent and teacher reported conduct problems and diagnosis was examined using correlations, t-tests and chi-squared analyses. The relationship between attachment and conduct problems was examined using analysis of variance and analysis of covariance to consider the effect of covariates. The relationship between attachment and a diagnosis of conduct or oppositional defiant disorder was measured using chi-squared tests and logistic regression was used to assess this relationship in the presence of co-variates. Finally, the relationship between cumulative contextual risk and attachment and their interaction on conduct problems was tested using analysis of variance. In these analyses of variance risk was treated as a linear continuous variable in order to maximise power. It was not possible to treat risk as a nominal variable (which would allow tests of non-linear relationships) because within-cell sample sizes were too small. For the same reason, in these interactive analyses attachment is treated as a binary variable (secure/insecure) as is commonly done in attachment studies (e.g. Barglow et al., 1998).

2:3 Results

2:3:0 Overview

The results of the study are presented in several sections. Firstly, the associations between control and risk variables and attachment are presented. This is followed by the associations between control and risk variables and outcome measures. The relationship between attachment and conduct problems is then considered, firstly without covariates and then controlling for covariates. Finally, the effect of cumulative risk on conduct problems and the interaction between cumulative risk and attachment on conduct problems and antisocial behaviour is investigated.

2:3:1 Maternal Attachment Security

66 (58.4%) children were classified as secure, 33 (29.2%) as insecure dismissing, 6 (5.3%) as insecure preoccupied and 8 (7.1%) as disorganised. Of the 8 children classified as disorganised, 2 received a sub-classification of secure and 6 received a sub-classification of insecure dismissing.

Table 2.1 shows mean values on control variables and risk variables as related to attachment styles. From this table it is clear that there are significant differences in age and verbal IQ related to attachment classification. Children with an insecure preoccupied classification are shown to be older than children in other groups and secure children are shown to have higher verbal IQ scores than children with insecure or disorganised classifications.

Table 2.1: Mean scores and standard deviations on control and risk variables for each attachment classification

	Attachment Group Means (S.D.)					
	Secure	Insecure Dismissing	Insecure Preoccupied	Disorganised	F	*P*
Control Measures						
Age (N= 113)	11.95(1.83)	12.48 (1.99)	14.03 (2.14)	11.17 (.95)	3.84	.01*
Full Scale IQ (N= 113)	106.70 (17.17)	99.52 (21.53)	93.33 (5.24)	99.00 (11.12)	2.05	.11
Verbal IQ (N=113)	105.76 (18.19)	94.91 (19.38)	88.33 (8.31)	99.25 (12.93)	3.40	.01*
Cumulative Risk Measures						
Maternal Depression (N=104)	11.92 (9.40)	14.41 (13.38)	9.80 (11.90)	8.92 (5.17)	.79	.50
Overcrowding (N=104)	.54 (.21)	.52 (.18)	.42 (.15)	.55 (.20)	.63	.60

* ANOVA is significant at the 0.05 level (2-tailed).

Table 2.2 shows the percentages of children with control and risk variables relating to attachment classification. It shows that there are significantly more boys within the insecure dismissing classification than would be expected by chance and fewer boys within the insecure preoccupied classification. It also shows differences in income approaching significance with a greater proportion of children with low income being present in the insecure dismissing group. Given these associations between attachment and age, gender and verbal IQ, these variables were controlled for in later analyses.

Table 2.2: Percentages of children within each attachment classification of each gender and with and without risk

	Attachment Groups					
	Secure	Insecure Dismissing	Insecure Preoccupied	Disorganised	χ^2	*P*
Control Measures						
Gender (N=113) (% male)	66.7	84.8	33.3	50.0	8.96	.03*
Cumulative Risk Measures % with risk						
Single Parenthood (N= 104)	25.4	43.8	40.0	25.0	3.65	.30
Young Motherhood (N=104)	13.6	9.4	20.0	0	1.64	.62
Low income (N=104)	23.7	50.0	20.0	25.0	6.74	.06

* Chi-squared test is significant at the 0.05 level (2-tailed).

2:3:2 Links between control and risk variables and outcome measures of antisocial behaviour and conduct problems

Prior to hypothesis testing, correlations, t-tests and chi-squared tests were carried out to assess the relationships between outcome measures and the control variables, age, gender and IQ and the variables measuring contextual risk. The results of these analyses are shown in tables 2.3-2.6.

Table 2.3 shows that there were highly significant correlations between both parent and teacher reported antisocial behaviour and maternal depression and verbal IQ.

These variables also correlated significantly with each other and with full scale IQ scores and age.

Table 2.3: Correlations of control and risk variables with antisocial behaviour problems (N=104)

	Parent reported beh.	Teacher reported beh.	Maternal BDI score	Index of overcrowding	Child's Age	Verbal IQ score	Full IQ score
Parent reported behaviour		.46(**)	.39(**)	-.01	.19	-.28(**)	-.13
Teacher reported behaviour			.26(**)	-.06	.18	-.30(**)	-.14
Maternal BDI score				-.004	.26(**)	-.29(**)	-.28(**)
Index of overcrowding					-.24(*)	-.05	-.05
Child's Age						-.42(**)	-.24(*)
Verbal IQ score							.79(**)
Full IQ score							

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Table 2.4 shows that children within a single parent family were reported to have significantly higher levels of conduct problems by both parents and teachers. This was also true of children who had a mother who had been under 18 when she had her first child. Children living within a family with a low income were reported as having significantly more conduct problems by teachers but not by their parents.

Table 2.4: Differences in antisocial behaviour problems in risk/ no risk groups and between genders (N=104)

	Risk group Mean (S.d.)	Non-risk group Mean (S.d.)	T	*P*
Parent report				
Gender (Risk = male)	5.42 (.85)	5.38 (.87)	-.24	.81
Single Parenthood	5.86 (1.00)	5.20 (.67)	-3.42	.001**
Young Motherhood	5.89 (.91)	5.35 (.83)	-2.10	.04*
Low income	5.61 (.92)	5.32 (.81)	-1.6	.11
Teacher report				
Gender (Risk = male)	1.47 (.13)	1.42 (.13)	-1.77	.08
Single Parenthood	1.52 (.13)	1.43 (.12)	-3.42	.001**
Young Motherhood	1.54 (.12)	1.45 (.13)	-2.23	.03*
Low income	1.52 (.13)	1.43 (.12)	-3.67	.001**

** Independent samples t-test is significant at the 0.01 level (2-tailed).
* Independent samples t-test is significant at the 0.05 level (2-tailed).

Relationship between diagnosis and control and risk variables. Of the 104 children reported here, 19 (18%) had a diagnosis of either Conduct Disorder or Oppositional Defiant Disorder and 85 (82%) did not.

Table 2.5 shows a highly significant difference in the mean scores of maternal depression of each group with the group diagnosed with CD/ODD reporting significantly higher levels of maternal depression. This is in line with the highly significant correlations between parent and teacher reported behaviour and maternal

depression reported earlier in this section. There are, however, no significant differences found in verbal or full scale IQ score means or mean age of the two groups.

Table 2.5: Means and standard deviations of control and risk variables within groups with and without a diagnosis of CD/ODD (N=104).

	No diagnosis of CD/ODD Mean(S.d.)	Diagnosis of CD/ODD Mean (S.d.)	T	*P*
Control Measures				
Age	12.10 (1.84)	12.46 (2.14)	-.81	.42
Full Scale IQ	104.02 (17.24)	100.21 (2.19)	.82	.42
Verbal IQ	101.76 (17.49)	96.79 (24.70)	1.03	.30
Cumulative Risk Measures				
Maternal Depression	10.31 (8.17)	21.51 (15.20)	-3.12	.005**
Overcrowding	.53 (.19)	.53 (.23)	-.04	.97

** Independent samples t-test is significant at the 0.01 level (2-tailed).

Table 2.6 shows a significant difference between the income levels of the two groups with a significantly higher proportion of the group with a diagnosis having a low income than the group without a diagnosis. There are no significant differences reported in the proportion of males, children from a single parent family or children with a young mother in each group.

Table 2.6: Percentage of children within groups with and without a diagnosis who have each risk factor (N= 104).

	No diagnosis of CD/ODD	Diagnosis of CD/ODD	χ^2	*P*
Control Measures				
Gender (% male)	68.2	78.9	.85	.36
Cumulative Risk Measures(% with risk)				
Single Parenthood	29.4	42.1	1.16	.28
Young Motherhood	10.6	15.8	.41	.52
Low income	27.1	52.6	4.68	.03*

* Chi-squared test is significant at the 0.05 level (2-tailed).

2:3:3 The relationship between attachment and conduct problems.

Parent reported antisocial behaviour and conduct problems. An independent samples t-test was carried out to assess the relationship between 2-way attachment classification and parent reported antisocial behaviour and conduct problems. This showed a significant relationship (t = 2.46, df = 102, p = .02) with children with an insecure classification being reported to have significantly more conduct problems than secure children. The mean score of the secure group was 5.24 (s.d. = .77) and the mean score of the insecure group was 5.65 (s.d. = .90).

