Maternal aggression and withdrawal in childhood:
Continuity and intergenerational risk transmission

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Abstract

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The aim of the present investigation is twofold: first, to assess the stability of aggression and social withdrawal, from childhood to adulthood, and second, to determine whether there exists an intergenerational transmission of risk factors associated with these patterns of psychosocial difficulty into the next generation. In 1977, children from an inner-city area, then aged 7, 10, or 13, were classified along the dimensions of aggression and social withdrawal based on peer nominations. Almost twenty years later, 84 of the original female participants, together with their eldest children participated in a series of interaction tasks which were videotaped and subjected to subsequent observational coding. The principal questions addressed were: a) While interacting with off-spring, is there evidence for the stability of aggression and/or social withdrawal in mothers? Further, do these women, deemed to be at-risk for psychosocial difficulties display a less supportive style of interaction with their children? and b) Does an intergenerational transmission of risk occur whereby children of mothers who are considered to be at-risk engage in more problematic behaviours within interactions with their mothers?

Stability of aggression over time was not revealed within mother-child interactions. Mother's present level of aggression was predicted by lower educational attainment, and interaction with an off-spring who was younger and male. Both aggression and social withdrawal in childhood, as well as mother's lower educational attainment contributed to the prediction of unresponsive maternal behaviour. Mother's social withdrawal in childhood predicted a less supportive maternal interactional style, as did mother's lower educational achievement and having an older child.

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Evidence was obtained in support of the intergenerational transmission of risk. Both aggression and social withdrawal in the childhood of mothers predicted aggressive child behaviour within the interaction. The prediction of aggressive child behaviour was further enhanced by the age of the child, with younger children engaging in more aggressive behaviour. In addition to predicting aggressivity in children, a history of aggression in mothers' childhood predicted other aversive child behaviours, including unresponsiveness and restlessness, which were also predicted by child age with younger children being more unresponsive and restless.

Acknowledgments

The little world of childhood with its familiar surroundings is a model of the greater world. The more intensively the family has stamped its character upon the child, the more it will tend to feel and see its earlier miniature world again in the bigger world of adult life.

Carl Jung

Collected Works, Vol. 4, p. 83

The Theory of Psychoanalysis, 1913

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Introduction

In human and subhuman sr~_ies alike, behavioural tendencies can be conceptualized

as existing along a continuum. At one extreme is direct confrontation, or "fight", while

the other end of the spectrum is marked by avoidance, or "flight". Within the human

social sphere, manifestations of these extremes are embodied by the respective

dimensions of aggression and social withdrawal. Aggression has been defined by

behavioural responses intended to cause harm (Bjorkqvist & Niemela, 1992; Moskowitz

& Schwartzman, 1989). Social withdrawal has been characterized by anxiety, fear and

sadness (Moskowitz & Schwartzman, 1989) as well as extreme shyness and self-

consciousness (Quay & LaGreca, 1986). Taken together, these two behavioural

tendencies account for the foundation of almost all developmental disorders (Lyons,

Serbin, & Marchessault, 1988). Evidence pointing towards the stability of these two

dimensions suggests it a worthy pursuit to examine the sequelae within the lifetime of the

individual as well as within the lifetime of the subsequent generation (Farrington, 1994;

Huesmann, Eron, Lefkowitz, & Walder, 1984; Moskowitz, Schwartzman, & Ledingham,

1985; Olweus, 1984; Pulkkinen & Pitkanen, 1993; Quay & LaGreca, 1986).

Aggression

Traditionally, the construct of aggression has been gendered, characterized as a male

phenomenon with stable differences between the sexes persisting across the life span.

In keeping with conventional conceptions, research on aggression has tended to direct

attention towards physical and overt manifestations, neglecting indirect and covert

expressions. In western society, males are more physically aggressive than females; this however, does not imply that females engage in less conflictual relations or experience less hostility (Bjorkqvist, 1994; Crick & Grotpeter, 1995). Females, generally physically weaker than males, tend to develop alternate strategies to achieve their desired end engaging in verbal, or indirect aggression. The latter form of aggression, also known as relational aggression, encompasses attempts to harm others by means of causing damage to the others' friendships or sense of inclusion in the associated peer group. Aggression in girls is subject to developmental change. Specifically, emerging adolescent women, while continuing to engage in direct confrontation, tend to exhibit social ostracism as a central feature of their aggressive response (Cairns, Cairns, Neckerman, Ferguson, & Gariepy, 1989).

When relational aggression is considered in conjunction with overt aggression (physical and verbal), the rate at which men and women are identified as being aggressive becomes approximately equalized (Crick & Grotpeter, 1995). Aggression must therefore be considered as existing in a variety of forms, displayed more or less frequently by both sexes (Fry and Gabriel, 1994). Appreciating the developmental changes and corresponding variations in the manifestation of aggressive responses enables greater flexibility in charting the continuity of such behavioural tendencies over time.

Evidence has been put forth in support of the notion that there exists a considerable degree of stability in aggressive response styles over time (Elder, Caspi, & Downey, 1986; Farrington, 1994; Huesmann et al., 1984; Moskowitz et al., 1985; Olweus, 1984; Pulkkinen & Pitkanen, 1993). For instance, explosive behavioural tendencies in children have been found to manifest themselves in adulthood as undercontrolled behaviour (Elder et al., 1986; Olweus, 1984). Findings regarding differences in the stability of aggression

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for each sex are inconsistent. A number of researchers have demonstrated greater stability in aggression for males in comparison with females (Eron, 1992; Eron, Lefkowitz, Huesmann, & Walder, 1972; Huesmann et al., 1984; Pulkkinen, 1990). Observed sex differences in the stability of aggression have been attributed in part to the way in which the construct has been operationally defined and assessed (Huesmann et al., 1984; Bjorkqvist & Niemela, 1992). Studies of aggression employing direct observation focus invariably on physical forms of aggression, more typical of males. Further, developmental changes in the structure of female aggression, including the impact of social norms and environmental features explain in part the lower stability coefficients observed (Cairns et al., 1989). Indirect or relational aggression, more common in girls and women, is almost impossible to detect and hence, is often overlooked (Bjorkqvist & Niemela, 1992). While important to understand its consequences, physical aggression must also be appreciated as the most infrequent form of aggression in humans (Eron, 1992).

In spite of the different tendencies in the manifestation of aggression in males and females, a number of studies have failed to uncover sex differences in the stability of aggression (Caspi, Elder, & Downey, 1986; Pulkkinen & Pitkanen, 1993; Moskowitz et al., 1985). Pulkkinen and Pitkanen (1993) found that same-sex peer-nominations of aggression predicted equally well across the sexes. In a review of several studies containing both males and females, Olweus (1984) found a statistically significant difference in stability favoring males; however, the scientific value of this difference seems negligible since the difference in correlation coefficients was found to be .06.

Social withdrawal

In comparison with aggression, less is known about the stability and later life consequences of social withdrawal. Evidence obtained to date points towards the short-term stability of symptomatology characteristic of the anxious-withdrawn pattern in childhood; however, little evidence exists as to its stability beyond a few years (Quay & LaGreca, 1986; Rubin, Hymel, & Mills, 1989). Moskowitz et al. (1985) found withdrawal to be moderately stable for both boys and girls, but not as stable as aggressive behaviour. Interestingly, over the course of the three year interval of the study, researchers found that withdrawal became more proncunced. This last finding, in combination with what is known about the stability of aggression over time indicates that in general, children do not appear to grow out of either withdrawn or aggressive response patterns (Moskowitz et al., 1985; Olweus, 1984). The suggestion of stability raises questions as to the impact on future adult roles and the transmission of behavioural tendencies to the subsequent generation.

Intergenerational transmission of risk

It is within the context of early relationships that children develop skills and strategies that will serve them for the rest of their lives (Bowlby, 1980). Transhistorically and cross-culturally, the relationship between mother and child has been understood as one of the most important in the life of a child. When this relationship is adaptive, children are likely to emerge well-adjusted and free from major pathology. When this relationship is disrupted however, be it through maternal psychosocial difficulty, maternal pathology, and/or family dysfunction, children are placed at risk for psychosocial disturbances (Beardslee, Bemporad, Keller, & Klerman, 1983; Caspi & Elder, 1988a: 1988b; Dumas, LaFreniere, & Serketich, 1995; Hammen, Gordon, Burge, Adrian, Jaenicke, & Hiroto, 1987; Patterson, 1982).

In its most general form, the intergenerational model (see Figure 1) suggests that patterns established in early life of the previous generation provide a context for the replication of such patterns by the succeeding generation (Caspi & Elder, 1988a; 1988b). The process is hypothesized to occur as follows: problem behaviour is first manifested during the childhood of the parent. Moving from the family of origin to the family of procreation, behavioural tendencies of the at risk individual create circumstances fostering family dysfunction such as marital discord and parenting difficulties. In turn, these last conditions serve as the possible link between problem behaviour in parents and subsequent problem behaviour in their off-spring. The cycle is proposed to continue with the second generation's problem behaviour contributing to dysfunction in the families they create in the future.

