

Patterns of Risk and Protective Factors in the Intergenerational Cycle of Maltreatment

Dixon, Louise; Browne, Kevin; Hamilton-Giachritsis, Catherine

DOI:

[10.1007/s10896-008-9215-2](https://doi.org/10.1007/s10896-008-9215-2)

Document Version

Peer reviewed version

Citation for published version (Harvard):

Dixon, L, Browne, K & Hamilton-Giachritsis, C 2009, 'Patterns of Risk and Protective Factors in the Intergenerational Cycle of Maltreatment', *Journal of Family Violence*, vol. 24, no. 2, pp. 111-122.
<https://doi.org/10.1007/s10896-008-9215-2>

[Link to publication on Research at Birmingham portal](#)

General rights

Unless a licence is specified above, all rights (including copyright and moral rights) in this document are retained by the authors and/or the copyright holders. The express permission of the copyright holder must be obtained for any use of this material other than for purposes permitted by law.

- Users may freely distribute the URL that is used to identify this publication.
- Users may download and/or print one copy of the publication from the University of Birmingham research portal for the purpose of private study or non-commercial research.
- User may use extracts from the document in line with the concept of 'fair dealing' under the Copyright, Designs and Patents Act 1988 (?)
- Users may not further distribute the material nor use it for the purposes of commercial gain.

Where a licence is displayed above, please note the terms and conditions of the licence govern your use of this document.

When citing, please reference the published version.

Take down policy

While the University of Birmingham exercises care and attention in making items available there are rare occasions when an item has been uploaded in error or has been deemed to be commercially or otherwise sensitive.

If you believe that this is the case for this document, please contact UBIRA@lists.bham.ac.uk providing details and we will remove access to the work immediately and investigate.

Full reference of this post print article: Dixon, L., Browne, K.D. & Hamilton-Giachritsis (2009). Patterns of risk and protective factors in the intergenerational cycle of maltreatment. *Journal of Family Violence*, 24, 111-122.

Journal homepage: <http://www.springer.com/medicine/journal/10896>

Patterns of Risk and Protective Factors in the Intergenerational Cycle of Maltreatment

By

Louise Dixon¹, Kevin Browne² and Catherine Hamilton-Giachritsis¹

¹Centre for Forensic and Family Psychology, University of Birmingham, Birmingham, UK.

²Institute of Work, Health and Organisations, University of Nottingham, Nottingham, UK

Running Title: Risk Patterns in Intergenerational Maltreatment.

Requests for reprints should be sent to Louise Dixon, School of Psychology, University of Birmingham, Edgbaston, Birmingham, B15 2TT, United Kingdom.

Publishers correspondence to:

Louise Dixon
Centre for Forensic and Family Psychology
School of Psychology,
University of Birmingham,
Edgbaston,
Birmingham.
B15 2TT
Email: l.dixon.1@bham.ac.uk

Patterns of Risk and Protective Factors in the Intergenerational Cycle of Maltreatment

Abstract

This study investigates the continuation and discontinuation of the intergenerational transmission of child maltreatment within the first year of the child's life. Differences in risk factors and parenting styles between families who initiate (*Initiators*), maintain (*Maintainers*) or break (*Cycle Breakers*) the intergenerational cycle of child maltreatment are explored in comparison to control families (*Controls*). One hundred and three Health Visitors were trained to assess risk factors and parenting styles of 4,351 families, at both 4-6 weeks and 3-5 months after birth. Maintainers, Initiators and Cycle Breakers had a significantly higher prevalence for the majority of risk factors and poor parenting styles than Controls. Protective factors of financial solvency and social support distinguished Cycle Breakers from Maintainers and Initiators. Therefore, it is the presence of protective factors that distinguish Cycle Breakers from families who were referred to Child Protection professionals in the first year after birth. A conceptual, hierarchical model that considers history of abuse, risk and protective factors, in turn, is proposed to assess families for the potential of child maltreatment.

Keywords: parenting, risk factors, child maltreatment, intergenerational transmission.

It is commonly believed that a parent with a history of childhood maltreatment is at risk of abusing and or neglecting their own child(ren) (Kaufman & Zigler, 1989, 1993). Indeed, the concept of an intergenerational transmission of child maltreatment is frequently referred to in the literature (e.g., Browne & Herbert, 1997; Buchanan, 1996; Cooley & Braun, 1997; Egeland, 1988, 1993; Ertem et al., 2000; Friedrich, 2001; Spinetta & Rigler, 1972; Steele & Pollock, 1968; Widom, 1989b). However, this cycle of violence is by no means straightforward and may have a complex relationship with a number of intervening factors. For example, childhood victimisation has been associated with the development of mental health problems, such as post traumatic stress disorder, depression and anxiety, antisocial personality disorder and substance abuse (Banyard, 1999; Dixon et al., 2005; Dixon et al., 2005; Luntz & Widom, 2004; Widom, 1989a, b; 1999). Furthermore, child maltreatment is associated with a greater propensity for delinquent and antisocial behavior in general (Falshaw & Browne, 1997; Falshaw et al., 1996; Farrington et al., 2001; Hamilton et al., 2002; Luntz & Widom, 2004; Widom, 1989b; Widom & White, 1997).

In addition to the many factors associated with aggression and violence that may confound research examining the victim to offender concept (see Browne & Hamilton-Giachritsis, 2005), other methodological problems are inherent within such studies. An early review by Kaufman and Zigler (1987) illustrates three studies to demonstrate how research design can produce large discrepancies in transmission rates. The authors use these rates to estimate that 30% (+/- 5%) of parents victimized in their childhood will go on to maltreat their own child(ren). However, of the three studies reviewed, two were based on high risk samples from small populations (Egeland & Jacobvitz, 1984; Hunter & Kilstrom, 1979).

Furthermore, a recent review claims there is poor evidence for the intergenerational cycle of child physical abuse due to the methodological limitations of the research (Ertem et al., 2000). The authors systematically evaluated existing research published between 1965 and 2000 which investigated the intergenerational transmission of child physical abuse. They evaluated this research based on eight methodological standards derived from a hypothetical randomized control trial. Only one study met all eight standards, demonstrating its methodological validity (Egeland, 1979; Egeland et al., 1988). This study found first time mothers of low socioeconomic status, who had experienced severe physical childhood abuse, were 12.6 times more likely to abuse their children in comparison to mothers who had an emotionally supportive relationship with their parents. Ertem et al. (op. cit) also commend this research for viewing child abuse within an ecological model and moving beyond the study of generational continuity to investigate discontinuity of the cycle.

While adherence to sound methodological standards should improve the quality of intergenerational transmission research, the key message from studies to date is that the majority of victimized parents do not follow this pattern (Browne, 1995a, Kaufman & Zigler, 1987; Widom, 1989a). The chance of a parent who was maltreated as a child becoming an abuser is dependent on other risk factors being present (Starr et al., 1991). For instance, Dixon et al., (2005) demonstrated that parents *with* a history of childhood maltreatment are significantly more likely to have a child referred to or placed on the Child Protection Register if they possess a history of parental depression/mental illness, are of young parental age, reside with a violent adult and demonstrate poor parenting styles. Other research has confirmed the association of these factors within the intergenerational cycle of abuse (Egeland et al., 2002; Fantuzzo, Boruch, Beriama, Atkins, & Marcus, 1997; Ross, 1996). However, as

Ertem et al., (2000) highlight, it is also important to consider those studies that have investigated characteristics of parents who break the cycle of maltreatment. Research examining how continuity is broken can provide insight into the prevention of child maltreatment (Egeland, 1988, 1991, 1993; Egeland et al., 2002).