An ANOVA was carried out to assess the effects of four-way attachment classification on parent reported antisocial behaviour and conduct problems. This, however, revealed only a trend-level effect of attachment classification ($F_{(3, 100)} = 2.37$, p = .08). Inspection of the mean scores showed that it remained the case that secure children received the lowest scores; these scores are displayed in table 2.7.

Teacher reported antisocial behaviour and conduct problems. An independent samples t-test was carried out to assess the relationship between a 2-way attachment classification split and teacher reported antisocial behaviour and conduct problems. As with parent reported outcomes, this showed a significant relationship ($t = 2.30$, $df = 102$, $p = .02$) with children with an insecure classification being reported to have significantly more conduct problems than secure children. The mean score of the secure group was 1.43 (s.d. = .12) and the mean score of the insecure group was 1.49 (s.d. = .14).

An ANOVA was carried out to assess the effects of four-way attachment classification on teacher reported antisocial behaviour and conduct problems. This showed a highly significant effect of attachment classification ($F_{(3, 100)} = 4.82$, $p = .004$) on conduct problems. Post hoc comparisons with Bonferroni corrections revealed this result to be due to significant differences between the scores of insecure dismissing children and those of secure and disorganised children. That is, insecure dismissing children were reported to have significantly more conduct problems than both secure and disorganised children who did not have significantly different scores from each other. Insecure preoccupied children were not reported to have significantly different levels of conduct problems to any other group of children.

Table 2.7: Mean scores on outcome measures of each attachment group (N=104).

	Attachment Group Means (S.D.)					
	Secure (N= 59)	Insecure Dismissing (N= 32)	Insecure Preoccupied (N= 5)	Disorganised (N= 8)	F	*P*
Parent reported behaviour	5.22 (.78)	5.67 (.97)	5.71 (1.01)	5.59 (.33)	2.37	.08
Teacher reported behaviour	1.43 (.12)	1.52 (.14)	1.51 (.13)	1.37 (.07)	4.82	.004**

** ANOVA is significant at the 0.01 level (2-tailed).

Attachment as related to a diagnosis of conduct disorder (CD) or oppositional defiant disorder (ODD) using the CAPA. A Chi-Squared test was carried out to assess if receiving a diagnosis of CD/ODD was more likely within a secure or insecure classification. The result was significant ($\chi^2 = 4.56$, df = 1, p = .03) with significantly more insecurely attached children with a CD/ODD diagnosis being present than would be expected and significantly fewer securely attached children.

A further Chi-Squared test was carried out to assess if receiving a diagnosis of either CD/ODD was more likely within a particular insecure attachment classification. The result was significant ($\chi^2 = 11.81$, df = 3, p = .01) with significantly more children with a CD/ODD diagnosis being present in the insecure dismissing group and fewer than expected being present in the secure group. 63% of all children with a diagnosis of ODD or CD were classified as insecure dismissing, 32% were classified as secure and 5% were classified as disorganised. There were no children with an insecure preoccupied classification with a diagnosis.

2:3:4 The relationship between attachment and conduct problems when covariates are controlled for.

Since significant associations were found between attachment and age, gender and verbal IQ, it was decided to include these as co-variates within the analysis and re-evaluate the association between attachment classification and conduct problems.

An analysis of covariance was carried out to examine the effects of two way attachment classification on parent reported antisocial behaviour when age, gender and verbal IQ were controlled for. The effect of security no longer remained ($F_{(1, 99)} = 3.02$, $p = .09$). Analyses were not undertaken to examine the relationship between parent reported conduct problems and four way attachment since attachment had already been shown not to have a significant effect on the results. The same two way analysis for teacher reported conduct problems showed that after controls the effect of security on conduct problems was non-significant ($F(1, 99) = 2.07$, $p = .15$). There was however a significant main effect of verbal IQ ($F(1, 99) = 4.41$, $p = .04$).

An analysis of covariance investigating the effects of four-way attachment classification revealed that a significant effect of attachment on teacher reported conduct problems remained after controlling for verbal IQ, age and gender ($F_{(3, 97)} = 2.80$, $p = .04$). There was also a significant main effect of verbal IQ ($F_{(1, 97)} = 4.42$, $p = .04$). Pairwise comparisons revealed the same significant differences between attachment classifications to remain, with insecure dismissing children having significantly more behaviour problems than secure and disorganised children and insecure preoccupied children not being significantly different from any other groups of children. Estimated

marginal means for each classification were as follows: Secure- 1.44; Insecure Dismissing- 1.50; Insecure Preoccupied- 1.50; Disorganised- 1.38.

Diagnosis of CD/ODD and attachment classification. A logistic regression was carried out to assess the effect of two way attachment classification on diagnosis when verbal IQ, age and gender are considered in the equation. The overall model was non-significant ($\chi^2 = 5.61$, df = 4, p = .23) and there were no significant effects of age (p= .64), gender (p=.42) or verbal IQ (p =.77). The effect of attachment fell short of significance (Wald $\chi^2 = 3.34$, df = 1, p = .07).

When considering four way attachment classification, again the overall model was non-significant ($\chi^2 = 12.06$, df = 6, p = .06) and the overall effect of attachment also fell just short of significance (p= .06). The contrast between insecure dismissing and secure attachment remained highly significant (Wald $\chi^2 = 7.13$, df = 3, p = .008). None of the covariates, age (p= .68), gender (p= .98) or verbal IQ (p= .81) significantly contributed to the model.

2:3:5 The effects of attachment and cumulative contextual risk on conduct problems

The effect of cumulative contextual risk on conduct problems and antisocial behaviour. Prior to examining the relationship between attachment and cumulative risk, the individual effect of cumulative risk on outcome was examined. One way analysis of variance revealed that cumulative contextual risk had a highly significant effect on both parent ($F_{(3, 100)} = 6.05$, p=.001) and teacher ($F_{(3, 100)} = 5.73$, p= .001) reported conduct with both reporting increasing levels of conduct problems with increasing numbers of risks. The mean scores for children at each level of risk are shown in table 2.8 and 2.9.

Bonferroni post hoc comparisons revealed that for parent reported problems the difference between there being no risks present and there being three risks or more present was highly significant ($p < .001$). For teacher reported problems they revealed that the difference between no risks being present and there being two or three or more risks present were both significant.

A chi-square test revealed that the effect of cumulative contextual risk on diagnosis was not significant ($\chi^2 = 6.93$, $df = 3$, $p = .07$). The numbers in each cell however, decreased with increased numbers of risk for children without diagnoses. For children with diagnoses, the numbers in each cell increased with increasing risk.

The interaction between cumulative contextual risk and attachment classification. Due to the number of categories that would be created by examining four way attachment classification and cumulative risk it was decided that two way attachment classification (secure versus insecure) would be examined throughout.

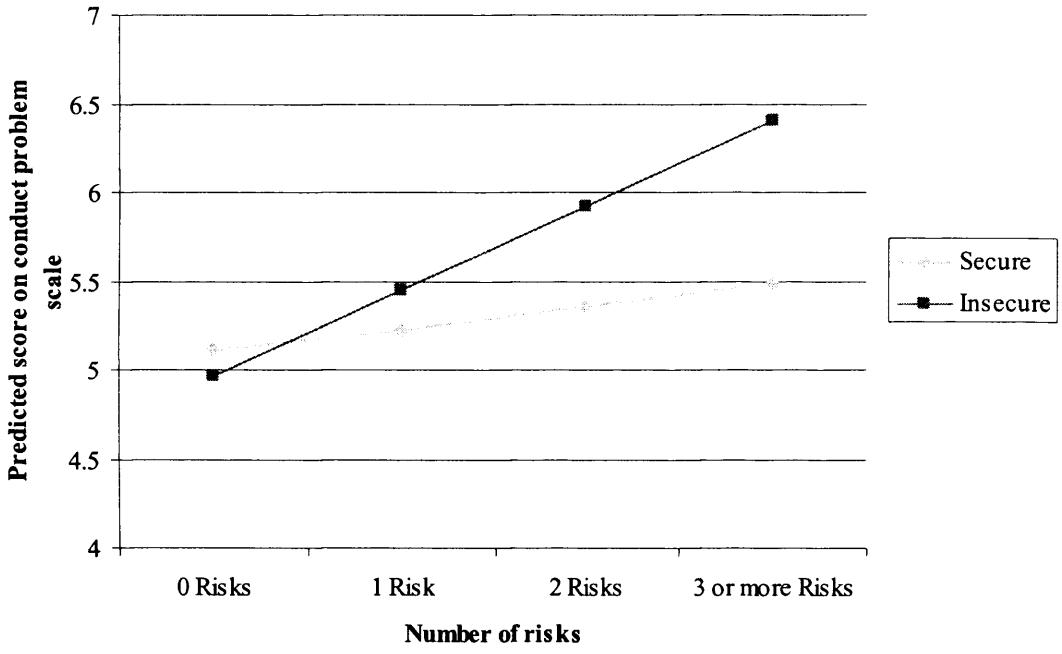
Parent reported conduct problems. For descriptive purposes the mean scores for each category are shown in table 2.8.