To appreciate the intergenerational model of risk transmission, one must first return to the concept of the stability of maladaptive behaviour patterns through the consideration of intragenerational effects. Two processes are theorized to underlie the perpetuation of maladaptive behaviour patterns across the life span: cumulative continuity and interactional continuity (Caspi & Elder, 1988a; 1988b). Cumulative continuity reflects a process whereby "behaviours are sustained over time by the progressive accumulation of their own consequences" (Caspi, Elder, & Bem, 1988b, p. 824). Differences escalate over time which may lead ultimately to ineffective mastery of adult roles (Caspi & Elder, 1988a). For instance, a woman who is socially withdrawn as a child had reduced social contacts in childhood. This situation placed restrictions on her opportunities to learn rules of negotiation and other socio-cognitive achievements critical to successful human interaction. As a result, her deficits in the area of developing and

Figure 1. The Intra and Intergenerational Model of Risk Transmission
(Caspi, & Elder, 1988a)

Parent Generation   Problem Behaviour ⟶ Problem Family Relations

                                                    ↓

Child Generation   Problem Behaviour
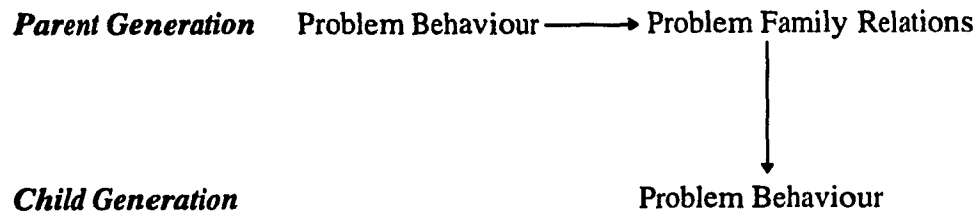
sustaining social relationships might lead to further social isolation as well as difficulties later in life such as problematic interactions with her children (Caspi & Elder, 1988b). In turn, these factors might contribute to the transfer of risk for behaviour problems to her off-spring.

The "direct" transmission hypothesis might play a role in cumulative continuity. Direct transmission implies that the relationship between parental dysfunction and child behaviour problems is a consequence of social learning. From this perspective, children model their parent(s)' coping strategies (Caspi, & Elder, 1988a; Hall & Cairns, 1984; Huesmann & Eron, 1990). In the area of aggression, the message retained by the child upon observing or experiencing the parent's aggressive behaviour is that aggression is acceptable and in fact, appropriate (Huesmann & Eron, 1985).

The relationship of a child with his/her primary caregiver plays a significant role in determining the child's subsequent relationships (Crittenden, Partridge, & Claussen, 1992; Dumas, LaFreniere, & Serketich, 1995; LaFreniere, & Dumas, 1992a). In keeping with Bowlby's (1980) attachment theory, a child's conception of self and other, once formed is resistant to alteration given its tendency to operate outside conscious awareness and because novel information is incorporated into the extant understanding. Within this paradigm, parents are viewed as playing a primary role in the shaping and modeling of competent social behaviour. For instance, a combination of authoritative discipline and parental warmth has been found to be positively associated with the development of competence. By contrast, authoritarian parenting, coupled with rejection was found to be related to deficits in competence (Baumrind,1967).

The second process contributing to the transfer of risk across generations is interactional continuity. Interactional continuity reflects a process whereby the individual elicits responses from those in the environment that support and/or maintain aversive behaviour patterns (Caspi, Elder, & Bem, 1987; Patterson, 1982). Maladaptive behaviour reflects a characteristic mode of response that elicits reciprocal responses from other individuals that sustain problematic behaviour (Caspi & Elder, 1988a). In essence, "appropriate" conditions must be in place to learn to use aversive responses.

One example of learning conditions that contribute to the development of aggression is coercion. Coercion is a process whereby the child's aggressive behaviour is reinforced through material or psychological rewards (Huesmann & Eron, 1990; Patterson, 1982). It involves an attempt by a given individual to control the behaviour of others in such a way that the coercive individual gains advantage while the other perceives this individual's behaviour as aversive, but not extreme. In isolation, coercive responses are considered relatively innocuous - a whine, a yell, a single instance of defiance. The effects of such behaviours come not in isolation, but when they occur with high frequency over time (Dumas, & Wahler, 1987). Interestingly, the coercive exchanges in which mothers and children engage tend to be of short duration, and encompass less than fifteen percent of mother-child interactions (Patterson, 1976). In spite of this, their impact on child functioning is great. Coercive processes train children that the use of aversive behaviour will effectively terminate negative intrusions by parents (Patterson, Capaldi, & Bank, 1994). For instance, a mother requests that her child stops his game and join the family for dinner. The child whines to his mother that he is not finished and will come when he is done. To terminate this whining, the mother acquiesces. In effect, this mother has taught her child that whining and defiance will be rewarded, increasing the possibility of such aversive behaviour emitted by the child in the future.

To summarize the model of intergenerational risk transmission, children who have acquired problem dispositions (e.g. temper tantrums) as adults bring these characteristics to their familial relations including their interactions with off-spring. Families of these individuals tend to be problematic. In turn, children who grow up amid chaotic families, including those characterized by extreme disciplinary strategies, likely exhibit oppositional and aggressive behaviour patterns (Elder et al., 1986; Patterson, 1982).

The intergenerational model of risk transmission provides a global overview of the process of risk transfer, but fails to elucidate the reasons for which under similar aggressive circumstances, some children become extremely aggressive, while most do not. Eron (1982) suggests that other variables such as those related to the environment, the family, and the child him/herself must be taken into consideration. In isolation, each of these features provide only weak prediction of severe aggressive behaviour; it is the union of these factors during the course of development that appears to be crucial in explaining the resulting aggressive behaviour.

The Present Research

The Concordia Risk Project, under whose rubric the current investigation is housed, marks a longitudinal project evaluating the stability and risk factors associated with aggression and social withdrawal in childhood. Please refer to Appendix A for a summary of earlier results. The latest phase of the project addresses not only the consequences of childhood psychosocial problems in the life of the individual, but also within the life of the subsequent generation. The purpose of the current investigation is to determine whether there exists qualitative and quantitative features of interaction that distinguish high-risk mother-child dyads from those pairs deemed to be at lesser risk.

In developing this study, the observational approach to behaviour was selected in favor of the self-report format for reasons related to data quality. Behavioural observation offers an objective approach which is free from the biases of those directly studied. In addition to the problems associated with self-reports such as social desirability, problems arise as well when parents are used as the principal informants on the behaviour of their children. The reliability and validity of the information provided by parents is at times suspect, particularly if these care-givers are plagued by psychosocial difficulty, as is the case in the present study. In such instances, it becomes difficult to separate the degree to which evaluations of children reflect the children's true disturbances and the extent to which they represent the disturbances of the parents.

In addition to objectivity, behavioural observation allows for the collection of extremely rich data. By studying interactions between mother and child, we are afforded a very small window into the world of mother and child. This perspective enables us to evaluate behavioural tendencies within perhaps the most influential relationship in the life of the child. As aforementioned, this intimate dyadic world in childhood serves as the basis for all future relationships of the child. Hence, the behaviour observed within the dyad reflects important signals for what is to come on the part of the child. With respect to the mother, her behaviour enables the generation of hypotheses as to the ways in which she provokes and/or sustains prosocial and/or aversive behaviours in her child.

In summary, the principal aim of this investigation was to answer the following two questions: 1) Does intragenerational continuity in aggression and social withdrawal reveal itself in the behaviour of women within their interactions with their children? and 2) Is there evidence for intergenerational risk transmission in the behaviour of children within their interactions with their mothers?

<u>Hypotheses</u>

Based on the intergenerational model of psychosocial risk and previous research with

the Concordia Risk Project, it is anticipated that mothers' childhood aggression and

withdrawal (as rated by their peers) will serve as risk factors in the prediction of certain

behavioural responses within the interaction between mothers and their off-spring (Caspi

& Elder, 1988; Lehoux, 1995; Patterson, 1982). Predicted differences in interactional

style are hypothesized to manifest themselves in two domains: 1) the domain of the

mother, and 2) the domain of the child.

With respect to mothers, aggression, unresponsiveness, and support were selected as

behavioural measures under study. Aggression was selected based on previous literature

which pointed towards the stability of aggression over time (Elder et al., 1986;

Farrington, 1994; Huesmann et al., 1984; Moskowitz et al., 1985; Olweus, 1984;

Pulkkinen & Pitkanen, 1993). More specifically, aggression of women with their

children was of interest given that the preponderance of literature in the area of the

stability of aggression fails to address this important context of aggressive expression.

Instead, the outcome measures tend to relate to criminality which is less relevant to

aggression in women than it is to aggression in men (McCord, 1988; Olweus, 1984).

Unresponsiveness was selected as a potential adult manifestation of social withdrawal

so that the stability of this last behavioural tendency might be evaluated. As well,

unresponsiveness was considered to be a form of aversive maternal behaviour different

from direct aggression which also contributes to a more negative interactional style.

Continuing with maternal behaviours which provoke and/or perpetuate negative

interactions with off-spring, maternal support, behaviour associated with prosocial child behaviour was selected so as to determine whether maternal aggression and/or withdrawal in childhood served to predict *less* supportive behaviour on the part of mothers.