Cicchetti and Lynch's (2003) ecological model of the aetiology of child maltreatment highlighted the importance of considering both potentiating (increasing risk) and compensatory (protective) risk factors. In terms of protective factors, Egeland (1988, 1991) demonstrated that mothers who broke the cycle of maltreatment were more likely to be in an intimate long-term stable relationship and have a secure home environment with greater emotional stability. They were also more likely to have received emotional support, psychotherapy, and show fewer signs of stress, depression and anxiety. Other research has also highlighted the important role that social support, or perceived support, plays as a protective factor for parents at risk of maltreating their child (Cerezo et al., 1996; Crouch et al., 2001; Milner, 1993). Maltreating families have been found to isolate themselves from the community, which reduces their access to emotional and financial support (Cicchetti & Lynch, 1993). In addition, parents who are isolated from others are not exposed to alternative modes of parenting, which may challenge and alter their chosen methods (Trickett & Susman, 1989). Indeed, prevention programs have produced desirable effects through increasing current levels of social support and reducing feelings of isolation (Cowan & Cowan, 2001). Therefore, to provide a complete explanation of the intergenerational cycle of maltreatment, research needs to explore the complex pattern of risk and protective factors.

Finally, if the concept of an intergenerational cycle is to be applied in the early prediction and prevention of child abuse and neglect, then it is important that associated factors are identified around the time of birth. Indeed, the first year of life is when children are most at risk of harm (Department for Education and Skills, 2005). Identification of such factors will enable professionals to target and provide services to those children at risk (Hamilton & Browne, 2002). In terms of practice among health and social services professionals, a greater understanding of the relative contribution that the intergenerational cycle plays in assessing risk of abusive parenting is essential. Indeed, a number of scales are used by community nurses to identify children at risk of maltreatment contain questions that rely on the parents (usually mothers) self report of whether they were abused (e.g., Hamilton & Browne, 2002) or unloved and neglected (e.g., Grietens et al., 2004) in childhood. Few have evaluated if this pragmatic approach is useful.

This study aims to investigate factors associated with both the continuation and discontinuation of the intergenerational transmission of child maltreatment within the first year of the child's life. This is achieved by Health Visitor's collecting a series of data over the 12-month period as part of their routine practice. Importantly, key questions in data collection include whether or not at least one parent had been subjected to physical and/or sexual childhood abuse and whether the child was referred to Child Protection professional for suspected or actual maltreatment within the first year of life. From these questions families were categorized into one of four groups:

- A) ***Maintainers***: parents who were physically and/or sexually abused as a child who *do* maltreat their own child (i.e., who repeat the cycle of violence).

- B) ***Cycle Breakers***: parents who were physically and/or sexually abused as a child who *do not* maltreat their own child (i.e., who *do not* repeat the cycle of violence).
- C) ***Initiators***: parents who have no reported history of childhood maltreatment who *do* maltreat their own child.
- D) ***Controls***: parents who have no reported history of childhood maltreatment who *do not* maltreat their own child.

Differences in risk factor checklist scores, individual risk factors and parenting styles between these groups are explored in order to identify factors that are associated with the continuation and discontinuation of intergenerational transmission. Comparisons of families who initiate the cycle to those who break it allow us to identify factors associated with the continuation and discontinuation of the intergenerational cycle of child maltreatment.

Methods

Participants

Information was collected in the first 13 months of life on a population cohort of 4,351 families with newborn children born between 1st April 1995 and 30th June 1998 in Southend-on-Sea, Essex, England.

Procedure

All the information for this research was collected by 103 community nurses during home visits to 42 or 43 families with newborns. This was part of the Child Assessment Rating Evaluation (CARE) programme (Browne et al., 1995; 2000; Hamilton & Browne 2002) used by the “health visiting” service of the then Southend Community Care Services (National

Health Service) Trust. In the primary contact visit (new birth visit) with the Health Visitor, parents were asked to consent as a CARE programme participant and to allow their data from the Programme to be anonymously evaluated by independent researchers. All parents had the right to withdraw their participation from the CARE programme at any time. Of the parents approached to participate in this study 6.5% declined involvement with the CARE Programme during the primary contact visit and a further 2.4% opted out of its evaluation at a later stage. Each Health Visitor involved in the CARE programme received 10 days of training (see Hegarty, 2000a) which included three days with expert psychologists on the use of risk factors and behavioral indicators to identify priority families and children in need of referral to social services. Additionally, each Health Visitor received a CARE programme Assessment Procedure Manual for Health Visitors (Hegarty, 2000b). Within the training, case studies for the identification of risk factors were presented together with video material demonstrating positive and negative parenting styles and patterns of attachment formation. In the Assessment Procedure Manual for Health Visitors, details were given on agreed standards for interviewing the primary caregiver and responding to their comments in the context of the visit. These standardized procedures emphasized the role of the Health Visitor working in partnership with the mother to identify need and priority for services. To ensure these standardized procedures were used by the Health Visitors in a consistent and reliable way, statistical analysis was carried out on their work with families (see treatment of data). Further, details of the training received by the Health Visitors are provided in Dixon et al., (2005).

Visits and Data collection

a) Introductory visit

During the primary contact visit, parents who agreed to participate were introduced to the 'Index of Need'. The 'Index of Need' is a weighted checklist that measures the presence or absence of 14 risk factors of child maltreatment (Browne, 1989, 1995a; Browne & Saqi, 1988). In addition, a total score is derived from the presence of each factor. The checklist items, which are posed as questions by the Health Visitor to each parent, along with weightings, are listed in Table I. Parents, were asked to consider and identify which factors were relevant to their own family situation. Questions were phrased to access risk factors that may have been present *generally* within the family, allowing exploration of the family unit as a whole. Questions were not addressed specifically to each parent, in order to be less threatening and to ascertain general difficulties in the family without blaming one person. Thus, it was not possible to separate out gender specific responses. For the purpose of this study, the question 'you or your partner were physical and/or sexually abused as a child' was used to determine parent's group membership.

At the end of the primary contact visit the 'Index of Need' was left for the parent(s) to consider. Where two parents were present in the family, they considered the form together. The form was completed together with the health Visitor at the next visit at 4-6 weeks after birth, in cases where only one parent from a two parent family was present with the Health Visitor they still filled out the form considering their partners risk factors. Therefore, if one parent had a specific risk factor, it was recorded as present for the family as a whole. Preliminary feedback indicated that parents were generally responsive to this process, sometimes commenting that they had never previously disclosed difficulties, including a

history of childhood abuse, because they had never been asked (Browne et al., 2006). Reports of childhood abuse were based on parental perceptions of having previously experienced physical and/or sexual abuse in their own childhood (<16years). Therefore, no additional definitions were provided to parents and details of the extent and frequency of their victimization were not requested. In addition, with respect to the variable ‘there is an adult in the house with violent tendencies’, parents were not asked to provide details of the frequency and severity of any violence as the variable was intended to tap into perceptions of the *current* situation in a non-threatening way.

b) Visits in the first year

After the introductory visit, the same Health Visitor visited each family when the child was 4 – 6 weeks and 3 – 5 months of age. A total ‘Index of Need’ score was calculated for each family, dependent upon the number and combination of risk factors present. This total score is presented for each family group in Table I. As part of the CARE programme Health Visitors made a number of observations regarding the parents’ attributions, perceptions and interaction with their infant (referred to collectively as parenting styles throughout). The observation time was 30 minutes during a home visit lasting approximately 60 minutes. The predetermined behavioral indicators used have previously been demonstrated to differentiate maltreating from non-maltreating families (Browne, 1988, 1995b; Browne & Saqi, 1987).