Table 2.8: Mean scores on parent reported measure of conduct problems for each risk group and each risk group within attachment classification (N=104).

	Cumulative risk groups			
	0 risks	1 risk	2 risks	3 or more risks
Parent reported behaviour				
Overall mean score (s.d.)	5.03 (.60)	5.50 (.84)	5.44 (.80)	6.03 (1.03)
2-way attachment				
Secure	5.07 (.54)	5.40 (.89)	5.10 (.76)	5.59 (1.02)
Insecure	4.93 (.74)	5.62 (.79)	5.71 (.75)	6.61 (.76)
4-way attachment				
Secure	5.05 (.54)	5.36 (.90)	5.10 (.76)	5.59 (1.02)
Insecure Dismissing	4.52 (.49)	5.60 (.87)	5.66 (.73)	6.75 (.72)
Insecure Preoccupied	5.45 (1.46)	5.83 (-)	5.93 (1.31)	-
Disorganised	5.35 (.22)	5.88 (.37)	5.79 (-)	5.76 (-)

An analysis of variance was carried out to assess the moderating effect of cumulative risk on the relationship between attachment and conduct problems. The overall model was highly significant ($F_{(3, 100)} = 8.81$, $p < .001$) and there was a significant interaction between cumulative contextual risk and attachment classification ($F_{(1,100)} = 5.94$, $p = .02$). Neither variable had a significant main effect. The nature of the interaction is shown in figure 1. This interaction shows that as levels of cumulative risk increase, the reported levels of conduct problems increase to a significantly greater extent in insecurely attached children than in securely attached children where the rate of increase is relatively small.

Figure 2.1: The interaction between cumulative risk and attachment of parent reported conduct problems and antisocial behaviour.



Teacher reported conduct problems. The mean levels of behaviour problem shown by children in each group and with each attachment category in each risk group are shown in table 2.9.

Table 2.9: Mean scores on teacher reported measure of conduct problems for each risk group and each risk group within attachment classification (N= 104).

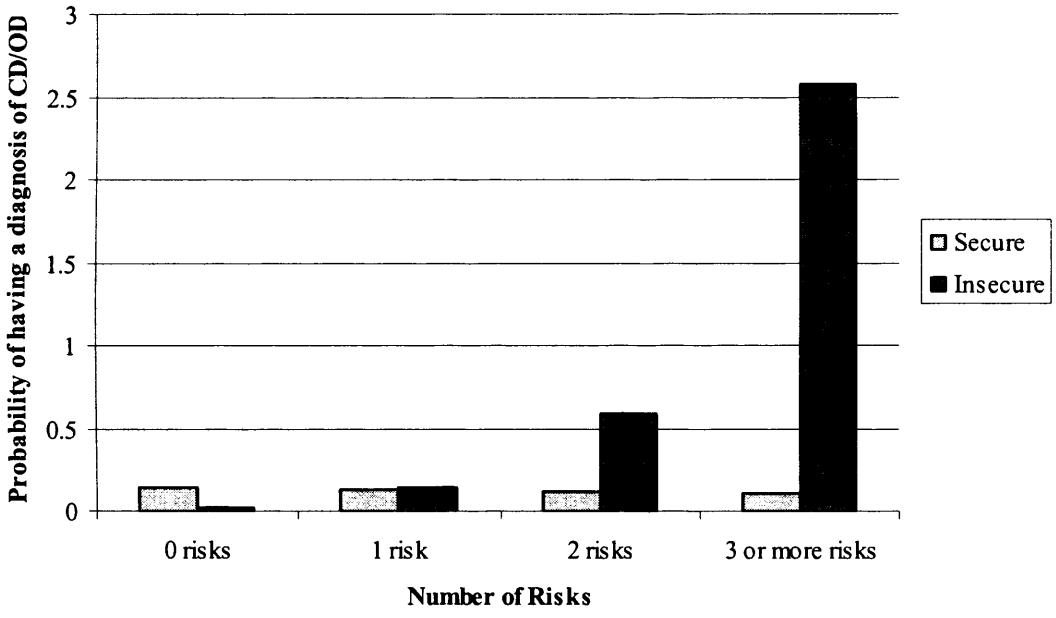
	Cumulative risk groups			
	0 risks	1 risk	2 risks	3 or more risks
Teacher reported behaviour				
Overall mean score (s.d.)	1.39 (.11)	1.46 (.11)	1.49 (.15)	1.54 (.13)
2-way attachment				
Secure	1.39 (.10)	1.45 (.09)	1.41 (.13)	1.53 (.14)
Insecure	1.39 (.12)	1.48 (.13)	1.55 (.14)	1.55 (.13)
4-way attachment				
Secure	1.39 (.11)	1.45 (.10)	1.41 (.13)	1.53 (.14)
Insecure Dismissing	1.40 (.11)	1.49 (.13)	1.56 (.15)	1.57 (.13)
Insecure Preoccupied	1.46 (.23)	1.46 (-)	1.57 (.05)	-
Disorganised	1.36 (.09)	1.36 (.10)	1.38 (-)	1.43 (-)

An analysis of variance was carried out to investigate the effects of attachment and cumulative risk of teacher reported conduct problems. There were no significant main effects or a significant interaction between the two variables ($F_{(1,100)} = .95$, $p = .33$).

Diagnosis of CD/ODD. A logistic regression was carried out to assess the effect of cumulative risk and attachment classification on the prediction of whether children received a diagnosis of ODD or CD. The overall model was significant ($\chi^2 = 17.17$, df = 3, $p = .001$). There was not a significant main effect of either variable, however the interaction between the two variables was significant (Wald $\chi^2 = 5.92$, df = 1, $p = .015$). The nature of this interaction is shown in figure 2 below. It shows the odds of receiving

a diagnosis of conduct or oppositional defiant disorder within each category. The odds are defined by the probability of being given a diagnosis divided by the probability of not being given a diagnosis. The figure thus shows that those children who are insecurely attached and have three or more risk factors are more likely to receive a diagnosis than not. This is in contrast to secure children whose odds of receiving a diagnosis do not increase with increasing contextual risk.

Figure 2.2: The interaction of attachment security and cumulative risk on the probability of receiving a diagnosis of CD/ODD.



2:4 Discussion

The aims of this study were to assess the relationship of attachment classifications to conduct problems in late childhood and early adolescence. Whether the relationship was mediated by control variables, verbal IQ, age and gender or cumulative contextual risk was also examined. Conduct problems were measured using reports from parents and teachers and using a standardised diagnostic interview. Further to assessing these 'main effect' associations the study also tested the hypothesis that the association between cumulative risk and conduct problems would be stronger in children with an insecure attachment.

The results of the study revealed a significant relationship between attachment and conduct problems with an insecure dismissing attachment classification seeming particularly related to increased levels of antisocial behaviour. However, this relationship was not significant when age, gender and verbal IQ were controlled for. The exceptions to this were an effect of attachment on teacher reported conduct problems and on diagnosis of conduct or oppositional defiant disorder when all attachment classifications were considered. Again, it seemed that children with an insecure dismissing attachment classification were more likely to show higher levels of conduct problems. The interaction between attachment and cumulative contextual risk was significant for parent reported conduct problems and diagnosis. This interaction showed a stronger association between increasing levels of cumulative risk and increasing conduct problems in children with an insecure attachment classification than in those with a secure attachment classification.

Verbal IQ, age and gender were all significantly different for children of different attachment classifications. Insecure preoccupied children were, on average, significantly older than all other groups. This is in line with the findings of Allen et al. (1998), whose study of AAI representations in later adolescence found a high proportion of preoccupied classifications. It is possible that this represents a developmental phenomenon whereby there is an increase in preoccupation during adolescence. The significant gender difference found in this study was within the insecure classifications whereby more girls received a preoccupied classification and more boys had a dismissing classification. This replicates the findings of Rosenstein and Horowitz (1996) who found a similar pattern. In the current study there were, however, no gender differences reported in level of conduct problems, which has been reported previously (e.g. Fagot & Kavanagh, 1990). This may be explained by the fact that the sample was initially selected on the basis of having some conduct problems at a younger age. There were thus fewer girls in the sample and all had been reported to show conduct problems of varying severity earlier in life.

The fact that verbal IQ was significantly different for different attachment classifications is noteworthy. Children with a secure classification had the highest verbal IQ scores on average with children with insecure dismissing and insecure preoccupied attachments receiving the lowest verbal IQ scores. It could be that this result occurred because of the reliance of this attachment instrument on verbal skills. However, it may also be significant that attachment security has been shown to be a consistent predictor of language development (Van Ijzendoorn et al., 1995). Thus, it is conceivable that attachment-related differences in language development impact upon verbal IQ and thus lead to differences in the latter.