In the area of child behaviours, aggression, restlessness, and unresponsiveness were selected as the variables of interest. Aggression was of interest in order to evaluate directly the intergenerational transmission of aggression from mother to child. Restlessness was also of interest given that it was one of the items on which mothers' aggression in childhood was originally assessed (see Appendix B). Further, restlessness can be considered to reflect hyperactivity, a condition which has both genetic antecedents and environmental determinants (Eaton & Yu, 1989). Hence, a relationship between maternal aggression in childhood and current restlessness manifested by off-spring might in part indicate a genetic predisposition for such behavioural tendencies. Finally, unresponsiveness was selected as a manifestation of social withdrawal such that the intergenerational transmission of such behaviour might be assessed. In total, all three child behaviours assessed reflect possible coercive behaviours which, if responded to in a negatively reinforcing fashion by mothers, will be likely repeated in the future with consequences accumulating over time leading to the stability of such behavioural tendencies.

<u>Additional predictors</u>.

In addition to the predictions made with respect to the increased risk as a function of mothers' childhood psychosocial difficulties, current characteristics of both mother and child were also taken into account[1]. With respect to mothers, educational attainment is considered such that more negative effects are anticipated for dyads for whom mothers are less educated. Previous research with this sample and others have indicated the importance of maternal educational achievement in the prediction of both later life consequences in the life of mothers as well as behavioural difficulties in the lives of their off-spring (Lehoux, 1995; Radke-Yarrow, Richters, & Wilson, 1988; Velez et al., 1989).

In terms of child characteristics, both gender and age will be evaluated for their contribution to the prediction of both mother and child behaviours within the interaction. With respect to gender, it is anticipated that the strongest effects, in terms of aversive behaviour will be observed for boys. In part, this is anticipated as a natural consequence of a coding system focusing on overt problem behaviours, more commonly observed in boys. Previous risk and resilience research also indicates that boys may be at an elevated risk for behaviour problems in contrast with their female counterparts (Brooks-Gunn, & Furstenberg, 1986; Lehoux, 1995; Rutter, 1985; Serbin et al., in press). The age of the child is also of interest due to the variations in developmental stages of children participating in this study.

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[1] Please refer to the subheading, 'design' in the Results section for a more complete rationale for the inclusion of certain variables and the exclusion of others.

1. Mothers

Elevated ratings of aggression and/or social withdrawal in childhood are anticipated to contribute to the prediction of mothers' engagement in more aversive and less supportive behaviour within current interactions with their off-spring. More specifically, with respect to the former, continuity in aggressive behaviour is predicted such that mothers who were rated as aggressive during childhood are anticipated to evidence more overt, aggressive behaviour during the interaction sequences. Continuity in social withdrawal is also anticipated such that mothers who were rated as withdrawn during childhood are predicted to evidence more ignoring and unresponsive behaviour during the interaction sequence. In terms of supportive behaviour, it is anticipated that mothers who were rated by their peers as aggressive and/or withdrawn during childhood will exhibit less supportive behaviour when interacting with their off-spring.

2. Children

Elevated ratings on aggression and/or social withdrawal during childhood are anticipated to contribute to the prediction of aversive behaviour in the off-spring of these women. Specifically, it is anticipated that continuity in aggressive behaviour across generations will manifest itself with the transmission of overt aversive behaviours, including restlessness and displays of aggression in children of women rated as aggressive during childhood. Maternal social withdrawal during childhood is expected to contribute to the prediction of a more unresponsive response style in the off-spring of these women, reflecting intergenerational continuity.

Method

Participants

Participants in the present investigation were drawn from a larger pool of individuals who together constitute the Concordia Risk Project. In 1977, the Concordia Risk Project commenced with the recruitment of 4,109 francophone school children in grades one, four, and seven. These children, from lower socio-economic backgrounds, lived in inner city areas of Montreal, Canada. Participation in this first phase of the project consisted of the completion of a French translation of the Pupil Evaluation Inventory (PEI; Pekarik, Prinz, Liebert, Weintraub, & Neale, 1976). The PEI (see Appendix B), a peer-rating measure, was used to classify participants along the dimensions of aggression and withdrawal, enabling the creation of four groups: aggressive, withdrawn, aggressive-withdrawn, and contrast. For a more thorough description of the screening procedure used in the first stage of the Concordia Risk Project, please refer to Appendix C.

Within the current investigation, women from the original sample and their eldest children were recruited to participate. Due to difficulties in locating consistently fathers and their children within the sample, coupled with the fact that male participants in this project tend to be older before becoming fathers, recent efforts have centered on the evaluation of parenting styles of mothers, that is, women initially identified in childhood as being aggressive and/or withdrawn. Caspi and Elder (1988a) confirm that men with a history of anxiety and shyness in childhood tend to time transitions in their lives such as marriage later than men who were not characterized as such.

In total, the Concordia Risk Project has retained 910 traceable women. Eligibility for selection for the present phase of the project was based on motherhood, specifically, having a first-born child who was of school age (five through 13). Based on demographic information collected in the months preceding the present investigation, a group of 139 women were identified as meeting eligibility criteria.

Of the 139 eligible participants, 24 were rendered ineligible as a result of their history of refusal to participate in two or more previous phases of the project. With respect to the remaining 115 women, five could not be located, and 20 refused to participate when contacted. Six women completed questionnaires used elsewhere, but failed to participate in aspects of data collection specifically associated with the present study. Finally, 17 women were initially reluctant to participate due to difficulties in traveling to the university such as distance, responsibilities that tied them to the home, or transportation constraints. These additional 17 women, together with their eldest children participated in a second wave of testing consisting of home visits.

Altogether, the current sample includes a total of 84 mother-child dyads: 67 laboratory visits, and 17 home visits. At the time of initial assessment, 11 women (13%) were in first grade, 28 (33%) were in fourth grade, and 45 (54%) were in seventh grade. Based on the original classification of mothers by their childhood peers, the present sample consists of the following groups: aggressive ($\underline{n}$=15), withdrawn ($\underline{n}$=17), aggressive-withdrawn ($\underline{n}$=15), and contrast, or control ($\underline{n}$=37). Due to the limitations associated with the small sample size, the four group classifications were not used. Instead, the entire sample was considered as a single unit with each mother having a peer nomination score from childhood along the dimensions of aggression and social withdrawal. Hence, aggression and withdrawal were treated as continuous variables. Analyses were attempted using aggression and withdrawal as dichotomous variables with women scoring above the 75th percentile according to the original sample distribution defined as having high scores on the particular dimension and the remaining women having low scores on the dimension of interest. Overall, similar results were obtained. It was decided to preserve the variables in their original, continuous state for the final, reported analyses in order to avoid losing information which inevitably results when that which is continuous is dichotomized (Kline, 1995). Further, the problems associated with comparing unequal sample sizes such as the relative importance of an individual score in

terms of its contribution to group characteristics is also avoided. Presented in Table 1 are the means and standard deviations of women in this sample along the two dimensions of interest. A test for skewness of the z-scores for aggression and social withdrawal found these scores to be normally distributed.

With respect to demographic characteristics, participating mothers ranged in age from 24.07 to 33.22 ($\underline{M}$=29.21, $\underline{SD}$=2.28). Their first born children, 37 (44%) boys and 47 (56%) girls, ranged in age from 5.16 to 13.49 years ($\underline{M}$=7.62, $\underline{SD}$=2.07). In terms of marital status, 9 (11%) mothers were single, 22 (26%) were cohabiting, 39 (46%) were married, and the remaining 14 (17%) were either separated or divorced. As a window into the socioeconomic status of women in this sample, educational attainment and occupational prestige scores were obtained. In terms of education, years of schooling ranged from 6 to 17 years ($\underline{M}$=10.87, $\underline{SD}$=2.22). Mothers occupational prestige ratings ranged from 166.00 to 610.00 ($\underline{M}$=317.87, $\underline{SD}$=104.28). The mean prestige rating corresponds to the following jobs: cashier, file clerk, and hairdresser (Nock & Rossi, 1979).

In order to assess the degree to which the present sample is representative, a series of t-tests were carried out. Comparing those women who consented to participate with the remaining women in the original Concordia Risk Project sample, no significant differences emerged as a function of maternal peer classification along the dimension of withdrawal, $t(907)$=-1.42, $\underline{p}$>.05. A trend however was found for aggression, $t(907)$=-1.74, $\underline{p}$<.10. This last marginal difference found women in the present sample to have a slightly higher mean aggression z-score ($\underline{M}$=.50, $\underline{SD}$=1.11) than women in the original sample ($\underline{M}$=.29, $\underline{SD}$=1.02). This finding is in keeping with the fact that women rated as elevated on aggression tended to have their children earlier than other women and hence, more of these women met the criteria for participation in the current investigation (Serbin et al., 1991).