Assessment of parenting styles

i) Parent attributions and perceptions of infant

At both the 4-6 week and 3-5 month visits, Health Visitors made professional judgements about parental (mother and father’s) attributions and perceptions of infant behavior, based on

discussions with the mother alone or both the mother and father. In the majority of cases, the father was not present and professional judgement was based on discussion with mother. Although not ideal, this reflects the situations in which Health Visitors would have to apply this tool and make assessments in order to priorities services. These observations were scored on a three-point scale; mostly positive and realistic, occasionally positive and realistic and rarely positive and realistic. The definitions of these three categories corresponded to the ‘balanced’, ‘disengaged’ and ‘distorted’ classifications of mothers perceptions of their infant in Zeanah et al’s (1994) working model of the child interview (WMCI).

ii) *interaction with infant – quality of caregiving behavior*

Additionally, at both visits the Health Visitor assessed the quality of care-giving via behavioral observation of the sensitivity, co-operation/supportiveness, accessibility and acceptance of the infant by the primary caregiver. Again, in the majority of cases the father was not present and professional judgement was based on interaction of the mother and child. These observations were also scored on a three-point scale from ‘frequently’, occasionally and ‘rarely’.

iii) *interaction with infant – positive infant behaviors toward caregiver*

Finally, the Health Visitor observed early attachment behavior of the infant toward the primary care giver. Again, professional judgement was based on interaction of the mother and child in the majority of cases. At 4 to 6 weeks these behaviors included; infant smiling at the caregiver, infant quiets when picked up by the caregiver, infant responding to caregiver’s voice, eye contact and scanning of caregiver’s face, and infant settling in the caregiver’s arms. At 3 to 5 months the infant behaviors observed were turning head to follow caregiver’s

movements, responding to caregiver's voice with pleasure, imitation of speaking, and preference for being held by the caregiver. All of these observations were again scored on a three-point scale from 'frequently' to 'rarely'.

Outcome measure

Throughout the first year of the child's life, information was collated as to whether the child was referred to the Child Protection professionals for suspected or actual physical, sexual, or emotional child abuse and neglect. This is referenced as 'Current Child Abuse and Neglect (CCAN)' for the purpose of this study.

Data Analysis

Internal Consistency

Kuder Richardson-20 reliability coefficients were computed for each subscale of 'parent attributions and perceptions', 'quality of caregiving behavior' and 'positive infant behaviors toward caregiver'. Internal consistency was high with alpha values ranging from 0.59 - 0.89 (Nunally, 1978).

Dichotomizing behavioral variables

For the purpose of data analysis each behavioral measure was dichotomized. Observations of 'occasionally' and 'rarely' were grouped together as these categories reflected more emotional distance and/or indifference with negative perceptions, unrealistic attributions and poor quality of parenting (e.g., insensitivity). This amalgamation was then compared to the observation 'frequently' which reflected more positive parenting styles.

Results

Grouping families

Of the 4,351 families investigated 135 (3.1%) reported a history of parental physical and/or sexual abuse during their own childhood. Furthermore, 27 children were referred to Child Protection professionals within their first year of life.

From these figures it was possible to assign families to one of four categories. Of the 135 families with a parental history of physical and/or sexual maltreatment during their own childhood, nine (6.7%) maltreated their own child during the first year of parenting (Maintainers) and 126 (93.3%) did not (Cycle Breakers). Of the remaining 4,216 (96.9%) parents who did not report such an abuse history, 18 (0.4%) maltreated their child in the first year of parenting (Initiators) and 4,198 (99.6%) did not (Controls).

Within the Maintainer category, four children were referred for physical abuse, three for neglect and two for emotional abuse only. Within the Initiator category, five children were referred for physical abuse, nine for neglect, three for emotional abuse only and one child for sexual abuse. Therefore, Maintainers showed no significant differences to Initiators in the number of abused and neglected children under 13 months (Fishers Exact = 0.68, $p > 0.05$).

No significant differences emerged among groups in terms of ethnicity or gender of the children. With respect to ethnicity, the majority (94-100%) of all groups contained White UK children. With respect to gender, approximately half (50-52%) of the children within each group were male except Maintainers where one third were male ($n=3$).

a) Risk factors

Table I displays the prevalence of risk factors among the groups of Maintainers, Cycle Breakers, Initiators and Controls and the mean total Index of Need score for each group.

Table I here

Total Index of Need scores

One-way Anova determined that total Index of need scores (see Table I) significantly differentiated between the four groups ($F_{3, 4347} = 361.3, p = 0.000$). Tukey post hoc tests found all groups to significantly differ from each other at the $p = 0.000$ level, with the exception of Cycle Breakers and Initiators who did not significantly differ in their total scores.

Comparisons with Control group

Bivariate statistical analysis explored differences in the prevalence of risk factors among groups. A criterion $\alpha = 0.008$ was used to correct for inflated Type one errors across six tests. Analysis demonstrated that Maintainers, Cycle Breakers and Initiators had a number of common risk factors that differentiated them from the Control group. All three groups had a significantly higher prevalence of mental illness (Fishers Exact = 0.000, $p < 0.008$ for Maintainers, Cycle Breakers and Initiators), substance dependency (Fishers Exact = 0.000, $p < 0.008$ for Maintainers and Cycle Breakers and Fishers Exact = 0.003, $p < 0.008$ for Initiators), living with a violent partner (Fishers Exact = 0.001, $p < 0.008$ for Maintainers and Fishers Exact = 0.000, $p < 0.008$ for Cycle Breakers and Initiators) and serious financial difficulties (Fishers Exact = 0.000, $p < 0.008$ for Maintainers, Cycle Breakers and Initiators) . In addition, Maintainers and Cycle Breakers had significantly higher prevalence rates of

parent under 21 (Fishers Exact = 0.001, $p < 0.008$ for Maintainers and $\chi^2_1 = 16.997$, $p < 0.008$ for Cycle Breakers) and feelings of isolation (Fishers Exact = 0.001, $p < 0.008$ for Maintainers and Cycle Breakers). Finally, each group had one further risk factor discriminating them from the Control group (Initiators: single parent [Fishers Exact = 0.001, $p < 0.008$]; Maintainers: feelings of indifference to baby [Fishers Exact = 0.004, $p < 0.008$]; Cycle Breakers: premature or ill at birth [Fishers Exact = 0.004, $p < 0.008$]).

Comparison of Maintainers and Cycle Breakers

Comparison of these groups revealed differences in only two factors. Compared to Cycle Breakers, Maintainers had a significantly higher prevalence of feelings of isolation (Fishers Exact = 0.002, $p < 0.008$) and serious financial problems (Fishers Exact = 0.004, $p < 0.008$).

Comparison of Initiators and Cycle Breakers

Comparison of these groups revealed differences in only two factors. Initiators had a significantly higher prevalence of serious financial problems (Fishers Exact = 0.002, $p < 0.008$) and single parenthood (Fishers Exact = 0.006, $p < 0.008$).