The results of the study revealed significant relationships between attachment and conduct problems reported by parents, teachers and when considering diagnosis when attachment was classified as merely secure or insecure. In all of these analyses insecurely attached children were reported to show significantly more conduct problems and antisocial behaviour than securely attached children. When all insecure attachment classifications were considered separately, the relationship between parent reported antisocial behaviour and attachment was not significant. Teacher reported conduct problems and diagnosis were however still related to attachment in this four-way analysis with children with an insecure dismissing attachment being reported to have significantly more conduct problems than both secure and disorganised children. This was also true when considering diagnoses of conduct or oppositional defiant disorder where significantly more insecure dismissing children received a diagnosis than would be expected by chance. Thus, within this sample it would appear that there is a relationship between attachment insecurity and an increased risk of developing conduct problems.

However, when covariates, age, gender and verbal IQ, were controlled for the effect of two-way attachment was no longer significant. That is, the difference between secure and insecure children's reported conduct problems was no longer significant. This was true for both parent and teacher reported conduct problems and there was only a trend of an effect on diagnosis. When considering all attachment classifications separately, the effect of attachment on teacher reported conduct problems remained and there remained a significant contrast between secure and insecure dismissing attachment in relation to diagnosis of conduct or oppositional defiant disorder. That is, children with an insecure dismissing attachment classification were reported to show more conduct

problems by teachers and were more likely to receive a diagnosis of conduct or oppositional defiant disorder. The fact that these effects remained after controlling for these variables is important both theoretically and for the validity of the CAI as a measurement tool. It shows that there exists a relationship between attachment and conduct problems in children of this age group and further supports the idea that the CAI can assess the independent effect of attachment rather than this being confounded by other factors (of which verbal IQ was a particular concern).

However, despite these positive findings, the fact that the effect of two way attachment was no longer significant suggests that verbal IQ does somewhat confound these associations. It appears that part of the variance shown in attachment security could be linked to verbal IQ, however, although the concept of coherence within the interview could correlate with intelligence, there is not a complete overlap between the two concepts. That is to say, it is possible that a child with a low verbal IQ score could give coherent responses to the questions asked if securely attached and that a child with a high verbal IQ would be unable to coherently explain relationship episodes due to insecure attachment relationships. Related to this, some studies investigating the validity of the Adult Attachment Interview (AAI) have found associations between the measure and measures of intelligence (e.g. Crowell et al., 1996) while some studies have found no such association (e.g. Bakermans-Kranenburg & Van Ijzendoorn, 1993). Within this literature it has been suggested that although the AAI does place an emphasis on language and cognition within its scoring system which may lead to variance depending on intelligence, considering all of the evidence, there are moderate but not strong correlations and thus it does not seem that the AAI is *simply* measuring intelligence

(Crowell et al., 1996). Further research is required to investigate in more detail the relationship between verbal intelligence and measurement of attachment using the CAI.

As is commonly found in research of this kind, teacher and parent reported behaviour problems were only modestly correlated (e.g. Fagot & Kavanagh, 1990), and perhaps as a result were found to be affected differently by attachment. Insecure children were reported to have more behaviour problems by parents and teachers, but when the classifications were broken down into subgroups of insecurity no differences were significant for parents. Differential effects were also observed when considering interactions between attachment and cumulative risk. Cumulative risk did not interact significantly with attachment in relation to teacher reported externalizing psychopathology. Parent reported conduct problems however, were influenced significantly by an interaction between cumulative risk and attachment.

For teacher reports it appeared that the differences in reported conduct problems were not entirely consistent across the insecure categories, thus when these categories were merged to create merely secure and insecure categories the effect was weakened. This inconsistency was particularly true of the children with a disorganised attachment classification. Conversely, for the parent reports, the effect was more consistent across the insecure groups. In the two-way attachment classification analysis where all the insecure group differences accumulate in the same direction this led to a significant effect on conduct problems, but as individual insecure groups it may be that the effects were not large enough to be detected as significantly different from the secure group. It appears in this study that one important area where parents and teachers may diverge is with respect to the conduct problems of children classified disorganized. For parent reports, this group were reported to display conduct problems of a similar level to

children with an insecure dismissing and insecure preoccupied classification. However, for teacher reports, disorganised children were described as having *less* conduct problems than all other groups including secure children.

Since the diagnosis of conduct or oppositional defiant disorder was arrived upon through an interview with parents, it is perhaps not surprising that an interaction between attachment and cumulative risk affected results on this measure in the same way as for parent reported conduct problems. However, unlike parent reported problems, diagnosis was significantly affected by four-way attachment classification even when covariates were controlled for. It may be that this systematic structured interview, being very detailed, was able to detect effects not shown using the self-report questionnaires.

These different results replicate other studies which have found parent and teacher reported behaviour problems to be modestly correlated and linked with different developmental variables (e.g. Lyons-Ruth et al., 1997; Schmidt, Demulder & Denham 2002; Rothbaum, Rosen, Pott & Beatty, 1995). Reasons that have been suggested to account for this include differences in the way children behave in different settings and contexts, as well as the impact of differing relationships the child may have with each respondent.

The results of this study seem to particularly implicate the insecure dismissing attachment classification in increasing the risk of conduct problems. A number of findings suggest this, notably the post hoc analyses which found that the difference between insecure dismissing children and both secure and disorganised children was significant on teacher reported conduct problems. Furthermore, it was striking that 63% of the children with a diagnosis of CD/ODD were classified as insecure-dismissing, in comparison with 23% of the children without a diagnosis and 29% of the overall sample.

No insecure preoccupied children received a diagnosis of either CD or ODD and only one child classified as disorganised received a diagnosis. This is in line with much of the previous research into the relationship between attachment and behaviour problems (e.g. Erickson et al., 1985; Belsky & Fearon, 2002). However, when considering the results it is necessary to be mindful that within this sample, as is often the case, there were only small numbers of children found with an insecure preoccupied or disorganised attachment classification. Therefore, it could be that the effects of these classifications were not found due to low power. Several authors have discussed the problems of researching resistant or preoccupied attachment due to small numbers (e.g. Munson et al., 2001; Goldberg et al., 1995). Within this sample it seems that children with a preoccupied classification were reported to display equivalent levels of conduct problems to those children with a dismissing classification by both parents and teachers. As mentioned above however, none received a CD/ ODD diagnosis. Children with a disorganised classification were reported to display lower levels of conduct problems than any other group by teachers and were considered significantly less conduct disordered than dismissing children by them. According to parents, they demonstrated marginally more conduct problems than secure children and less conduct problems than dismissing or preoccupied children, however none of these contrasts were significant. This is contrary to the predictions of previous research which has suggested disorganised children are particularly at risk of developing externalising behaviour (e.g. Carlson, 1998; Lyons-Ruth et al., 1997).

Overall, the results of the impact of cumulative contextual risk alone generally support the findings of Rutter (1979) and Sameroff and colleagues (Sameroff et al., 1993) with reports of conduct problems by both parent and teacher increasing

significantly with the number of risk factors present. When considering the interaction between attachment and cumulative risk, a significant interaction was found on parent reported conduct problems and on diagnosis. In both cases this interaction showed that insecurely attached children were at increasing risk of evidencing conduct problems with increasing numbers of contextual risk factors whereas securely attached children showed a smaller increase in conduct problems and had no increase in probability of diagnosis with increasing contextual risk. The interaction of cumulative risk and attachment security is important theoretically as it supports the hypothesis suggested in much of the literature that the effect of attachment security is greater in high risk environments (e.g. Lyons-Ruth et al., 1997). When no risks were present there was little difference in the predicted conduct scores or odds of diagnosis for secure and insecure children but as the number of risks increased, the difference increased. This supports the idea of secure attachment acting as a protective factor in adverse conditions and insecure attachment acting as a risk factor (e.g. Keller et al., 2005, Fearon & Belsky, 2004). The results broadly support those of Keller et al. (2005) who found that insecure attachment and multi-problem family environments increased the risk of being on a conduct disorder trajectory. Secure children with similar family environments were no more likely than chance to be on this trajectory. The interaction is also consistent with that found by Belsky and Fearon (2002) although they found that all groups of children showed increased levels of problem behaviour at the highest level of risk. This latter difference could be for many possible reasons such as differences in the types and numbers of contextual risks used to create a cumulative scale. It could be that if more risks were considered within this sample, the predicted conduct problems shown by securely attached children would have eventually increased. Although the risks considered here

were based on ones used in previous research (Belsky & Fearon, 2002; Rutter 1979), the number and type of risk considered within this study were constrained by the data collected within the wider study. Thus, the consideration of other risk factors may be important. Further factors which have been suggested as being potential indicators in the further development of conduct problems include high crime neighbourhoods (Hill, 2002); parental level of education and the level of the family's social support (Sameroff et al., 1993).