Table 1

Means and Standard Deviations of Aggression and Withdrawal z-scores (N=84)

	Mean	Standard Deviation
Aggression Z-score	.50	1.10
Withdrawal Z-score	.50	1.05

In addition to assessing the representativeness of this sample along the dimensions of aggression and withdrawal, the following variables were also of interest: years of education, occupational prestige, and mother's age at birth of first child. Because this information is not available for the entire sample, women in the present sample were compared with a subsample of 127 women from the original sample. These last women participated in an earlier phase of the project and are believed to represent the overall sample. Results of comparisons can be found in Table 2. In general, women participating in this investigation completed significantly less schooling and obtained significantly lower ratings of occupational prestige than women in the representative sample. Finally, and perhaps related to the differences just cited, women in this sample had their children earlier than women in the comparison sample. This last finding is anticipated given that the criteria for participation in this phase of the Concordia Risk Project was having a child between the ages of five and 13.

Measures

I. Demographics

A French translation of the Demographic Information Questionnaire (DIQ; Concordia Longitudinal Risk Project, 1993) (see Appendix D) was used to gather background information on participating mothers. Areas accessed by this questionnaire include mother's present age, marital status, years of education, and occupational status. Information was also gleaned regarding the age, sex and number of children the mother had. Finally, the information provided by the DIQ facilitated the calculation of the mother's age at the birth of her first child. The DIQ requires approximately seven minutes to complete.

Table 2

Means and t-values of a Representative Sample of the Total Sample (N=127) and the

Current Sample (N=84)

	Representative Sample	Current Sample	t-value
Educational Attainment	12.47	10.87	5.06**
Occupational Prestige	353.33	317.87	2.48*
Mother's Age at Birth of First Child	23.61	21.59	4.52**

*p<.01   **p<.001

II. Mother-Child Conflict

The Potential Parent Child Conflict Questionnaire (PPCCQ; Granger, Weisz, & Kauneckis, 1994) is a self-report rating scale of parent-child conflicts. The PPCCQ (see Appendix E) consists of 14 possible sources of conflict between parents and their school-aged children. Each topic is individually rated by parent and child along a six point scale. A score of zero indicates that a given topic is not considered to be conflictual while a score of five indicates that the topic is highly conflictual.

III. Observational Coding

The High-Risk Interaction Coding System (H-RICS; Cooperman, & Steinbach, 1995) is an observational coding system designed specifically to detect patterns of interaction characteristic of high-risk mother-child dyads (see Appendix F). The H-RICS is applied to videotaped interactions and enables the sequential analysis of continuously coded molecular behaviours of mothers and children. It also facilitates global evaluations of the quality of the interaction between mothers and their children as well as overall impressions of the behaviour of the individual interactants themselves (i.e., mother and child separately).

The H-RICS was developed from the original work of the researchers involved in this project, but also draws from extant coding systems, mainly, the Family Interaction Coding System (FICS; Patterson, Ray, Shaw, & Cobb, 1969) (see Appendix G). The H-RICS is composed of molecular codes, affect codes, and aggregate cluster codes. Molecular codes are intended to capture individual behaviours of the interactants at the level of the entire body. Affect codes deal with the tone of the emotional expression of the interactants, and aggregate cluster categories reflect overall impressions. For an exhaustive list of all codes included in the H-RICS, please refer to Appendix F. In the interests of brevity, only those codes germane to the present investigation will be highlighted in the sections to follow.

Molecular Codes. Nine of the 29 FICS (Patterson, Ray, Shaw, & Cobb, 1969)
codes were adapted for use in the H-RICS (see Appendix F). To expand the breadth of
behaviours covered by these nine central codes, three molecular codes were generated to
meet the needs of this particular sample. These additional codes were created based on
the observation of interactions between parents and children, consideration of the nature
of the tasks, and careful scrutiny of pilot tapes.

With regards to molecular codes, inter-rater reliability was calculated in the form of
Cohen's Kappa. In evaluating reliability, the most common statistics consulted include
percent agreement, Cohen's kappa, and correlation. Of the three, Cohen's kappa is most
recommended for categorical scores such as frequencies. It corrects for chance inter-
observer agreement and hence, tends to be more conservative (Bakeman & Gottman,
1986). The overall Kappa obtained, based on the analysis of data from 22 (26%) mother-
child dyads was 0.81, with Kappas for individual codes ranging of 0.75 to 0.93.
Presented in Table 3 are Cohen's Kappa values, one for each of the molecular codes.

A. *Molecular Code Used in the Present Investigation*

Ignore/Unresponsive is coded when an individual deliberately fails to respond to
the other interactant's behaviour. There is no question as to whether or not the subject has
heard or seen the behaviour emitted by the other. S/he has clearly chosen to abstain from
responding. Unresponsive was coded for both mothers and children.

Table 3

Cohen's Kappa Coefficients for H-RICS Molecular Codes   (n=22)

Molecular Code	Kappa Coefficient
Command	0.83
Command Negative	0.93
Compliance	0.80
Non-Compliance	0.83
Oppositional Defiance	0.78
Need for Approval	0.79
Approval	0.79
Disapproval	0.77
Ignore/Unresponsive	0.75
Physical Positive	0.82
Physical Negative	0.85
Whine	0.79

Overall: 0.81

B. Aggregate Clusters Used in the Present Investigation

Aggregate clusters are summative ratings enabling the evaluation of behaviours emitted during a given task. The aggregate cluster categories generated for the current investigation were derived principally from the analysis of pilot videotapes. For items such as level of aggression and engagement in task, ratings are made individually for mother and child. Ratings of relationship quality, cooperation and proximity consider the dyad as a unit. Inter-rater reliability was calculated based on correlation coefficients for aggregate cluster scores, averaged across all four laboratory tasks. The average overall coefficient was 0.87 (see Table 4 for individual coefficients).

Aggression encompasses any aversive physical contact. The category of aggression also includes verbally aggressive behaviour such as negative commands, oppositional defiance, and hostility. Aggression was coded for both mothers and children. To investigate the validity of child aggression, scores for children were correlated with referral status, a dichotomously scored variable available from other work with the present sample. Positive scores on the referral status variable were based on scores in the clinical range on the Child Behavior Checklist (CBCL; Achenbach, 1991) and/or parental reports of children receiving mental health services for educational, behavioural, or emotional problems. Correlations between child aggression and referral status attained significance for boys only, $r=.33$, $p<.05$.

Maternal Support, inspired by the work of Pett, Vaughan-Cole, Egger, & Dorsey (1988), reflects maternal "nurturance, warmth, love and acceptanre" (p. 300). In general, support involves behaviour intended to communicate to a child that s/he is accepted as a person.

Table 4

Correlation Coefficients for H-RICS Aggregate Cluster Categories   (n=22)

Aggregate cluster	Correlation Coefficient
Maternal Support	.94**
Maternal Fostering of Independence	.83**
Maternal Aggression	.93**
Maternal Engagement	.93**
Child's Aggression	.99**
Child's Engagement	.86**
Relationship Quality	.91**
Proximity	.84**
Cooperation	.91**

Overall: 0.90

*$p<.003$, **$p<.000$

C. Descriptive Data Used in the Present Investigation

To supplement the information provided by the H-RICS, the Qualitative Analysis of Conflict (QAC; Cooperman, 1995) was created. The QAC (see Appendix H) provides behavioural observers with the opportunity to assess certain characteristics of the conflict discussion task. Of the aspects of interaction assessed, only child restlessness is of interest in the present investigation. Restlessness was coded as a dichotomous variable: the child was/not restless. Criteria for achieving an affirmative score on restlessness depended on the observation of one of the following characteristics: squirming in seat, moving around the testing room, impatiently leaving the testing room before the close of the task, and exhibiting obvious difficulty sitting still and discussing the conflict with his/her mother.

Inter-rater reliabilities for QAC categories, in the form of Cohen's Kappa coefficients, were computed for the data from 25 mother-child dyads (30%). Values obtained ranged from 0.50 to 1.00. Presented in Table 5 are the Kappa Coefficients per category.

Procedure: Laboratory Visits

Women meeting the eligibility criteria for participation were contacted initially by phone. At that time, prospective participants received an explanation of the nature of the project, that the purpose of the current study was the investigation of the relationship between mothers and their children. Mothers were informed of the requirements of participation: a three and one half hour appointment at Concordia University, of which approximately one half hour would involve videotaped interaction tasks. Mothers were also told that they would receive a financial recompense of $50.00 for their participation and that their participating child would receive $5.00. Once the conditions of participation were outlined, appointments were booked with those who consented.

Table 5

Inter-rater Reliability Values for QAC Categories _____ (n=25)

Category	Kappa Coefficient
Mother changed topic	1.00
Child changed topic	0.76
Mother was attentive	1.00
Child was attentive	0.50
Mother explained reasons for requesting compliance	0.76
Child was restless	0.50
Introduction of disturbing topic of conversation	1.00

Overall: 0.79

Testing sessions were carried out by either a research assistant or a graduate student, each of whom was blind to the original classification of mothers by their peers during childhood. Of the three and one half hour time commitment, between 30 and 40 minutes were dedicated to the present investigation. Upon arrival at the university, mothers completed consent forms on behalf of themselves and their children (see Appendix I). The research assistant then explained the activities that were to ensue. Following this introduction, mother and child were separated briefly and the PPCCQ was completed by each. The researcher remained with the child in order to assist in the completion of the questionnaire. Once the PPCCQ has been completed by both mother and child, the researcher compared the ratings given by each and set about selecting a conflictual topic to be discussed by mother and child during the conflict discussion task. The criteria for selection include the following: 1) the sum of the ratings made by mother and child must be maximized and 2) the ratings made by mother and child must not be separated by more than two rating points. Following the completion of the PPCCQ, the dyad was reunited in the experimental room in order that the four laboratory tasks might be completed. All tasks were videotaped using a Sony video-8 camera for subsequent behavioural coding (see Appendix J).