Comparison of Maintainers and Initiators

Parents from both ‘Maintainer’ and ‘Initiator’ groups maltreated their child regardless of their victimisation history, hence no significant differences emerged.

b) Parenting Styles

Tables II and III display the prevalence of positive parenting styles within each group at 4-6 weeks and 3-5 months respectively. Bivariate statistical analysis explored differences in the

prevalence of positive parenting styles among groups at 4-6 weeks and 3-5 months respectively. A criterion $\alpha = 0.008$ was used for analysis at each time period to correct for inflated Type one errors across six tests. All parenting styles significantly differentiated between at least two group comparisons, with the exception of ‘sensitivity’ and ‘infant smiling at the caregiver’ at 4-6 weeks, which did not significantly differentiate between groups. However, unlike risk factors, there were few parenting styles that consistently differentiated the groups from the Controls. Details of group comparisons are outlined below.

Tables II & III here

Comparisons with Control group

Comparison of Maintainers and Controls

Controls practised a majority of positive parenting styles more frequently than Maintainers at both 4-6 weeks and 3-5 months. At 4-6 weeks significant differences emerged in terms of ‘mothers perception of the infant’ (Fishers Exact = 0.002, $p < 0.008$), fathers perception of the infant’ (Fishers Exact = 0.002, $p < 0.008$) and ‘supportive’ care-giving behavior (Fishers Exact = 0.000, $p < 0.008$).

At 3-5 months significant differences emerged in term of ‘mothers perception of the infant’ (Fishers Exact = 0.005, $p < 0.008$), ‘sensitive’ (Fishers Exact = 0.002, $p < 0.008$), ‘supportive’ (Fishers Exact = 0.002, $p < 0.008$), ‘accessible’ (Fishers Exact = 0.004, $p < 0.008$) and ‘accepting’ (Fishers Exact = 0.006, $p < 0.008$) care giving behavior.

Comparison of Cycle Breakers and Controls

For the majority of parenting styles Cycle Breakers were found to be less positive in their approach at both 4-6 weeks and 3-5 months. At 4-6 weeks differences were found between groups in terms of ‘mothers attribution regarding infant’ (Fishers Exact = 0.001, $p < 0.008$), ‘fathers attribution regarding infant’ ($\chi^2_1 = 37.802$, $p < 0.008$), ‘mothers perception of infants behavior’ (Fishers Exact = 0.000, $p < 0.008$), ‘fathers perception of infants behavior’ ($\chi^2_1 = 25.431$, $p < 0.008$), ‘accepting care giving behavior’(Fishers Exact = 0.000, $p < 0.008$), ‘infant responds to caregivers voice’(Fishers Exact = 0.001, $p < 0.008$), ‘infant quiets when picked up by caregiver’(Fishers Exact = 0.003, $p < 0.008$), ‘infant making eye contact with caregivers face’ (Fishers Exact = 0.002, $p < 0.008$) and ‘infant settles in caregivers arms’(Fishers Exact = 0.000, $p < 0.008$).

At 3-5 months significant differences emerged in terms of ‘mothers attribution regarding infant’ (Fishers Exact = 0.000, $p < 0.008$), ‘fathers attribution regarding infant’ (Fishers Exact = 0.000, $p < 0.008$), ‘mothers perception of infants behavior’ (Fishers Exact = 0.000, $p < 0.008$), ‘fathers perception of infants behavior’ ($\chi^2_1 = 28.836$, $p < 0.008$), ‘sensitive’ (Fishers Exact = 0.005, $p < 0.008$) and ‘supportive’ (Fishers Exact = 0.000, $p < 0.008$) care, ‘infant turning head to follow caregiver’ (Fishers Exact = 0.001, $p < 0.008$) and ‘infant responding to caregivers voice with pleasure’ (Fishers Exact = 0.003, $p < 0.008$).

Comparison of Initiators and Controls.

Controls were more likely to display a majority of positive parenting styles more frequently at both 4-6 weeks and 3-5 months. At 4-6 weeks significant differences emerged in terms of ‘mothers attribution regarding infant’ (Fishers Exact = 0.000, $p < 0.008$), ‘supportive’ (Fishers

Exact = 0.002, $p < 0.008$), ‘accessible’ (Fishers Exact = 0.004, $p < 0.008$), ‘accepting’ (Fishers Exact = 0.008, $p < 0.008$) and ‘infant responds to caregivers face’ (Fishers Exact = 0.003, $p < 0.008$).

At 3-5 months significant differences emerged in term of ‘fathers attributions regarding infant’ (Fishers Exact = 0.007, $p < 0.008$), ‘supportive’ (Fishers Exact = 0.000, $p < 0.008$), ‘accessible’ (Fishers Exact = 0.001, $p < 0.008$), ‘infant turning head to follow caregiver’ (Fishers Exact = 0.000, $p < 0.003$), ‘infant responding to caregivers voice with pleasure’ (Fishers Exact = 0.001, $p < 0.008$), ‘infant imitates speaking to caregiver’ (Fishers Exact = 0.002, $p < 0.008$) and ‘infant shows preference for being held by caregiver’ (Fishers Exact = 0.008, $p < 0.008$).

Comparisons between Maintainers, Cycle Breakers and Initiators

Cross-comparisons between each combination of the above three groups found no significant differences among parenting styles at 4-6 weeks or at 3-5 months.

Discussion

Transmission rates

This English study, with an overall incidence of 62 maltreated children per 10,000 in the Essex population under one year, found that only a small minority (6.7%) of parents with a history of childhood abuse were referred to Child Protection agencies for maltreatment of their infant. This confirms a previous estimate of 7.6% for Maintainers from a similar English study with an incidence rate of 74 maltreated children per 10,000 in the first five years of life (Browne, 1995a). Conveniently, Browne (personal comm.) has provided a re-analysis of his

five year Surrey data set looking only at the first 13 months of follow up. This new analysis shows that five percent of parents abused in childhood maltreated their own children during the first year of life (overall incidence rate 71 per 10,000). Such comparisons demonstrate a consistency for the incidence of abuse and neglect over early childhood and also show that the majority of Maintainers are identified within one year of birth.

The presence of Initiators in this research is also consistent with previous English investigations. Of those Essex parents with no history of childhood abuse, 0.4% maltreated their own child within 13 months. Similarly, of those Surrey parents without an abuse history, 0.6% maltreated their own child within 13 months (Browne, personal comm.) and the same rate was also evident at five years (Browne, 1995a). This demonstrates that a parental history of childhood maltreatment is not a necessary prerequisite to, or the only cause of child maltreatment.

Differentiating between groups

Notably, Maintainers, Cycle Breakers and Initiators were all differentiated from the Control group by an increased prevalence of mental illness, substance dependency and living with a violent partner. In addition, Maintainers and Cycle Breakers were also more likely to be a young parent. Furthermore, a general pattern emerged with the Control group significantly more likely to demonstrate a majority of positive parenting styles than the other three groups.

The importance of Cycle Breakers

Comparison of Cycle Breakers and Maintainers allowed an examination of the continuity and discontinuity of intergenerational transmission, identifying factors that enabled families to

break the cycle of child maltreatment. Childhood maltreatment is likely to predispose an individual to a number of risk factors and poor parenting skills, as these parents will not have developed the skills for maintaining healthy relationships in infancy and childhood (Dixon et al., 2005). Research has shown that early signs of poor parenting and problematic parent-child relationships are precursors to child maltreatment (Ammerman, 1990; Becker-Lausen & Mallon-Kraft, 1997; Browne, 1988). However, despite Cycle Breakers displaying poorer parenting and greater numbers of risk factors than Controls, they do not abuse their child in the first 12 months after birth. Therefore, protective mechanisms other than positive parenting must exist that enable Cycle Breakers to stop the intergenerational transmission of child maltreatment.