The current study had a number of limitations. Firstly, the results of the study are cross-sectional in nature and hence questions of causality and direction of effects cannot be determined. Furthermore, attachment patterns are known not to be highly stable over time (Vondra et al., 2001) and the relationship between these concurrent attachment patterns and conduct problems may not reflect associations that generalise longitudinally. The same is the case for the interaction between attachment and cumulative risk, this is the interaction of current risk and current attachment style on conduct problems. Munson et al. (2001) found that avoidantly attached children were particularly sensitive to their mother's current levels of depression and that this affected their levels of problem behaviour whereas for secure children there was no such effect. This could also be true of the present study which does not give any indication as to the longitudinal impact of cumulative risk. Caution is also needed in generalising these results due to the nature of the sample. The fact that the children studied here had all been reported to show some externalising behaviour problems at a younger age makes them a select high risk group and results may not be generalisable to lower risk samples. Problems with the power of some groups within the sample has already been discussed above but is a further factor to consider when examining the results, both significant and

non-significant, especially with regard to the interaction between attachment and cumulative risk where the numbers of children within each attachment and risk group were necessarily smaller.

However, the results suggest that the CAI is a useful instrument for directly accessing the attachment representations of this age group and further research examining attachment across childhood and its relation to behaviour at different time points would be very useful. Further research with larger samples of children to increase the numbers of preoccupied and disorganised children would also be useful to help ascertain the role played by these attachment patterns in children's behaviour problems. The study suggests a number of clinical implications. Firstly, in finding a link between attachment and conduct disorder in this age group the study suggests that interventions based upon attachment theory may be useful as a means of treating conduct problems and as a mode of prevention. Secondly, the study suggests that children in very high risk environments who are also insecurely attached may be most at risk for developing clinically significant behaviour problems, which may shed light on important developmental processes and may also provide useful information regarding the best targets of preventive efforts by clinicians.

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PART III

CRITICAL APPRAISAL

3:0 Overview

This critical appraisal contains three sections. First, there is an extended discussion of the study, considering in more detail issues of measurement and important results. Future directions for research are also considered. Secondly, the clinical implications of the study are addressed in more detail and finally, there is a personal reflection on the process of carrying out the thesis, the challenges and learning points.

3:1 Extended discussion and directions for further research

The first section of this critical appraisal provides an opportunity to discuss the results of the empirical paper in greater detail. The first aspect of this discussion will focus on the sample and measures used; the next section will focus on the Child Attachment Interview in more detail. Finally, directions for future research will be considered in more detail.

An expectation not borne out in reality was that a high proportion of the sample would be showing considerable conduct problems. In actuality although a proportion were indeed diagnosed with conduct disorder or oppositional defiant disorder this was a smaller group than originally anticipated. Reasons for this are unclear since analyses show that it does not appear to be a result of the intervention they received originally. An implication concerned the suitability of the measures chosen, since some were selected for children with more severe problems than the majority of the sample. The Antisocial Process Screening Device (Frick & Hare, 2001) is designed to measure antisocial behaviour and psychopathic traits in children and is thus measuring quite

severe problems. As a consequence, although some children within the sample did score very highly on this measure, many received a very low score and differentiating between these children was not possible. A measure of less severe difficulties may have captured differences between those children who all received a low score on this measure. The Strengths and Difficulties Questionnaire (Goodman, 1997) has been shown to be acceptable to respondents within normal samples and measures a wide variety of difficulties (Goodman & Scott, 1999). Its conduct problems section is however relatively brief and it is possible a more detailed measure designed to capture a ranging severity of problems would have been useful in place of these measures. The Child Behaviour Checklist (CBCL, Achenbach, 1991) is an example of one of these more detailed measures which may have allowed for differentiation between children at the less conduct disordered end of the spectrum. The benefits of this would however have to be weighed against the time taken, possibility for increased missing data and chance that those children at the more conduct disordered end of the spectrum would not be differentiated between. This is similarly true of the measure of child intelligence. The use of the WASI (Wechsler, 1999) ensured brevity which was important as this aspect of data collection was one which most children least favoured. Therefore, the possibility of using the WISC (Wechsler, 1991) may have increased the validity of IQ scores by including more subtests however this would have had the risk of alienating children, especially those who found the tasks more difficult.

Throughout the research, the advantages of the Child Attachment Interview as a measure of attachment were apparent. The interview seems well suited to the age range it is aimed at and the relatively high inter-rater reliabilities achieved by coders who were not involved in designing the system demonstrate a coding system which is

comprehensive and can be disseminated. However, as a relatively new measure, there are aspects to the coding system which are less developed. Due to the low numbers of disorganised children identified generally, and their differing presentations given differing underlying organised classifications, the coding system for identifying these children is less well articulated. This needs to be considered when examining the results of the study, particularly with respect to the absence of any evidence of a raised incidence of behaviour problems or diagnoses in children classified disorganized. Preoccupation is the other classification which is not often seen, however, its manifestation within the CAI has a very detailed description within the coding system and seems to present in a more clearly recognisable way (compared to disorganization). Both coders taking part in this study felt more confident about identifying this classification than disorganisation. As more CAI's are carried out, descriptions of how disorganisation manifests itself in this age group within this interview will become more detailed and identification will become increasingly reliable.

There are several areas of this research that require further investigation. The relationship of attachment and cumulative risk on conduct problems seems to suggest that at high levels of contextual risk secure attachment acts as a protective factor against developing conduct problems whereas insecure attachment increases the risk of developing them. The mechanisms by which this interaction occurs are unclear and this is an area in which further research could be carried out. It is often suggested that attachment leads to the development of internal working models which shape the way the child views the world and others. Insecure attachments are thought to lead to the development of a view of the world as hostile and others as unpredictable and secure attachments are thought to lead to a more benign view of the world (Main, Kaplan &

Cassidy, 1985). There is some research to suggest this is the case, with Belsky and colleagues (Belsky, Spritz & Crnic, 1996) finding that insecure children were more likely to remember negative events than secure children and less likely to remember positive events. This study thus suggested that internal working models directly influence information processing relevant to attachment. Theoretically, interactions between adverse experiences (like cumulative risk) could occur because internal working models more seriously bias information processing when more intensely negative experiences need to be processed. It could also be that when in a low risk environment where a child is less likely to be confronted with negative events and negative interactions, that working models are not activated to such an extent as it would be within a high risk environment. Other possible explanations include the idea that the children within low risk environments learn different ways of expressing these negative views of the world in more subtle ways, perhaps, for example, by developing internalising problems as a result of different norms of behaviour or child-rearing contexts. However, a further possibility is that working models are not the key factor by which attachment influences behaviour problems but that attachment acts on a third variable. Attention is one such possible variable. Gilliom and colleagues (Gilliom, Shaw, Beck, Schonberg & Lukon, 2002) found that securely attached boys were better able to disengage attention from a frustrating stimulus than insecure boys and Fearon & Belsky (2004) found that insecure attachment led to higher levels of impulsivity, particularly under conditions of high social-contextual risk. Thus, it could be that children with insecure attachment classifications who are experiencing high levels of contextual stress are more impulsive and less able to disengage from frustrating situations and that this is what leads to conduct problems. Further research to investigate these possibilities and

gain further understanding of internal working models is needed to fully understand the mechanisms by which these interactions occur.

Measuring attachment security and levels of conduct problems at several points across the lifespan would provide useful information as to whether concurrent or prior attachment classifications are most predictive of conduct problems at each age. Longitudinal research could also help to clarify whether the associations found in the current study reflect causal influences or non-causal correlations. Carrying out research across the lifespan in large samples would also be helpful, since the incidence of resistant and disorganised attachment classifications is low. Thus, in smaller samples such as the current one, this leads to very small numbers of children with these classifications from whom it is not possible to draw firm conclusions.