The choice of interaction tasks included in a study have the potential to impact on the family interaction itself. For this reason, it is ideal to observe families in multiple task situations (Grotevant & Carlson, 1987). The four laboratory tasks used in this study were selected in order that a range of typical mother-child interaction scenarios might be observed. The order of the tasks was designed to gradually move mother and child from a

relatively stress-free, optional interaction situation through to a potentially anxiety-provoking, highly interactive, confrontational task (see Appendix K). The sequence of the activities, save for the presence of the first task was drawn from the work of Granger, Weisz, & Kauneckis (1994).

The first laboratory task involved a non-structured play scenario. The goal of this first task was to allow both mother and child to become comfortable in the laboratory setting. Mother and child were asked to play a highly appealing bilingual educational game called Sapientino[2] for three minutes. Sapientino is available in two versions: one for children aged four to six, and another for children aged six to ten. The game consists of a magnetic base on which participants place illustrated cards of various themes. The goal of the game is to find appropriate associations using two magnetic tongs. When the match is correct, a small buzzer sounds. Mother and child were asked to play Sapientino for three minutes. Mothers were instructed that they could assist their child with the game, but the decision to actively interact was ultimately their own. Mothers were not obliged to play.

The second laboratory task, more structured than the first, consisted of a teaching task. The value of a teaching task in the observation of high-risk dyads centers on the elicitation of typical, dysfunctional interaction patterns due to the problem-solving nature of the task (Walden, Grisaffe, & Deitrich-MacLean, 1990). The procedure for the teaching task unfolded as follows: the researcher, together with the mother left the testing room for a few minutes in order that the research assistant might instruct the mother in rules of the task she was to explain to her child. In essence, the mother's role was to

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2 Sapientino is marketed by Clemontoni Educationals.

guide her child in the planning of a healthy meal for six people: four children ranging in age from eight to twelve and two adults. Mother and child were furnished with 21 index cards upon which were affixed food items cut out from a supermarket circular. The cards included both healthy and unhealthy items and it was the role of the participants to create a healthy meal from the available food. This task lasted three minutes.

The third laboratory task was also a structured task. This time however, the child was afforded a greater opportunity to play a more active role in negotiations (Granger et al., 1994). Mother and child were asked to plan a vacation for which they would hypothetically depart Saturday morning and return early Sunday evening. The researcher outlined the four questions to be answered co-jointly by mother and child and provided the pair with the questions in a concrete format, each question on a separate sheet of plasticized paper. The questions to be completed included: 1) Where will you go? 2) How will you get there? 3) Where will you spend Saturday night?, and 4) What will you do during those two days? Four minutes were allotted for the completion of this task.

The final condition contained the greatest potential for conflict. The researcher, having reviewed the PPCCQs of both mother and child selected a topic that appeared to be most conflictual. S/he then explained to the mother and child that they were to discuss this topic for the following six minutes. Before leaving the room, the researcher informed the dyad that it was important that both members participated in the discussion.

Throughout the completion of the four laboratory tasks, the researcher observed the dyad through a one-way mirror. This was done so that in the event of a distressing situation, the researcher might intervene. Other than explaining the tasks, the researcher did not intrude on the mother and child's participation in the tasks. Following the completion of the laboratory tasks, the mother completed a series of questionnaires, of which only the Demographic Information Questionnaire (DIQ) is relevant to the present

investigation. Once both mother and child completed the tasks and questionnaires, the mother received payment of $50.00 and the child received $5.00.

Procedure: Home Visits

In order to improve the size and representativeness of our sample, a second wave of testing was carried out. Seventeen home visits were conducted with those who lived too far from the university to make commuting an appealing optical and with those participants whose responsibilities prevented them from leaving the home. Home visits differed very little from laboratory visits, save for the locale in which they took place.

Both the author and a research assistant conducted the home visits. Upon arrival at the home of a given dyad, the researchers introduced themselves to the participants and any other family members who were present. With the exception of the mother and her eldest child, all family members were asked to leave the testing area (usually the kitchen) in order that the pair not be disturbed. In cases where there was a single mother with other small children, one researcher carried out the protocol while the other occupied the children.

Once researchers and participants were acquainted and the testing area was cleared of additional family members, the mother completed a consent form on behalf of herself and her child. Following this, one researcher explained what was to happen over the course of the testing phase while the other researcher set up the video equipment. Th. tasks were then explained in greater detail and carried out in the same succession as in the laboratory. Following the completion of the interaction tasks, the mother completed a series of questionnaires. Once more, the only questionnaire relevant to the current investigation is the DIQ. Upon the completion of all required activities by both mother and child, the mother was paid $40.00 and the child received $5.00.

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Procedure: Observational Coding

In order to analyze the interaction sequences collected, two coders were trained in the use of the H-RICS (Cooperman, & Steinbach, 1995). The coders consisted of the developers of the H-RICS: the author, and an undergraduate honours student. This close association with the development of the coding system and the coding itself did not impinge on the objectivity of the coders because these coders were blind to the group membership of the dyads observed. For a description of the training, please see Appendix L. To assess inter-observer agreement, 22 (26%) of all mother-child dyad interaction sequences were double-coded. Each interaction task was blocked into 30 second time intervals so that it might be possible to locate specific sources of disagreement. The general procedure for coding videotapes was identical to the procedure followed during the second wave of reliability training.

To begin the coding procedure, the coder first set about watching all four interaction tasks for a given family. During this first viewing, the coder made notes on her general impressions of the quality of the interaction in each of the tasks. She also divided the interaction tasks into 30 second blocks. Finally, she reviewed task four, the conflict discussion task a second time in order to complete the Qualitative Analysis of Conflict (QAC; Cooperman, 1995).

In preparation for the second viewing (third viewing of task four), the coder set about accessing the H-RICS computer program. Following the entry of identifying information into the computer, the coder pressed play on the video cassette recorder and, focusing on the first interactant, began coding molecular behaviours. Focus alternated between mother and child until the close of a particular task. A special code, Neutral/Transition was used to shift attention to the other member of the dyad when the behaviour of the interactant who was currently being observed was not codable and the other interactant began to engage in either: 1) a codable behaviour or, 2) a marked change in affect.

In coding molecular behaviours, the coder was permitted to enter up to three molecular codes at a time for a given interactant. For instance, a child might be whining while simultaneously exhibiting non-compliance. In such a case, both Whine and Non-Compliance would be coded. Each time the coder entered a particular molecular code, or series of molecular codes for an given interactant, she then pressed "enter." This action elicited a prompt which required the coder to provide a rating of the affect accompanying the behaviour(s) just coded. At the end of a task, the letter "q" was entered. The computer, upon receiving the signal that the task was complete, prompted the coder to enter the stop time. The computer then provided a summary of all of the behaviours coded throughout the given task for both mother and child. The coder was then prompted to make ratings on aggregate clusters, scores which depended on the presence of groupings of molecular codes. This entire coding process was repeated for each of the four tasks for all of the mother-child pairs.

Results

Variable reduction

Due to the extensive nature of the behavioural coding undertaken, and the limitations of the small sample size, the number of variables analyzed had to be reduced. Hypotheses dictated the preservation of six essential observational variables: three variables reflecting the behaviour of mothers (supportiveness, aggressivity, and unresponsiveness), and three variables relating to the behaviour of their children (restlessness, aggressivity, and unresponsiveness). In addition to the reduction of the number of variables, modifications were carried out such that data, initially coded separated by interaction task were united together to form a series of total scores representing the entire duration for which mothers and children interacted. Total scores were used not only for their data reducing properties, but also for the fact that these scores provide greater amounts of information upon which to base conclusions. That is, total scores were based on approximately on 16 minutes of observation while individual tasks comprised between three and six minutes of observation. The nature of these total scores depended on the form of the variable in use. In total, three different types of variables (molecular, aggregate cluster, and qualitative) were used as dependent variables. The majority of variables employed (4/6) consisted of aggregate clusters. These last variables are useful in data reduction in that they enable the consideration of several molecular codes at once while simultaneously facilitating the avoidance of the accumulation of alpha error, error that tends to accrue when tests are run for each variable individually.

Treatment of molecular variables

Data reduction resulted in a condition wherein only two variables of the molecular form were preserved: mother unresponsiveness and child unresponsiveness. Unresponsiveness is defined by the deliberate failure of the interactant to respond to the

behaviour of the other. Because minor inconsistencies occurred with respect to the timing of the interaction tasks of certain subjects, proportions were generated to correct for the fact that some mother-child dyads interacted for longer amounts of time than did others. Proportions were calculated based on the frequency of occurrence of a given molecular code divided by the amount of time during which the mother and child interacted. These proportions were calculated for each task, generating values for each molecular code in the form of frequency of occurrence per minute. Newly generated proportions were then averaged across the four interaction tasks so that impressions of behaviour were based on approximately sixteen minute samples of behaviour, rather than smaller units of time.