Maintainers were significantly more likely to have feelings of isolation and have serious financial difficulties. Therefore, financial stability and social support could be seen as protective factors for intergenerational transmission. This corroborates previous literature suggesting that perceived lack of social support is a key factor both in the initiation of child maltreatment and in the intergenerational continuity of child abuse and neglect (Crouch et al., 2001).

The role of Initiators in understanding child maltreatment.

The comparison of Initiator and Control groups enabled an exploration of factors associated with referral for child maltreatment independent to the intergenerational cycle. It is important to recognise that in this study Initiators developed a similar risk profile to both Maintainers and Cycle Breakers in the absence of a parental history of childhood abuse. This highlights

that a history of childhood abuse is not the only means by which a high risk profile can be developed.

As Cycle Breakers and Initiators have similar risk profiles, a comparison of the two groups can highlight factors that can prevent child maltreatment in families with high risk profiles. Two factors on the Index of Need, 'single parent' and 'serious financial problems' were significantly more prevalent in Initiators compared to Cycle Breakers. These differences in social support and financial solvency can be interpreted as protective factors against parents perpetrating child maltreatment.

Implications for risk assessment (see figure 1)

Whilst previous research demonstrates that a history of childhood abuse does predispose individuals to a greater number of risk factors in adult life associated with child maltreatment (Dixon et al., 2005), the results of this study and other research (e.g., Browne, 1995a, Kaufman & Zigler, 1987; Widom, 1989a), demonstrate the majority of victimized parents *are not* abusive to their child(ren). It is important to consider protective factors present in families in addition to risk factors. Furthermore, a number of parents who have *not* experienced maltreatment in childhood *do* go on to develop high risk profiles and abuse and/or neglect their infant.

Results show that applying a Risk Factor Checklist in a general manner, where the numbers of risk factors present in any one family provide a measure of risk posed to the child(ren), shows poor discrimination of Initiators and Cycle Breakers. As an alternative, Figure 2 presents a conceptual model for discriminating child-maltreating and non-maltreating families using a

decision hierarchy, which considers ‘parent with a history of childhood abuse’ first (where this is unknown, the usual non-hierarchical Index of Need would be applied) and then risk factors, followed by protective factors. The most important risk factors which distinguish Maintainers, Cycle Breakers (the abused parent groups) and Initiators from Controls (non-abused parent groups) are the same with the exception of ‘parent under 21’, which is only useful for the abused parent group. In addition, poor parenting is more prevalent in each of these groups in comparison to controls. In order to predict referral for child maltreatment accurately, it would also be advisable to assess families according to their protective factors. For the abused parent group, financial solvency and presence of social support are strong buffers against the possibility of referral for child maltreatment in the first year after birth and distinguish Maintainers from Cycle Breakers. Similarly, financial solvency and two parent families are possibly more effective protective factors for non-abused parent groups and distinguish between Initiators and Cycle Breakers and Controls.

Figure 1 here

Methodological considerations

From the perspective of validity, it is important to note that this study assessed the intergenerational cycle of maltreatment only within the first year of an infant’s life, with a nationally representative incidence of current child abuse and neglect (62 per 10,000). It is acknowledged that a number of parents classified as Controls and Cycle Breakers could start maltreating their child in later years. However, at the time of the study, National figures show that children under one year had the highest rates of registration on Child Protection Registers in England (64 per 10,000) and this continues to be the case, highlighting the importance of

early prediction and prevention (Department of Health, 1998; Department of Education and Skills, 2005).

Previous research on risk factors has questioned the validity of self-report compared to documented reports (Widom & Shepard, 1996). An under-reporting bias may be due to the effects of social desirability, cognitive distortions and denial (Main & Goldwyn, 1984; Zeanah & Zeanah, 1989). Indeed, Ertem et al., (2000) note the importance of avoiding recall and detection bias in research examining the intergenerational cycle of child physical abuse. However, self-report has been shown to be an appropriate and ethical approach to health practice research on sensitive topics (Dixon et al., 2005). Disclosures are common where partnership with parents is the main focus of universal child care services to families (Browne et al., 2006; Department of Health, 1995), unlike targeted services where possible stigma may inhibit disclosure. Consequently, estimates for the intergenerational transmission of maltreatment from studies using self-report methods vary greatly from 18–70%, with an average of 30% (Kaufman & Zigler, 1987). However, English studies using the universal community nurse service demonstrate smaller variations (5%-6.7% within 13 months after birth) that are relatively consistent over time (i.e. 7.6% within five years of birth, Browne, 1995a).

It may be suggested that some parents are less willing to admit histories of abuse or neglect in their own childhood to health professionals. The impact on this research project is that some Maintainers and Cycle Breakers may be misclassified as Initiators and Controls respectively. Therefore, a higher Initiator rate would be expected to allow for ‘missed’ cases (and lower rate) of Maintainers. However, the Initiator rate in this study (0.4%) was lower than the

transmission rate provided by Maintainers (6.7%). In addition, 8.9% of parents refused to participate in this study and therefore, bias in sample self-selection may potentially exist. Indeed, if these families had taken part in the study the rate of Maintainers or Initiators may have been higher and thus the low incidence should be interpreted with caution and these limitations in mind.

This study adopted a pragmatic approach to the assessment of intergenerational continuity of child maltreatment by administering tools that Health Visitors can feasibly use during a home visit setting. Thus, in the majority of cases, fathers were not present and decisions on parent's attributions and perceptions of infants were made based on discussions with the mother alone. Whilst this reflects the reality of home visits and high ecological validity of the study, information from the fathers needs to be evaluated to improve predictive accuracy. In addition, data was collected in a general format, whereby parents were asked to respond to questions about risk factors occurring generally within the family. Thus, it was not possible to report findings for the mothers and fathers separately. Future research could address this issue (see Newcombe & Locke, 2001).

Finally, this research only addressed the intergenerational cycle of abuse with reference to a parent's childhood physical and/or sexual maltreatment; it did not measure the effects of neglect or psychological abuse. While, future research could address the differential consequences of various forms of childhood maltreatment, previous work has demonstrated that it may not be appropriate to measure effects of single forms of maltreatment as one form rarely occurs in isolation (Briere & Runtz, 1988; Browne & Herbert, 1997; Ney et al., 1994). Thus, exploring the effects of child maltreatment in general is warranted.

Conclusion

The findings of this study demonstrate a 6.7% rate of intergenerational transmission within the first year of the child's life. While the present study adopts a prospective design with a representative community sample, the methodological limitations should be noted and results interpreted with these shortcomings in mind. Retrospective studies are notorious for overestimating the association due to the bias of sampling parents who have already maltreated their child. In contrast, prospective studies may underestimate the association due to the difficulties of sampling and follow-up in the long-term. While previous US estimates have taken into account the methodological problems of research examining intergenerational transmission, future research may consider large scale prospective studies using representative community samples as more appropriate. For the moment, this approach supports the claim by Kaufman and Zigler (1993) that "the intergenerational transmission of abuse is overstated" p209.

In conclusion, this research highlights the importance for professionals working with families early in the child's life to assess protective factors in addition to risk factors and poor parenting styles. The importance of helping at risk families to reduce financial difficulties and increase social support is also highlighted as paramount in the prevention of child abuse and neglect. Finally, it is important to realise that whilst Cycle Breakers do not abuse or neglect their child within the first year of life, they do present with a high risk profile and poor parenting styles in comparison to control families. Thus, positive parenting programmes may

be useful for all families presenting with a high risk profile regardless of parental childhood experiences, in order to enhance the quality of family life for both child(ren) and parents and reduce chances of maltreatment at a later stage in the child's life.