It appears increasingly that the development of conduct problems is complex and based on numerous risk factors. Taking a developmental psychopathology approach to conduct problems is useful in understanding its development more completely. Considering the issues from a lifespan perspective with multiple risk and protective factors taken into account and assessing what combinations of factors make it more or less likely to be on a conduct disorder trajectory will be important developing this understanding. There are several other variables which have been shown to play a crucial role in the development of conduct problems. These include coercive, harsh or inconsistent parenting, peer relationships, type of peer group and parental levels of antisocial behaviour. These variables could interact with both of the independent variables used in this study, attachment and cumulative contextual risk, in a variety of ways. For example, Dodge and colleagues (Dodge, Pettit & Bates, 1994) have shown that contextual factors predict parenting with parents in high risk contexts being more

likely to use harsh physical discipline which in turn leads to conduct problems. It has been suggested that the increased stress that the parent is under leads to the use of such strategies (Dodge & Pettit, 2003) and could mean that some of the variance in conduct problems accounted for by cumulative contextual risk is mediated by a harsh parenting style that high risk environments make more likely. Attachment too could play a mediating role in the development of conduct problems, it could for example influence peer relationships or peer choice which may then influence conduct problems. It has previously been shown that secure attachment leads to increased social competence and this could be one way in which peer relations could be influenced (e.g. Belsky & Fearon, 2002a). The difference found in conduct problems in different attachment styles could also in part be affected by different parenting styles. It could be that securely attached children in this study were less likely to have received harsh parenting than the insecure children and that this in part explained the relative ease with which they could give examples of interactions with their parents. This hypothesis is complicated by the fact that not all of the secure children within this sample or the sample reported by Target, Fonagy and Schmueli-Goetz (2003) reported positive interactions with their parents. A minority of these children described harsh and punitive experiences but in a balanced and reflective manner, neither dismissing the interaction nor being preoccupied with it. These children were classified as secure and they raise further questions about the development of attachment styles since they do not describe sensitive and responsive caregiving. It is, however, possible that they were describing infrequent episodes, that parents had been under greater stress recently or that a major life event had occurred within the family altering the interaction. It is also possible that another relative or caregiver was acting in a sensitive and responsive manner towards the child. These

children were however a minority of those classified as secure and it is still therefore possible that the effects of parenting style and attachment style overlap somewhat.

Developmental psychopathology is a useful framework within which to draw the potential effects of these variables together. Within this perspective behaviour is affected by the environment, genetic factors and development up to that point and development is an active dynamic process. The dynamic nature of variables which may influence development is also considered and their interaction and mediating effects upon each other (e.g. Rutter & Sroufe, 2000). Aguilar and colleagues (Aguilar, Sroufe, Egeland & Carlson, 2000) attempted to examine several variables which may lead to the development of antisocial behaviour at several time points and distinguishing between children with conduct problems whose onset was before and during adolescence. They found a distinction between life course persistent and adolescent only antisocial behaviour and found that the former was characterised by impulsiveness, mild cognitive impairment in adolescence, family discord and avoidant attachment among other variables. Keller and colleagues (Keller, Spieker & Gilchrist, 2005) also investigated several different risk and protective factors which made it more or less likely to be on a problem behaviour trajectory over the course of several years. Further studies such as these will be useful in increasing the understanding of the pathways towards antisocial behaviour and conduct problems.

3:2 Clinical Implications

The clinical implications of the study are mentioned briefly in the empirical paper and this section aims to look at these ideas in more depth. The findings contribute

to the development of clinical ideas in three ways, firstly, by supporting the findings in younger and older children that attachment and antisocial behaviour are linked. Secondly, by suggesting that these links are evident in children in middle childhood and late adolescence and finally by replicating the findings of previous studies, that although attachment appears to be a risk factor there is not a linear relationship. Although 63% of the children with a diagnosis of CD/ODD were classified as insecure dismissing, 62% of children with an insecure dismissing attachment did not receive a diagnosis of CD/ODD and the interaction with cumulative contextual risk suggests a relationship mediated by other factors.

Attachment has been shown to be an important variable in the development of conduct problems within this and other studies and has also been shown to be implicated in the development of a wide range of other mental health problems (e.g. Rosenstein & Horowitz, 1996). One implication of this is that measurement of attachment classification may provide useful information for working clinically and planning interventions. If children were found to be insecurely attached, this could be a target of any initial intervention or something which is considered throughout an intervention not based on attachment theory. DeKlyen and Speltz (2000) have suggested one possible way in which such measurement could be helpful as being to allocate only securely attached parent –child dyads into behavioural parenting group interventions. Insecurely attached children-parent dyads could be provided with an intervention which first examines the relationship before providing behavioural strategies.

The interaction between attachment and cumulative contextual risk appears to identify a group of children at very high risk of developing conduct problems. Within this sample, children with an insecure attachment classification and living in the

presence of three or more contextual risks showed the highest incidence of conduct problems and the highest odds of receiving a diagnosis of conduct and oppositional defiant disorder. The results here should be treated with caution due to the relatively small numbers of children fulfilling these conditions and other limitations to the study detailed above. However, this finding appears to concur with those found previously in infancy of a larger effect of attachment in high risk environments (Lyons-Ruth, Easterbrooks & Cibelli, 1997; Munson, McMahon & Spieker, 2001) and those studies that have previously found an interaction (e.g. Keller et al., 2005; Belsky & Fearon, 2002b). If further research also shows this pattern of results it could be useful clinically to consider early intervention with this group of children to alter the attachment relationship between mother and infant. From the results shown here it would appear that securely attached children are much less likely to develop conduct or oppositional defiant disorder even at high levels of contextual risk. This supports the idea that secure attachment is a protective factor whose effects are most marked in situations of adversity. Early interventions based on attachment theory could therefore reduce the risk of children developing conduct problems in such high risk environments. An example of such an intervention is the Circle of Security project (Marvin, Cooper, Hoffman & Powell, 2002). This project is designed for toddlers and preschoolers in high risk environments. Based on the attachment theory principle of a secure base it is a group intervention for caregiver- child dyads where caregivers watch videotapes of their interactions with their children. Caregivers are encouraged to reflect on their and their child's behaviour, increase their sensitive responsiveness and reflect on their own history of receiving care and the impact this may have. It also aims to explain the principles of attachment theory in an accessible way to increase caregivers'

understanding of the concept. The project has shown to increase the number of children classified as secure in the Strange Situation Procedure after completion and reduce the number of children classified as disorganised (Marvin et al., 2002).

Since the results of this study show that the link between attachment and conduct problems remains in children in middle childhood and early adolescence, attachment based interventions with children of this age group who have conduct problems could be considered. Currently, there is less evidence for intervention with adolescent conduct problems using attachment based interventions in this age group (DeKlyen & Speltz, 2000). An example of such an intervention is described by Holland and colleagues, (Holland, Moretti, Verlaan & Peterson, 1993) who set up an intensive residential programme with conceptual roots in attachment theory. The programme is followed by outreach work within the community with the aim of improving the adolescent's social ecology. Preliminary results suggested that this intervention reduced conduct symptoms (Moretti, Holland & Peterson, 1994). The plasticity of attachment representations at this age is something that is not well researched. It seems that attachment in infancy and early childhood is more easily altered than attachment patterns in adulthood which seem quite resistant to intervention. The amount by which attachment representations in adolescence to be altered is an area for future research.

More research is needed into effective attachment-based treatments for conduct problems however it does seem that there is a need to target children within high risk populations with interventions which have been shown to be effective in this hard to reach group. Societal interventions to reduce the number of children in such conditions of risk would also be expected to have an impact on levels of conduct problems since this study and others have shown that in low risk environments there is little difference

between the levels of conduct problems of secure and insecure children. Thus, it would be expected that interventions to reduce, for example, child poverty and depression in mothers would have an impact on behaviour problems shown in both secure and insecure children. Within an attachment framework it could be hypothesised that at times of low risk, parents are more able to be sensitively responding to their child's needs due to having lower levels of overall stress. This could then reduce the impact of an insecure attachment on the child's development. Belsky and Fearon (2002a) examined the differential effects of maternal sensitivity and earlier attachment and found that insecure infants who received later sensitive mothering had fewer behaviour problems than secure infants who received later low sensitive mothering. They found that life stress was one factor involved in the receipt of low sensitive mothering. Thus, if in low risk environments, all parents are more able to respond to their children sensitively, this could explain why there is a reduced effect of attachment in these conditions and increasing the number of children within such environments could reduce levels of conduct problems.

In summary, increasing awareness of attachment as an important factor in the development of conduct problems and increasing measurement of attachment security within clinical practice may be a helpful tool. Early attachment based intervention with children in high risk contexts may also be useful as a protective factor against the later development of conduct problems and further research into interventions based on attachment theory in adolescence may also be helpful in reducing their incidence.

3:3 Personal Reflections

When reflecting on the process of compiling this thesis I feel the experience has taught me a great deal of valuable lessons which will remain very important. Among these are the benefits and challenges of working within a team and the experience of administering, watching and coding the Child Attachment Interviews.

Working within a larger team as part of a wider project investigating numerous aspects of the children's current development and functioning was helpful in many ways. It allowed for the collection of a wide range of measures from parents, teachers and the children themselves, which as a lone researcher would have been incredibly difficult both in terms of funding and recruitment to obtain. This allowed for the examination of three separate outcome measures within the study which, I believe, was very useful for the results of the study. Furthermore, the experience of discussing ideas and processes with other research workers and being part of a team was very helpful and supportive throughout. These benefits were, however, also coupled with constraints. Since the design of data collection needed to be considered with several studies in mind, compromises were necessary, particularly in terms of measures used to ensure all information was collected within a reasonable period of time. Furthermore, the difficulty of working towards a different time scale to some of the other studies particularly the wider project was something which I had to manage. At these times, good team relations were essential to deal with conflicting priorities.