Treatment of aggregate clusters

Of the nine aggregate clusters coded, three were retained for analyses: supportive maternal behaviour, maternal aggressivity, and child aggressivity. Supportive maternal behaviour is defined by words and/or gestures conveying love, nurturance, warmth, and acceptance. Aggression encompasses aversive verbal and/or physical behaviour including hostility and defiance These aggregate clusters were rated initially for each interaction task along a five point Likert scale. For the purposes of data reduction and the generation of an overall impression, these scores were averaged across all four interaction tasks.

Treatment of qualitative variables

Of the qualitative variables coded during the conflict discussion task (Task 4), only the rating of child's restlessness was selected for final analysis. Restlessness reflects a child's inability to sit still, his/her fidgety behaviour. Restlessness was preserved in its original dichotomous form such that children were given an affirmative or negative score, depending on whether or not they were observed to engage in restless behaviour during the final interaction task.

Data screening

Prior to engaging in analyses, all data files were reviewed by hand for input errors in computer coding. In the present study, missing data reflect an absence of observational coding for one or two interaction tasks. In only one case were two interaction tasks missed. This condition resulted from video difficulties. Given that the two interaction tasks preserved included Task 1 which elicited the greatest number of codes, it was decided to preserve this data rather than disqualify the dyad (who happened to be part of the home visit group).

The main reasons for which dyads might be missing data are a) video equipment failure, and b) refusal of cooperation by the target child. Because it was deemed inappropriate to make estimations as to what might have transpired had these interactions taken place, no efforts were made to replace this data. Rather, since total scores were now being used rather than particular scores from individual tasks, missing data was handled by averaging across the remaining available tasks in the case of molecular and

aggregate cluster variables. With respect to qualitative variables scored only during the conflict discussion task, those dyads for which this task was missing, were not given a score on child restlessness, reducing the number of participants to 77 for this variable.

To further prepare data for analysis, variables were evaluated for their distribution characteristics. Child restlessness was always treated as dichotomous. With respect to the five remaining variables, it was found that two, supportive maternal behaviour and child unresponsiveness were normally distributed with the other three variables, maternal unresponsiveness, maternal aggressivity, and child aggressivity evidencing significantly skewed distributions.

Upon closer evaluation of those variables violating the assumption of normality, it was evident that maternal aggressivity and child aggressivity presented bi-modal distributions. The bi-modal nature of certain variables is not entirely unexpected given that observational coding depends on behaviours being either present or absent. These variables were in fact dichotomous variables, with participants scoring a "1" (not aggressive) or a value above one. With respect to the behaviour of mothers, 44 (52%) achieved a score of "1" while the remaining 40 (48%) mothers obtained a score greater than one. In terms of children, a similar split occurred whereby 25 (30%) children achieved a score of "1" while the remaining 59 (70%) obtained a score greater than one.

The final skewed variable, maternal unresponsiveness, was not found to reveal the same dramatic division as was evident in the previous two variables. A log transformation was attempted on this variable; however, this modification did not correct for the skewness. It was decided instead to subject this variable to a median split

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whereby mothers exhibiting unresponsive behaviour only rarely would be distinguished from those who engaged in such behaviour more frequently.

Design

Analyses were carried out using the Statistical Package for Social Sciences (SPSS; Norussis, 1990). In order to test hypotheses, two series of analyses were undertaken: the first series for dependent variables related to maternal behaviour, and the second, for dependent variables pertaining to child behaviour. Originally, the interaction between mother and child was to be assessed overall by means of the aggregate cluster, 'relationship quality' (see Appendix F). This variable was created in order to capture the interplay between both actors, unique information not provided by the consideration of each actor separately.

Upon examining this variable, it became apparent 'relationship quality' embodied the flavor of many other variables, including cooperation with which it correlated strongly ($r=.80$, $p<.01$). Further, relationship quality was also correlated with other variables which assessed the behaviour of individual interactants. The source of difficulty resided with the fact that this aggregate cluster variable correlated more strongly with maternal variables in comparison with variables related to child behaviour which correlated only moderately with 'relationship quality.' Specifically, maternal support was found to correlate strongly with relationship quality, $r=.68$, $p<.01$. In consequence, it was deemed redundant to include both 'relationship quality' and maternal support given that our impressions of the quality of the relationship between mother and child were determined heavily by the behaviour of the mother. Hence, 'relationship quality' was dropped from the final analysis given that it reflected a greater contribution by mother's behaviour rather than an equal contribution from both interactants.

The analyses included in this study consist of six direct entry multiple regression analyses. Standard multiple regression was used in favor of a hierarchical format in order to provide a more stringent demonstration of the power of mother's aggression and social withdrawal during childhood in the prediction of her current behaviour as well as that of her child. A hierarchical format employing an order of entry based on chronology, that is, the entry of aggression and withdrawal before the remaining three demographic features would have attributed all overlapping explained variance to these two predictors. A standard format reflects instead the unique predictive powers of aggression and withdrawal while taking into consideration current, relevant characteristics of both mother and child.

In each regression, the predictors included were consistent. This constancy enabled the maintenance of a sense of continuity from analysis to analysis. Predictors included three demographic characteristics of mothers including those on which hypotheses are based: peer-nominated aggression and social withdrawal from childhood. As well, maternal educational attainment was considered. All of the aforementioned variables were treated as continuous. The remaining two predictors consist of child characteristics. They include: gender and age. Gender was dummy coded and treated as a dichotomous variable while age was treated as a continuous variable.

Rationale for predictors.

The first two predictors, aggression and social withdrawal were included as a function of the principal hypotheses. The remaining three predictors, mother's educational attainment, child's age, and child's sex were included based on their hypothesized powers of prediction. In general, the characteristics of mothers and children were included based on previous research which identified mother's characteristics and child's characteristics (including sex) as important in the prediction of child outcome behaviour (Auerbach et al., 1992).

In the area of maternal variables, the reason for which educational attainment was selected over other variables is twofold. First, the association between low maternal education and subsequent risk for psychopathology in off-spring is well-documented (Auerbach et al., 1992; Furstenberg et al., 1987; Lehoux, 1995; Velez, Johnson, & Cohen, 1989). More specifically, previous research with the present sample has found maternal educational achievement to be a strong predictor of both family risk factors and behaviour problems in children (Lehoux, 1995).

Maternal educational attainment was also selected due to its relationship with a host of other important predictors. Due to restrictions associated with a small sample size, a large number of predictor variables cannot be used. Through the use of maternal education, inferences might be made about a host of associated variables. For instance, maternal education is related to maternal intelligence as well as occupational prestige and socioeconomic status. Research supports the notion that developing in a low socioeconomic environment places a child at risk for behaviour problems (Velez et al., 1989). When interacting with off-spring, mothers from low socioeconomic backgrounds have been found to be more negative, expressing more anger than mothers who do not suffer from financial disadvantages (Radke-Yarrow et al., 1988). Children reared in poverty are more likely to live in unsafe neighbourhoods and attend poor quality schools. Further, these children are less likely to be exposed to informal learning opportunities such as cultural groups. Finally, these children very often lack achievement-oriented role models in their social network (Furstenberg, Brooks-Gunn, & Morgan, 1987).

The use of educational attainment as a variable rather than socioeconomic status enables the avoidance of the questions associated with the status of women who work at home. For instance, are these women on welfare or do they have husbands who earn an amount sufficient to support a family on a single income? Hence, maternal education is an effective window into socioeconomic status.

In addition to socioeconomic status, maternal education is also associated with mother's age at first birth, or teenage pregnancy (Brooks-Gunn & Furstenberg, 1986; Furstenberg, Brooks-Gunn, & Morgan, 1987). This last variable could not be evaluated directly in the present study, but was nonetheless worthy of consideration given that one half of mothers had their first child during their adolescence. The reason for which mother's age at first birth could not be evaluated directly in this study is due to a confound. Because the current design is not cross-sectional, mothers who had their first child during their teenage years interacted in the present study with children who were older than those of mothers who delayed childbearing until their twenties who were observed interacting with younger children. Because younger children are less able to control their behaviour and tend to act out more than older children, the effects of teenage motherhood are completely obscured. As such, it is entirely possible for women who became mothers during adolescence to appear more competent than mothers who had their children later in life. The conclusion that teen mothers are better off in this instance is entirely misleading and such results should be attributed to the age of the child, another predictor included to account for the developmental range present in this sample. In addition to the age of the child, sex was also considered based on the literature which suggests sex differences, not only in the behaviour of children, but also in the response of adults to children.