References

Ammerman, R. T. (1990). Etiological models of child maltreatment: A behavioral perspective. *Behavior Modification* 14, 230-254.

Banyard, V. L. (1999). Child maltreatment and the mental health of low-income women. *American Journal of Orthopsychiatry* 69, 161-171.

Becker-Laussen, E. & Mallon-Kraft, S. (1997). Pandemic outcomes: The intimacy variable. In G. K. Kantor & J. S. Jasinski (Eds.), *Out of the darkness: Current perspectives on family violence*. Sage, Newbury Park, CA, pp. 49-57.

Briere, J. & Runtz, M. (1988). Multivariate correlates of childhood psychological and physical maltreatment among university women. *Child Abuse & Neglect* 12, 331-341.

Browne K.D. (1988). The nature of child abuse and neglect. In K. D. Browne, C. Davies, & P. Stratton (Eds.), *Early prediction and prevention of child abuse*. Wiley, Chichester, pp. 15-30.

Browne, K. D. (1989). The health visitor's role in screening for child abuse. *Health Visitor* 62, 275-277.

Browne K. D. (1995a). Preventing child maltreatment through community nursing. *Journal of Advanced Nursing* 21, 57-63.

Browne, K. D. (1995b). The prediction of child maltreatment. In P. Redder and C. Lucey (Eds.), *The assessment of parenting*. Routledge, London, pp. 118-135.

Browne, K. D, Douglas, J., Hamilton-Giacritsis, C. & Hegarty, J. (2006). *A community health approach to the assessment of infants and their parents; the care programme*. Wiley, Chichester.

Browne, K. D. & Hamilton-Giachritsis C. (2005). The influence of violent media on children and adolescence: A public health approach. *The Lancet* 365, 702-710.

Browne K.D., Hamilton, C. & Hegarty, J. (1995). *CARE Programme (Child Assessment Rating and Evaluation)*. Published for use by Southend Community Care Services NHS Trust.

Browne, K. D., Hamilton, C., Hegarty, J. & Blissett, J. (2000). Identifying need and protecting children through community nurse home visits. *Representing Children* 13, 111-123.

Browne, K. D. & Herbert, M. (1997). *Preventing family violence*. Wiley, Chichester.

Browne, K. D. & Saqi, S. (1987). Parent-child interaction in abusing families: Its possible causes and consequences. In P. Maher (Ed.), *Child abuse: The educational perspective*. Blackwell, Oxford.

Browne, K. D. & Saqi, S. (1988). Approaches to screening for child abuse and neglect. In K. Browne, C. Davies & P. Stratton (Eds.), *Early prediction and prevention of child abuse*. Wiley, Chichester, pp. 57-85.

Buchanan, A. (1996). *Cycles of child maltreatment*. Wiley, Chichester.

Cerezo, M. A., D'Ocon, A. & Dolz, L. (1996). Mother-child interactive patterns in abusive families versus nonabusive families: An observational study. *Child Abuse and Neglect* 20, 573-587.

Cicchetti, D. & Lynch, M. (1993). Toward an ecological/transactional model of community violence and child maltreatment: Consequences for children's development. *Psychiatry* 56, 96-118.

Coohey, C. & Braun, N. (1997). Toward an integrated framework for understanding child physical abuse. *Child Abuse and Neglect* 21, 1081-1094.

Cowan, P. & Cowan, C. P. (2001). A couple perspective on the transmission of attachment patterns. In C.Clulow (Ed.), *Adult attachment and couple psychotherapy: The secure base in practice and research*. Brunner-Routledge, East Sussex, pp. 62-82.

Crouch, J. L., Milner, J. S., & Thomsen, C. (2001). Childhood physical abuse, early social support and risk for maltreatment: current social support as a mediator of risk for child physical abuse. *Child Abuse and Neglect* 25, 93-107.

Department of Health. (1995). *The challenge of partnership in child protection: A practice guide*. HMSO, London.

Department of Health. (1998). *Children and Young People on Child Protection Registers Year ending 31 March 1998, England (Personal Social Services and Local Authority Statistics)*. Government Statistical Service, London.

Department for Education and Skills (2005). *Statistics of Education: Referrals, assessments and children and young people on child protection registers; year ending 31 March 2004*. National statistics for England .Her Majesty's Stationary Office TSO, London.

Dixon, L., Browne, K. D., & Hamilton-Giachritsis, C. (2005). Risk factors of parents abused as children: A mediational analysis of the intergenerational continuity of child maltreatment (Part I). *Journal of Child Psychology and Psychiatry* 46, 47-57.

Dixon, L., Hamilton-Giachritsis, C., & Browne, K. D. (2005). Attributions and behaviours of parents abused as children: A mediational analysis of the intergenerational continuity of child maltreatment (Part II). *Journal of Child Psychology and Psychiatry* 46, 58-68.

Egeland, B. (1988). Breaking the cycle of abuse: Implications for prediction and intervention. In K. D. Browne, C. Davies, & P. Stratton (Eds.), *Early prediction and prevention of child abuse*. Wiley, Chichester, pp. 87-99.

Egeland, B. (1991). A longitudinal study of high risk families: Issues and findings. In R.H.Starr & D.A.Wolfe (Eds.), *The effects of child abuse and neglect: Issues and research*. Guilford Press, London.

Egeland, B. (1993). A history of abuse is a major risk factor for abusing the next generation. In R. J. Gelles and D. R. Loseke (Eds.), *Current controversies on family violence*. Sage, California, pp 197-208.

Egeland, B., Bosquet, M. & Chung, A. L. (2002). Continuities and discontinuities in the intergenerational transmission of child maltreatment: Implications for breaking the cycle of abuse. In K. D. Browne, H. Hanks, P. Stratton, & C. E. Hamilton (Eds.), *Early prediction and prevention of child abuse: A handbook* . Wiley , Chichester, pp. 217-232.

Egeland, B. & Jacobvitz, D. (1984). *Intergenerational continuity of parental abuse: Causes and consequences* York, Me: Presented at Conference on Biosocial Perspectives in Abuse and Neglect (Published later as Egeland , Jacobvitz & Papatola , 1987).

Ertem, I. O., Leventhal, J. M. & Dobbs. (2000). Intergenerational continuity of child physical abuse: how good is the evidence? *The Lancet* 356, 814-819.

Falshaw, L. & Browne K.D. (1997). Adverse childhood experiences and violent acts of young people in secure accommodation. *Journal of Mental Health* 6, 443-455.

Falshaw, L., Browne, K. D. & Hollin, C. R. (1996). Victim to offender: A review. *Aggression and Violent Behavior* 1, 389-404.

Fantuzzo, J., Boruch, R., Beriama, A., Atkins, M. & Marcus, S. (1997). Domestic violence and children: prevalence and risk in five major US cities. *Journal of the American Academy of Child and Adolescent Psychiatry* 36, 116-122.

Farrington, D. P., Jolliffe, D., Loeber, R., Stouthamer-Loeber, M. & Kalb, L. M. (2001). The concentration of offenders in families and family criminality in the prediction of boys delinquency. *Journal of Adolescence* 24, 579-596.

Friedrich, W. N. (2001). The abusing parent revisited: A decade of psychological research. *Journal of Nervous Mental Disorder* 170, 577-587.