The experience of administering and coding the Child Attachment Interview was one I found fascinating. Gaining reliability in using the interview was a difficult undertaking which I felt very pleased to achieve. During the study itself, I was struck by

the difference in children's presentation during the interview as compared with during other measures and felt that the importance of the parent-child relationship was evident within all interviews which I coded. It was particularly striking that the majority of children interviewed reported really enjoying spending time with their parents even into adolescence. I found this continued importance of the relationship unexpected and wondered if their parents were aware of their continued enjoyment of time spent together. It was visible, in children of all attachment classifications, the very marked change in their demeanour when discussing relationship episodes with attachment figures and the particular attachment classifications described theoretically appeared to be displayed clearly in the majority of the children. I was particularly struck by the children with a dismissing classification who denied valuing their attachment relationships but appeared highly uncomfortable about being asked about them. This led me to hypothesise that they were actually feeling acute stress but trying to divert attention from this. This would fit with research carried out with infants measuring cortisol levels in the Strange Situation procedure whereby insecure avoidant infants who do not react to separation or reunion were found to have the higher levels of cortisol than secure children (e.g. Spangler & Grossman, 1993). It would also have similarities to the findings of Dozier and Kobak (1993) who measured skin conductance levels in adults during the Adult Attachment Interview. They found marked increases in these levels in participants using dismissing strategies such as inability to recall memories or reporting extremely positive relationships when they were asked about separation or rejection from parents. I found watching interviews with these children, and children with insecure preoccupied and disorganised classifications, overall to be quite emotive as it seemed difficult for them to answer the questions. In contrast, interviews with highly

secure children being taken through the same interview schedule, seemed to be causing no such difficulties. I felt that my clinical experience over the course of training was invaluable in both administering and watching interviews.

Overall, I have found the process of carrying out the project to be an interesting and enjoyable one and I have valued the chance to carry it out.

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APPENDICES

APPENDIX A

INFORMATION SHEETS AND CONSENT FORMS

Appendix A: Information sheet and consent form for parents of children within the clinical sample.

KING'S College LONDON
Founded 1829
University of London

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space
Study of Parents' And Children's Experiences

INFORMATION AND CONSENT FORM FOR PARENTS

FOLLOW-UP STUDY OF CHILDREN AND YOUNG PEOPLE SEEN BY CHILD AND FAMILY SERVICES BETWEEN 1995 AND 1999

(This study is funded by The Health Foundation)

INTRODUCTION: Between 1995 and 1999, your child was seen by the Child and Family Consultation Service, because at the time their behaviour was causing concern. You kindly helped us then by agreeing to be interviewed, and to being videotaped while you played with your child.

Now that your child is older, we would like to know how he/she is getting along. This will help us to find out whether the treatment offered at the time had lasting benefits, or whether anything further could have been done.

ASSESSMENT: If you agreed to be seen again, this would involve:

- An interview with you to get a detailed picture of your child's habits and behaviour
- Questionnaires for you and for your child's teacher to fill in
- A reading and ability test for your child (which could take place at school)
- A videotape of you and your child talking together at home.
- A videotape of your child being interviewed

The interview would take a couple of hours, and the video 30 minutes. The questionnaires would be left with you to be completed whenever was most convenient for you.

All information from these assessments will be kept securely, and treated in confidence, in keeping with the Children's Act (1989). Only the research team will have access to the information, which will be used for research purposes only. By taking part in the study, you will be helping other families in the future by enabling us to find out the most effective way to help children make a good start in school.

To compensate you for your time, we are able to pay you £20.00, with a further £10.00 for your child. You can withdraw from the project at any time without having to give a reason. If you decide not to take part in this study, your choice will be fully respected, and it will not affect the schooling your child usually receives.

If you have any queries about the study, please call Jackie Briskman, the Senior Researcher on

CONSENT

I, ... (Parent's name)

the parent/guardian of ..... (Child's name)

agree to take part in the SPACE project described on the attached information sheet, and explained to me by

..... (Researcher's name in capitals)

I have read the attached information sheet and understand it. I also understand that if I change my mind and decide not to take part, I may withdraw from the study at any stage without having to give a reason.

Signed ..... (Parent's Signature)

Date .....

Signed ..... (Researcher's Signature)

KING'S College LONDON
Founded 1829

Child & Adolescent Department (PO85)
Kings College London
16 De Crespigny Park
London SE5 8AF

Tel:

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CONSENT TO CONTACT MY CHILD'S TEACHER

I **do / do not** give permission for the SPACE project team to contact my child's teacher to request information on his/her progress at school.

I **do / do not** give permission for the SPACE project team to visit my child at school to conduct an assessment.

I **do / do not** give permission for the SPACE project team to conduct a video-taped interview as part of this assessment.

I **do / do not** give permission for the SPACE project team to inform my child's teacher of his/her scores on ability tests included in the assessment.

Signature .....

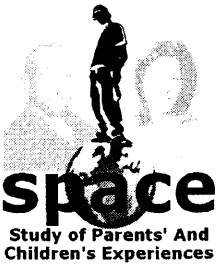
Name .....

Date .....

Appendix A: Information sheet and consent form for child within the clinical sample.

KING'S College LONDON
Child & Adolescent Department (PO85)
Kings College London
16 De Crespigny Park
London SE5 8AF

Founded 1829
University of London
Tel:
e-mail: j.briskman@iop.kcl.ac.uk



INFORMATION AND CONSENT FORM FOR YOUNG PERSON

FOLLOW-UP STUDY OF CHILDREN AND YOUNG PEOPLE SEEN BY CHILD AND FAMILY SERVICES BETWEEN 1995 AND 1998

(This study is funded by The Health Foundation)

INTRODUCTION: Between 1995 and 1998, when you were younger, your family and yourself were seen by the Child and Family Consultation Service, because at the time your parent(s) wanted advice on how you were getting on at home and at school. You kindly helped us then by letting us videotape you playing with your mother.

We would now be interested to know how you are getting along. This will help us to know what effect seeing the Family Services has on young's people's later experiences.

ASSESSMENT: If you agreed to be seen again, this would involve:

- An interview with you to get to know how you are getting on at school and with your family
- Questionnaires for you to fill in (on a computer)
- A reading and ability test (which could take place at school or at home, whichever you prefer)
- A videotape of you and your mother talking together at home.

The interview would take half an hour, and the tests 40 minutes. The computer questionnaires would take about half an hour.

All information from these assessments will be kept securely, and treated in confidence, in keeping with the Children's Act (1989). Only the research team will have access to the information, which will be used for research purposes only. By taking part in the study, you will be helping other families in the future by enabling us to find out the most effective way to help children make a good start in school.

To compensate you for your time, we are able to pay you £10.00. (We will also be making a payment to your parent for taking part). You can withdraw from the project at any time without having to give a reason. If you decide not to take part in this study, your choice will be fully respected, and it will not affect the schooling you usually receive.

PLEASE TURN OVER

If you have any queries about the study, please call Jackie Briskman, the Senior Researcher on 0207 848 0953.

CONSENT

I, ... (Young person's name)

agree to take part in the SPACE project described on the attached information sheet, and explained to me by

..... (Researcher's name in capitals)

I have read the attached information sheet and understand it. I also understand that if I change my mind and decide not to take part, I may withdraw from the study at any stage without having to give a reason.

Signed ..... (Young Person's Signature)

Date .....

Signed ..... (Researcher's Signature)

Appendix A: Information Sheet for teachers of children within the clinical sample.

KING'S College LONDON

Kings College London
16 De Crespigny Park, Child & Adolescent Psychiatry Department (PO85)
London SE5 8AF

Tel:

space
Study of Parents' And Children's Experiences

INFORMATION SHEET FOR TEACHERS

FOLLOW-UP STUDY OF CHILDREN AND YOUNG PEOPLE WHO TOOK PART IN A FAMILY STUDY BETWEEN 1995 – 1999

Introduction: Between 1995 and 1999, your pupil and his/her family were part of a research study. Of the families who took part, some were assigned to a group which examined styles of parenting, while others were part of a control group.

Overall, the results of the study showed a significant improvement in family functioning and relationships (when compared with families on a waiting list). The families were visited a year later, and it was found that these gains had been sustained. These results have been published in the BMJ (Vol 323, July 2001).

The aim of our current study is to assess whether these positive effects have lasted beyond the period of the original study. We will be interviewing all the children's parents to find out what has happened to them in the interim, and how the children function at home. We will also be taking into account a wide range of social, economic and environmental influences on the children's subsequent development and behaviour.