It may appear that a glaring omission to the list of predictors is the behaviour of the other interactant. That is, if concerned with the prediction of maternal aggression, why not include child aggression? The reason for which such variables were not included is twofold. First, inclusion of the behaviour of one interactant as a predictor of the behaviour of the other implies knowledge of directionality. Without recourse to sequential analysis, no directional statements can be made. Unlike aggression and withdrawal variables collected during mother's childhood, it remains unclear whether mother's current behaviour determines that of her child or if the child's behaviour

determines that of his/her mother. It is also possible that some third variable, possibly genetic in origin determines the variability in the behaviour of both mother and child. For a discussion of the transactional model of mother-child interactions, please refer to Appendix M.

A second reason for which current behaviour is not included as a predictor centers on variance. By transforming a dependent variable into a predictor, all shared variance between the former dependent variable representing current behaviour and the childhood variables of aggression and social withdrawal, variance that chronologically speaking, should be attributed to the childhood variables is no longer unique and hence, not attributed to those principal variables of interest, hence, reducing the strength of their contributions to prediction.

One final omission in terms of predictors includes interaction terms, specifically, aggression by withdrawal, aggression by child sex, and withdrawal by child sex. Preliminary analyses run found that none of these interactions achieved significance. Hence, they were dropped in the final analysis.

Statistical assumptions.

When carrying out multiple regression analyses, the minimum requirement for the ratio of participants to predictors is five to one (Tabachnick & Fidell, 1989). In cases such as the present study where some of the dependent variables are not normally distributed and where small effect sizes are anticipated, a higher ratio is in order. Within this investigation, the ratio of participants to predictors is approximately 17 to one.

Both univariate and multivariate assumptions were evaluated for each of the six multiple regressions. With respect to skewness, those variables treated as continuous (maternal supportive behaviour, and child unresponsiveness) were not significantly skewed. Variables treated dichotomously are inherently skewed. Cohen and Cohen (1983) report that multiple regression possesses only modest requirements for the scaling

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of dependent variables, allowing for dichotomous dependent variables, in spite of the resulting violation of the assumption of normal distribution of dependent values in addition to the violation of constant variance. Examinations of outliers via Mahalanobis' distance, Cook's distance, and visual scanning of residuals revealed no significant outliers.

Analyses

As aforementioned, analyses are divided into two sets: the first pertaining to maternal behaviour, and the second, to child behaviour. In all cases, the standard series of predictors including mother's aggression and social withdrawal in childhood, in combination with her educational attainment and her child's sex and age were entered into multiple regressions in order to facilitate the prediction of the following dependent variables: maternal supportive behaviour, maternal aggressivity, maternal unresponsiveness, child restlessness, child aggressivity, and child unresponsiveness. For each of these predictions, a table can be found reporting the standardized regression coefficient (Beta), the semipartial correlation (sr^2), and the t value associated with each predictor. At the end of each table, the multiple correlation coefficient (R), the adjusted squared multiple correlation coefficient (R^2adj.), and the F value are recorded. The alpha level of significance observed in this study is $p<.05$. Given that the present endeavor is exploratory in nature, trends associated with $p<.10$ are also reported.

Within Table 6, the intercorrelations between predictors are presented. Significant intercorrelations, where they do occur, are not sufficiently sizable to elicit concerns over multicollinearity or singularity. Presented in Table 7 are the zero-order correlations between predictor variables and mother-related dependent variables. The zero-order correlations between predictor variables and child-focused dependent variables are presented in Table 8. Depicted in Table 9 are the correlations between mother and child outcome variables.

Table 6

Intercorrelation Among Predictors (N=84)

	Mother's Childhood Aggression	Mother's Childhood Withdrawal	Mother's Education	Child Sex	Child Age
Mother's Childhood Aggression		-.19^t	-.16	-.11	.08
Mother's Childhood Withdrawal			-.20^t	.12	.03
Mother's Education				-.14	-.26*
Child Sex					.01
Child Age					

Notes. ^{t}p<.10 p<.05

Table 7

<u>Intercorrelation Among Predictors and Mother Dependent Variables (N=84)</u>

	Mother's Support	Mother's Aggression	Mother's Unresponsiveness
Mother's Childhood Aggression	-.12	.17[t]	.20[t]
Mother's Childhood Withdrawal	-.22*	.08	.25*
Mother's Education	.39**	-.20[t]	-.36**
Child Sex	-.08	-.26*	.01
Child's Age	-.26*	-.16	-.29**

<u>Note.</u> [t]p<.10 *p<.05 **p<.01

Table 8

Intercorrelation Among Predictors and Child Dependent Variables (N=84)

	Restlessness	Child Aggression	Child Unresponsiveness
Mother's Childhood Aggression	.22*	.12	.25*
Mother's Childhood Withdrawal	.08	.18[t]	-.10
Mother's Education	-.00	.10	.03
Child Sex	-.04	-.05	-.10
Child Age	-.34**	-.23*	-.15

Note. [t]p<.10 *p<.05 **p<.01

Table 9

Intercorrelation Between and Among Mother and Child Dependent Variables (N=84)

	Mother Support	Mother Aggression	Mother Unresponsive	Restless	Child Aggression	Child Unresponsive
Mother Support		-.23*	.23*	-.05	-.07	-.12
Mother Aggression			-.31**	.32**	.26*	.11
Mother Unresponsive				-.05	.07	-.07
Restless					.31**	.25*
Child Aggression						.29*
Child Unresponsive						

Note. ^{t}p<.10 *p<.05 **p<.01

<u>Hypothesis 1: Mother's Aggression and Withdrawal in Childhood and Her Current</u>

<u>Behaviour During Interaction with Her Off-spring</u>.

The first hypothesis was centered on the notion that maternal psychosocial difficulties

in childhood would predict maladaptive behaviours in current interactions with off-

spring. Specific behaviours considered include: reduced supportiveness, aggressivity,

and unresponsiveness. Three separate direct entry multiple regressions were conducted to

predict the aforementioned maternal behaviour patterns. In addition to aggression and

social withdrawal, maternal educational attainment, child's sex, and child's age were also

entered as predictors in the regressions. Of the three analyses performed, at least one of

the two variables representing mothers' childhood psychosocial difficulties emerged as a

significant predictor in two of the regressions.

<u>Supportive Maternal Behaviour</u>. Displayed in Table 10 are the results of the

regression analysis for supportive maternal behaviour. Overall, the multiple $\underline{R}$ was

significantly different from zero, $\underline{F}(5, 79)=4.20$, $\underline{p}<.01$, with the five variables of interest,

together accounting for 16%[3] of the total variance. No significant main effect for

aggression was observed; however, a trend emerged for social withdrawal, Beta=-.18,

$\underline{p}<.10$. The more elevated the mother's withdrawal $\underline{z}$-score, the less supportive she was

observed to be in her interactions with her off-spring. In terms of the remaining

predictors, significant main effects were uncovered for both mother's educational

attainment and the age of the child, Beta=.29, $\underline{p}<.01$, and Beta=-.18, $\underline{p}<.05$ respectively.

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[3] Reports of the total variance refer to adjusted $\underline{R}^2$ values.

Table 10

Prediction of Supportive Maternal Behaviour (N=84)

Variables	Beta	sr^2	t
Mother's Childhood Aggression	-.09	.01	-.88
Mother's Childhood Withdrawal	-.18	.03	-1.67[t]
Mother's Education	.29	.07	2.66**
[a]Child Sex	-.03	.00	-.26
Child Age	-.18	.03	-1.69*
	R=.46	R^2adj.=.16	F=4.20**

Notes. [a]Males=0, Females=1   [t]p<.10   *p<.05   **p<.01

The more educated the mothers, the more they were observed to be supportive with their off-spring. As well, mothers of younger children were found to engage in more supportive behaviour. The sex of the child was not found to make a significant, unique contribution.

Maternal Aggressivity. Indicated in Table 11 is that within the regression predicting maternal aggressivity during interactions with her off-spring, the overall multiple R was significantly different from zero, $F(5, 79)=3.79$, $p<.01$, with 14% of the total variance being accounted for by the union of the predictors. In terms of main effects, stability of aggression was not observed, with childhood aggression failing to achieve significance. Social withdrawal was also not a significant predictor of current maternal aggressivity. The remaining predictors, however, did achieve significance. A main effect was observed for maternal education, Beta=-.27, $p<.05$ suggesting that the less educated the mother, the more likely she was to be observed to engage in aggressive behaviour within interactions with her child. Child's sex was also found to be significant, Beta=-.29, $p<.01$ such that mothers of boys were viewed to engage in more aggressive behaviour. Finally, a significant main effect emerged for the age of the child, Beta=-.24, $p<.05$ reflecting the tendency whereby mothers engaged in more aggressive behaviour with younger children.