Grietens, H, Geeraert, L & Hellinckx, W. (2004). A scale for home visiting nurses to identify risks of physical abuse and neglect among mothers with newborn infants. *Child Abuse and Neglect* 28, 321-338.

Hamilton, C. & Browne, K. D. (2002). Predicting physical maltreatment. In K. D. Browne, H. Hanks, P. Stratton, & C. E. Hamilton (Eds.), *Early prediction and prevention of child abuse: A handbook*. Wiley, Chichester, pp. 41-56.

Hamilton, C. E., Falshaw, L. & Browne, K. D. (2002). The link between recurrent maltreatment and offending behaviour. *Legal and Criminological Psychology* 46, 75-94.

Hegarty, J. (2000a). *The CARE Programme (Child Assessment Rating and Evaluation) Training Pack*. Southend Community Care Services (NHS) Trust. Southend on Sea, Essex.

Hegarty, J. (2000b). *The CARE Programme (Child Assessment Rating and Evaluation). Assessment Procedures Manual for Health Visitors*. Southend Community Care Services (NHS) Trust. Southend on Sea, Essex.

Hunter, R. & Kilstrom, N. (1979). Breaking the cycle in abusive families. *American Journal of Psychiatry* 136, 1320-1322.

Kaufman, J. & Zigler, E. (1987). Do abused children become abusive parents? *American Journal of Orthopsychiatry* 57, 186-192.

Kaufman, J. & Zigler, E. (1989). The intergenerational transmission of child abuse. In D. Chicchetti & V. Carlson (Eds.), *Child maltreatment: Theory and research on the causes and consequences of child abuse and neglect*. Cambridge University Press, Cambridge, pp. 129-150.

Kaufman, J. & Zigler, E. (1993). The intergenerational transmission of abuse is overstated. In R. J. Gelles and D. R. Loseke (Eds.), *Current controversies on family violence*. Sage, California, pp 209-221.

Luntz, B. K. & Widom, C. S. (2004). Antisocial personality disorder in abused and neglected children grown up. *American Journal of Psychiatry* 151, 670-674.

Main, M. & Goldwyn, R. (1984). Predicting rejection of her infant from mother's representation of her own experience: implications for the abused-abusing intergenerational cycle. *Child Abuse and Neglect* 8, 203-207.

Milner, J. S. (1993). Social information processing and physical child abuse. *Psychological Review* 1, 275-294.

Newcomb, M. D. & Locke, T. F. (2001). Intergenerational cycle of maltreatment: a popular concept obscured by methodological limitations. *Child Abuse & Neglect* 25, 1219-1240.

Ney, P. G., Fung, T. & Wickett, A. R. (1994). The worst combinations of child abuse and neglect. *Child Abuse and Neglect* 18, 705-714.

Nunnally, J. C. (1978). *Psychometric Theory*. McGrawHill, London.

Ross, S. (1996). Risk of physical abuse to children of spouse abusing parents. *Child Abuse and Neglect* 20, 589-598.

Spinetta, J. & Rigler, D. (1972). The abusing parent: A psychological review. *Psychological Bulletin* 72, 296-304.

Starr, R. H., MacLean, D. J., & Keating, D. P. (1991). Life-span development outcomes of child maltreatment. In R.H.Starr & D.A.Wolfe (eds.), *The effects of child abuse and neglect: Issues and research*. Guilford Press, London, pp. 1-32.

Steele, B. & Pollock, C. (1968). A psychiatric study of parents who abuse infants and small children. In R. Helfer & C. H. Kempe (Eds.). *The battered child syndrome*. University of Chicago press Illinois, Chicago, pp. 103-148.

Trickett, P. K. & Susman, E. J. (1989). Perceived similarities and disagreements about childrearing practices in abusive and non-abusive families: Intergenerational and concurrent family processes. In D. Chicchetti & V. Carlson (Eds.), *Child maltreatment: Theory and research on the causes and consequences of child abuse and neglect*. Cambridge University Press, Cambridge, pp. 280-301.

Widom, C. S. (1989a). The cycle of violence. *Science* 244, 160-166.

Widom, C. S. (1989b). Does violence beget violence? A critical examination of the literature. *Psychological Bulletin* 106, 3-28.

Widom, C. S. (1999). Posttraumatic stress disorder in abused and neglected children grown up. *American Journal of Psychiatry* 156, 1223-1229.

Widom, C. S. & Shepard, R. L. (1996). Accuracy of adult recollections of childhood victimisation. *Psychological Assessment* 8, 412-421.

Widom, C. S. & White, H. R. (1997). Problem behaviour in abused and neglected children grown up. *Criminal Behaviour and Mental Health* 7, 287-310

Zeanah, C. H. & Zeanah, P. D. (1989). Intergenerational transmission of maltreatment: Insights from attachment theory and research. *Psychiatry* 52, 177-196.

Zeanah, C. H., Benoit, D., Hirshberg, L., Barton, M. L. & Regan, C. (1994). Mothers representations of their infants are concordant with infant attachment classifications. *Development Issues in Psychiatry and Psychology* 1, 9-18.

Table I: Prevalence of risk factors among groups (N=4,352)

Risk Factors ⁺⁺	Maintainers (n = 9)	Cycle Breakers (n = 126)	Initiators (n=18)	Controls (n=4198)
	n (%)	n (%)	n (%)	n (%)
Single parent (3) ⁺	3 (33.3)	10 (7.9)	6 (33.3)	262 (6.2)
Mother or partner under 21 years of age (1) ⁺	4 (44.4)	19 (15.1)	4 (22.2)	253 (6)
Mother or partner not biologically related to the child (1) ⁺	0 (0)	1 (0.8)	0 (0)	12 (0.3)
Twins or less than 18 months between births (1) ⁺	3 (33.3)	16 (12.7)	2 (11.1)	297 (7.1)
Complications during birth/separated from baby at birth (1) ⁺	1 (11.1)	22 (17.5)	2 (11.1)	460 (11)
Infant seriously ill, premature or weighed under 2.5kg at birth (2) ⁺	2 (22.2)	15 (11.9)	1 (5.6)	225 (5.4)
Child with physical or mental Disabilities (1) ⁺	0 (0)	4 (3.2)	2 (11.1)	57 (1.4)
Feelings of isolation (1) ⁺	5 (55.6)	12 (9.5)	2 (11.1)	103 (2.5)

Serious Financial Problems (2) ⁺	5 (55.6)	15 (11.9)	8 (44.4)	135 (3.2)
Mother or partner treated for mental illness or depression (2) ⁺	6 (66.7)	58 (46)	8 (44.4)	295 (7)
Dependency for drugs or Alcohol (2) ⁺	2 (22.2)	5 (4)	2 (11.1)	16 (0.4)
Adult in the household with violent tendencies (3) ⁺	2 (22.2)	14 (11.1)	5 (27.8)	28 (0.7)
Mother or partner feeling indifferent about their baby (3) ⁺	2 (22.2)	4 (3.2)	0 (0)	44 (1)
Mean total Index of Need score	9.11 (2.9)	4.73 (2.6)	4.61 (2.8)	0.84 (1.5)

⁺ weighted score summed to produce an Index of Need score for each family (maximum score = 25).

⁺⁺ 'you or your partner were physically and/or sexually abused as a child' is included in the Index of Need checklist, however it is not listed here as this question was used to create group membership. The weighted score for this factor is 2.

Table II: Prevalence of positive parenting styles and infant behaviours at 4-6 weeks among groups.