We would like to see the child while s/he is at school, to make an assessment of verbal and non-verbal skills, as well conduct a short videotaped interview. As part of the original study, the child's teacher filled in a questionnaire. It would be very helpful if you could also assist us by completing a version of the same questionnaire, which we can then use to make comparisons with their previous assessment. We would also like to ask you some questions about support that the child may receive through school in relation to their behaviour. The information gathered from this will be stored securely and treated in confidence, in keeping with the Children's Act (1989).
If you have any queries about the study, please call Jackie Briskman, the Senior Researcher on the project, on 0207 848 0953. The project director is Dr Stephen Scott, Consultant Child and Adolescent Psychiatrist.

Appendix A: Alternative introductions to information sheets used for the community sample (SPOKES)

INFORMATION AND CONSENT FORM FOR PARENTS

FOLLOW-UP STUDY OF THE SPOKES PROJECT
(This study is funded by The Health Foundation)

INTRODUCTION: Between 1998 and 2001, you kindly took part in the SPOKES Study. SPOKES (**S**upporting **P**arents on **K**ids **E**ducation in **S**chools), was looking at ways of giving children a good start by showing their parents methods that teachers use to improve children's reading and behaviour. At that time, you and their teacher filled in questionnaires, you were interviewed, and your child was videotaped playing with you.

We would now be very interested to see how your child has progressed since that time. The results of this study will help us to assess how effective the SPOKES methods were, and what other teaching programmes schools might use to ensure that all pupils are given the best ways of achieving their potential.

We would like to invite you to take part in this new follow-up study, which we have called SPACE (**S**tudy of **P**arents' **A**nd **C**hildren's **E**xperiences). It is just an assessment, and does not involve taking part in any training groups.

INFORMATION AND CONSENT FORM FOR YOUNG PERSON

FOLLOW-UP STUDY OF THE SPOKES PROJECT
(This study is funded by The Health Foundation)

INTRODUCTION: Between 1998 and 2001, you and your parents took part in the SPOKES Study. (SPOKES stands for **S**upporting **P**arents on **K**ids **E**ducation in **S**chools). This study was looking at ways of giving children a good start by showing their parents methods that teachers use to improve children's reading and behaviour.

We would now be interested to know how you are getting along. This will help us to find out what effect the SPOKES method has on young people later on. We have called this new follow-up study "The SPACE Project", and we would like to invite you to take part.

INFORMATION SHEET FOR TEACHERS

FOLLOW-UP STUDY OF THE SPOKES PROJECT
(This study is funded by The Health Foundation)

INTRODUCTION: Between 1995 and 1998, your pupil and his/her family were part of the SPOKES Study. SPOKES (**S**upporting **P**arents on **K**ids **E**ducation in **S**chools), was looking at ways of giving children a good start by showing their parents the methods that teachers use to improve children's reading and behaviour. This project was carried out in eight Lambeth schools with reception and year 1 pupils.

We are now contacting all the families who took part in the original study, to find out how their children have progressed since that time. The results of this research will help us to assess how effective the SPOKES methods were, and what other teaching programmes schools might use to ensure that all pupils are given the best ways of achieving their potential.

We will be interviewing all the children's parents at home to find out what has happened to them in the interim, and how the children behave at home. We will also be taking into account a wide range of social, economic and environmental influences on the children's subsequent development and behaviour.

As part of the original study, the child's teacher filled in a questionnaire. It would be very helpful if you could also assist us by completing a version of the same questionnaire, which we can then use to make comparisons with their previous assessment. We may also like to see the child while s/he is at school, to make an assessment of verbal and non-verbal skills. We would also like to ask you some questions about support that the child may receive through school in relation to their behaviour. The information gathered from this will be stored securely and treated in confidence, in keeping with the Children's Act (1989).

If you have any queries about the study, please call Jackie Briskman, the Senior Researcher on the project, on 0207 848 0953. The project director is Dr Stephen Scott, Consultant Child and Adolescent Psychiatrist.

APPENDIX B

PARENT AND TEACHER QUESTIONNAIRE BOOKLETS

Appendix B: Cover sheet for parent report questionnaires about the child

KING'S College LONDON

ID No: ☐☐☐☐

Date: ___/___/20___

SPACE
Child & Adolescent
Department (PO85)
Kings College London
16 De Crespigny Park
London SE5 8AF

Your relationship to child *(please tick)*:

☐ Mother
☐ Father
☐ Other: _____

Study of Parents' And Children's Experiences

Parent Questionnaire Booklet 1

You and Your Child

This booklet contains questions about your child and your relationship with him/her. Your name or your child's name will not be revealed to anybody outside our research team. All your answers will be kept **confidential and anonymous**.

If you have difficulty understanding any of the questions, or have difficulties completing the questionnaire, do not hesitate to telephone one of our researchers on 0207 848 0953.

Thank you for your time.

Appendix B: Cover sheet for teacher report questionnaires about child

KING'S College LONDON

ID No: ☐☐☐☐

Date: ___/___/20___

SPACE
Child & Adolescent Department
(PO85)
Kings College London
16 De Crespigny Park
London SE5 8AF

Relationship to child:
(e.g., form tutor) _____

Length of time you have known child:
(in months) _____

How well do you know this child?
(please tick)

- ☐ **Very well**
- ☐ **Quite well**
- ☐ **Not very well**
- ☐ **Hardly at all**

Study of Parents' And Children's Experiences

Teacher Questionnaire

This booklet contains questions about behaviour and performance. Neither your name nor the child's identity will be revealed to anybody outside our research team. All your answers will be kept **confidential and anonymous**.
If you have difficulty understanding any of the questions, or have difficulties completing the questionnaire, do not hesitate to telephone one of our researchers on

Thank you for your time.

Appendix B: Strengths and Difficulties Questionnaire (Goodman, 2001)

Below are some ways people may describe their child. For each item, please answer how true they are for your child. It would help us if you answered all the items as best you can even if you are not absolutely certain or the item seems strange to you. Please give your answers on the basis of the child's behaviour over the ***last six months.***

For each item on the left, put a ✓ in the boxes on the right under *Not True, Somewhat True or Certainly True*. ***Please only tick one box in each line.***

SDQ		Not True	Somewh at True	Certainl True
1	Considerate of other people's feelings	☐	☐	☐
2	Restless, overactive, cannot stay still for long	☐	☐	☐
3	Often complains of headaches, stomach-aches or sickness	☐	☐	☐
4	Readily shares things with other children (treats, toys, pens etc)	☐	☐	☐
5	Often has temper tantrums or hot tempers	☐	☐	☐
6	Rather solitary, tends to play alone	☐	☐	☐
7	Generally obedient, usually does what adults request	☐	☐	☐
8	Many worries, often seems worried	☐	☐	☐
9	Helpful if someone is hurt, upset or feeling ill	☐	☐	☐
10	Constantly fidgeting or squirming	☐	☐	☐
11	Has at least one good friend	☐	☐	☐
12	Often fights with other children or bullies them	☐	☐	☐
13	Often unhappy, down-hearted or tearful	☐	☐	☐
14	Generally liked by other children	☐	☐	☐
15	Easily distracted, concentration wanders	☐	☐	☐
16	Nervous or clingy in new situations, easily loses confidence	☐	☐	☐
17	Kind to younger children	☐	☐	☐
18	Often lies or cheats	☐	☐	☐
19	Picked on or bullied by other children	☐	☐	☐
20	Often volunteers to help others (parents, teachers, children)	☐	☐	☐
21	Thinks things out before acting	☐	☐	☐
22	Steals from home, school or elsewhere	☐	☐	☐
23	Gets on better with adults than with other children	☐	☐	☐
24	Many fears. Easily scared.	☐	☐	☐
25	Sees tasks through to the end, good attention span.	☐	☐	☐
	Office use only, code:	*[0]*	*[1]*	*[2]*

Appendix B: Cover sheet for parent report questionnaire about their situation

KING'S College LONDON

ID No: ☐☐☐☐

Date: ___/___/20___

SPACE
Child & Adolescent
Department (PO85)
Kings College London
16 De Crespigny Park
London SE5 8AF

Your relationship to child *(please tick)*:

☐ Mother
☐ Father
☐ Other: _____

Parent Questionnaire Booklet 2

Your Situation

This booklet contains some questions about your situation - your neighbourhood, your moods and feelings as well as your relationships. Your name or your child's name will not be revealed to anybody outside our research team.

All your answers will be kept **confidential and anonymous**. If you have difficulty understanding any of the questions, or have difficulties completing the questionnaire, do not hesitate to telephone one of our researchers on

APPENDIX C

LETTERS OF ETHICAL APPROVAL

NHS

ETHICAL COMMITTEE (RESEARCH)

26 February 2004

Dr S Scott
Child and Adolescent Psychiatry
PO85
Institute of Psychiatry

Dear Dr Scott

Re: Do parenting programmes prevent anti-social behaviour and social exclusion? Follow up of two trials

At its meeting on 20 February 2004, the Ethical Committee (Research) considered and confirmed Chair's action to approve Study No from an ethical point of view.

Yours sincerely

Margaret M Chambers
Research Ethics Co-ordinator