Parenting Styles	Maintainers (n = 9)***	Cycle Breakers (n = 126)***	Initiators (n=18)***	Controls (n=4198)***
	n (%)	n (%)	n (%)	n (%)
<i>Positive Attributions and Realistic Perceptions</i>				
Mothers attributions regarding infant	8 (88.9)	111 (91)	13 (76.5)	4012 (97.1)
Fathers attributions regarding infant	3 (60)	93 (81.6)	9 (81.8)	3676 (94.9)
Mothers perceptions of infant	6 (66.7)	108 (88.5)	15 (88.2)	4010 (97.1)
Fathers perceptions of infant	2 (40)	95 (83.3)	10 (90.9)	3662 (94.5)
<i>Positive Quality of Caregiving Behaviour</i>				
Sensitivity	8 (88.9)	116 (95.1)	15 (88.2)	4028 (98.4)
Supportiveness/ Cooperativeness	6 (66.7)	114 (95)	14 (82.4)	4020 (98.5)
Accessibility	7 (77.8)	114 (95)	14 (82.4)	3994 (98.2)
Acceptance	8 (88.9)	109 (90.8)	14 (82.4)	3998 (97.5)

<i>Positive Infant Behaviours</i>					
Infant smiles at caregiver	8 (100)	93 (77.5)	13 (76.5)	3472 (84.8)	
Infant quiets when picked up by caregiver	6 (75)	111 (91.7)	15 (88.2)	4014 (97.2)	
Infant responds to caregivers voice	8 (100)	108 (90)	13 (76.5)	3983 (96.5)	
Infant eye contact and scanning	7 (87.5)	111 (91.7)	14 (82.4)	4020 (97.4)	
Infant settles in caregivers arms	7 (87.5)	110 (90.9)	16 (94.1)	4033 (97.7)	

***Any missing data was excluded from the analysis

Table III: Prevalence of positive parenting styles and infant behaviours at 3-5months among groups.

	Maintainers	Cycle Breakers	Initiators	Controls
Risk Factors	(n = 9)***	(n = 126)***	(n=18)***	(n=419)***
<i>Positive Attributions and Realistic Perceptions</i>				
Mothers attributions regarding infant	8 (88.9)	115 (93.5)	15 (88.2)	4008 (98.7)
Fathers attributions regarding infant	3 (60)	97 (82.9)	8 (72.7)	3621 (96.4)
Mothers perceptions of infant	7 (77.8)	115 (92.7)	16 (94.1)	4029 (98.8)
Fathers perceptions of infant	3 (60)	103 (86.6)	10 (90.9)	3675 (95.9)
<i>Positive Quality of Caregiving Behaviour</i>				
Sensitivity	7 (77.8)	120 (96)	15 (88.2)	4021 (99.2)
Supportiveness/ Cooperativeness	7 (77.8)	118 (94.4)	14 (82.4)	4026 (99.3)

Accessibility	7 (77.8)	120 (96.0)	14 (82.4)	4003 (98.9)
Acceptance	7 (77.8)	119 (95.2)	15 (88.2)	4017 (98.6)
<i>Positive Infant Behaviours</i>				
Infant turns head to follow caregiver	8 (88.9)	116 (93.5)	14 (82.4)	4018 (98.4)
Infant responds to caregivers voice with pleasure	7 (77.8)	114 (91.9)	13 (76.5)	3973 (97.3)
Infant imitates speaking to caregiver	8 (88.9)	110 (88.7)	12 (70.6)	3860 (94.5)
Infant shows preference for being held by caregiver	8 (88.9)	116 (93.5)	13 (76.5)	3884 (95.2)

***Any missing data was excluded from the analysis.

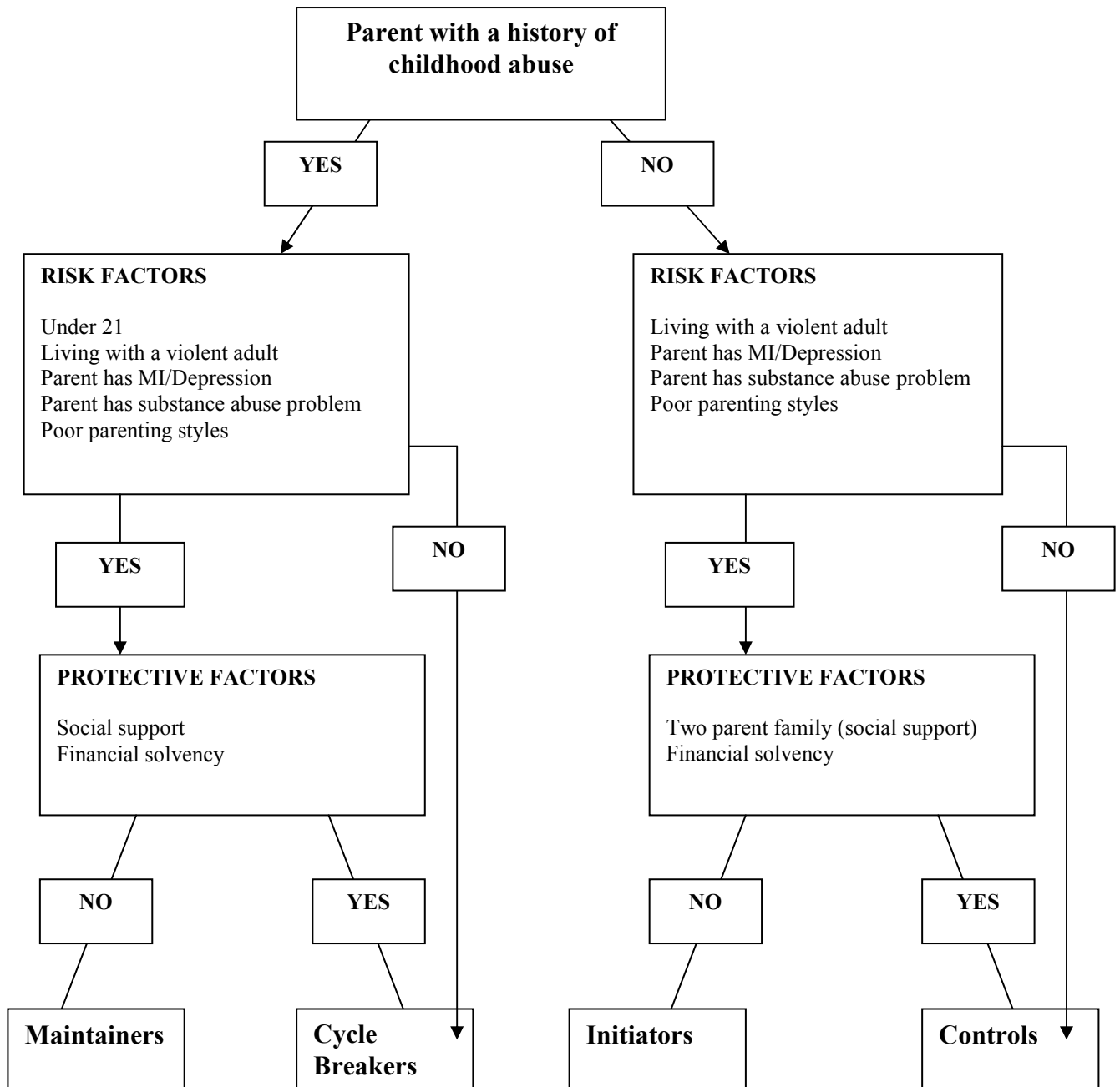


Figure 1
Conceptual model discriminating child-maltreating and non child-maltreating families.