Table 11

Prediction of Aggressive Maternal Behaviour [0/1] split (N=84)

Variables	Beta	sr^2	t
Mother's Childhood Aggression	.14	.02	1.27
Mother's Childhood Withdrawal	.09	.01	.85
Mother's Education	-.27	.06	-2.40*
[a]Child Sex	-.29	.08	-2.78**
Child Age	-.24	.05	-2.25*
	$R=.44$	$R^2adj.=.14$	$F=3.79**$

Notes. [a]Males=0, Females=1 $^{t}p<.10$ $*p<.05$ $**p<.01$

Maternal Unresponsive Behaviour. Presented in Table 12 are the results of the

standard regression in which maternal unresponsive behaviour was predicted. Together,

the predictors combined to produce a significant multiple $\underline{R}$, $\underline{F}$ (5, 79)=4.14, $\underline{p}$<.01,

accounting for 16% of the total variance. With respect to the main effects of childhood

psychosocial problems, social withdrawal emerged as a significant predictor, Beta=.23,

$\underline{p}$<.05 and a trend was observed for aggression, Beta=.18, $\underline{p}$<.10. These findings suggest

that mothers who were more socially withdrawn and/or more aggressive during childhood

were observed to be more unresponsive to or ignoring of their children during

interactions. With respect to the remaining predictors, a significant main effect was

observed only for maternal educational attainment, Beta=-.26, $\underline{p}$<.05. Less educated

mothers were observed to engage in more unresponsive behaviour during interactions

with their off-spring than were more highly educated mothers. Variables pertaining to

child characteristics including gender and age did not individually achieve significance.

To summarize the findings with respect the first hypothesis, including trends, maternal

social withdrawal in childhood was observed to make significant unique contributions to

the predictions of both less supportive and unresponsive maternal behaviours. A

childhood history of aggression in mothers emerged as a trend in the prediction of

unresponsive maternal behaviours. With respect to the remaining predictors,

demographic in nature, maternal education was found to be among the strongest

predictors of current maternal behaviour such that the less education the mother had

received, the less supportive, more aggressive, and more unresponsive she was observed

to be in interactions with her off-spring. In terms of child variables, gender was found to

Table 12

Prediction of Unresponsive Maternal Behaviour [50/50] split (N=84)

Variables	Beta	sr^2	t
Mother's Childhood Aggression	.18	.03	1.68[t]
Mother's Childhood Withdrawal	.23	.05	2.15*
Mother's Education	-.26	.06	-2.33*
[a]Child Sex	-.02	.00	-.22
Child Age	.13	.02	1.25
	$\underline{R}$=.46	$\underline{R^2adj.}$=.16	$\underline{F}$=4.14**

Notes. [a]Males=0, Females=1   [t]p<.10   *p<.05   **p<.01

offer a unique contribution to the prediction of aggressive maternal behaviour, with boys being exposed to more maternal aggression than girls. Child's age was found to contribute significantly to the prediction of supportive and aggressive maternal behaviour such that mothers were observed to be more supportive as well as more aggressive with younger children.

Hypothesis 2: Mother's Aggression and Withdrawal in Childhood and the Behaviour of Her Child During Mother-Child Interactions.

The second hypothesis, reflecting the theory of intergenerational risk transmission, proposed that mothers' psychosocial difficulties during childhood would predict the exhibition of more maladaptive behaviour patterns by their off-spring during mother-child interactions. Specific behaviours evaluated include: restlessness, aggressivity, and unresponsiveness. Three separate standard multiple regressions were performed to predict these behaviours. As in the case of the first hypothesis, aggression and social withdrawal, maternal educational attainment, child's sex, and child age were entered as predictors in the regressions. Of the three analyses, at least one of the two variables representing mothers' childhood psychosocial difficulties emerged as significant predictors in all three regressions.

Restlessness. Presented in Table 13 is the regression in which restless child behaviour is predicted. Results indicate a significant multiple $\underline{R}$, $\underline{F}(5, 72)=3.37$, $\underline{p}<.01$. Taken together, the predictors account for 14% of the total variance. With respect to

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Table 13

Prediction of Restless Child Behaviour [0/1] split (N=77)

Variables	Beta	sr^2	t
Mother's Childhood Aggression	.25	.06	2.23*
Mother's Childhood Withdrawal	.12	.02	1.10
Mother's Education	-.04	.00	-.31
[a]Child Sex	-.04	.00	-.38
Child Age	-.37	.12	-3.30**
	$R=.44$	$R^2adj.=.14$	$F=3.37**$

Notes. [a]Males=0, Females=1   [t]$p<.10$ *$p<.05$ **$p<.01$

mother's childhood psychosocial problems, a main effect was observed only for aggression, Beta=.25, p<.05. This suggests that the more aggressive mothers were as children, the more likely their children are to engage in restless behaviour during an interaction requiring discussion and negotiation. Of the remaining predictors, only the age of the child made a significant, unique contribution to the prediction of child restlessness, Beta=-.37, p<.01. Younger children were more often observed to engage in restless behaviour in contrast with their peers at a more elevated stage of development. Both the educational attainment of mothers and the gender of the child failed to contribute significantly to the prediction of the child's restless behaviour.

Aggressivity. The regression predicting aggressivity of children during interactions with their mothers is presented in Table 14. Revealed in these results is that the multiple R was significantly different from zero, F(5, 79)=2.41, p<.01. Predictors, taken together, accounted for 8% of the total variance. With respect to mothers' childhood psychosocial difficulties, social withdrawal was found to be a significant predictor and a trend was observed for aggression[4]. The more withdrawn a mother was as a child, the more aggressive her child was observed to be within the context of mother-child interactions, Beta=.25, p<.05. Similarly, the more aggressive a mother was as a child, the more aggressive her child was observed to be, Beta=.20, p<.10. Of the remaining demographic predictors, only the age of the child was found to contribute

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[4] While withdrawal emerged as a significant predictor at the .05 level aggression achieved only a trend, the difference between the two Beta weights is not significant. Hence, one should not consider one predictor as superior to the other.

Table 14

Prediction of Aggressive Child Behaviour [0/1] split (N=84)

Variables	Beta	sr^2	t
Mother's Childhood Aggression	.20	.04	1.78[t]
Mother's Childhood Withdrawal	.25	.06	2.24*
Mother's Education	.12	.01	1.03
[a]Child Sex	-.04	.00	-.40
Child Age	-.23	.05	-2.08*
	R=.37	R^2adj.=.08	F=2.41*

Notes. [a]Males=0, Females=1   [t]p<.10   *p<.05   **p<.01

uniquely to the prediction of aggressive child behaviour, Beta $= -.23$, $p<.05$. This finding suggests that younger children tended to engage in more aggressive behaviour in comparison with older children. The remaining two predictors, mother's educational attainment and the gender of the child failed to achieve significance in terms of providing unique contributions to the prediction of aggressive child behaviour.

Unresponsiveness. The final multiple regression analysis is presented in Table 15. Overall, the multiple R failed to achieve significance, in spite of the fact that 10% of the total variance was accounted for by the combination of the five predictors. Due to this lack of significance, it is statistically inappropriate to delve into the table and interpret individual main effects. Given the exploratory nature of this study however, it is of interest to note that the main effect for maternal aggression in childhood was significant, Beta$=.25$, $p<.05$. This result however, should be interpreted with caution given that it might be the consequence of an alpha error.

To summarize the results of the second hypothesis, with respect to the behaviour of the second generation, maternal aggression in childhood contributed significantly (or a trend was observed) in the prediction of all of the aversive child behaviours under scrutiny. Maternal withdrawal in childhood emerged as a significant predictor only within the sphere of aggressive child behaviour. With respect to the remaining three demographic characteristics, neither mother's educational attainment nor the gender of the child were found to contribute significantly to the prediction of aversive child behaviours.

Table 15

Prediction of Unresponsive Child Behaviour (N=84)

Variables	Beta	sr^2	t
Mother's Childhood Aggression	.25	.06	2.25*
Mother's Childhood Withdrawal	-.03	.00	-.31
Mother's Education	.02	.00	.13
[a]Child Sex	-.06	.00	-.57
Child Age	-.16	.03	-1.45
	R=.31	R^2adj.=.10	F=1.70

Notes. [a]Males=0, Females=1   [t]p<.10   *p<.05   **p<.01

Child's age, however, was observed to contribute uniquely to the prediction of both restless and aggressive child behaviours with younger children more likely to engage in both.

Discussion

The goal of the present study was to explore the relationship between psychosocial problems within the childhood of mothers and the related maladaptive behaviour patterns of both these mothers and their off-spring. In essence, our aim was to determine first whether psychosocial problems in childhood were stable characteristics and risk factors, manifesting themselves within mother's interactions with their off-spring. Second, we planned to uncover evidence of a transmission of risk whereby maternal psychosocial difficulties during childhood would serve as predictors of aversive behaviours emitted by children during interactions with their mothers.

Overall, moderate support was obtained for the manifestation of problem behaviours in both mothers and their off-spring. The amount of explained variance in both mother and child behaviour attributed to the unique predictive abilities of maternal aggression and/or social withdrawal in childhood was small; however, the fact that these variables provided any predictive validity at all is important given the twenty year time lag between the collection of the aggression and social withdrawal variables and the current collection of dependent variable data.

To summarize findings, maternal aggression in childhood was found to contribute to the prediction of an unresponsive style of interaction on the part of both mothers and their children. Further, maternal aggression in childhood was found to predict restlessness and aggressive behaviour in off-spring. Social withdrawal in the childhood of mothers was found to predict less supportive, more unresponsive maternal behaviours. Children of these women were found to engage in more aggressive behaviour.

Undercontrolled or externalizing behaviour problems are more evocative of clinical referral than are internalizing problems which tend to manifest themselves in ways that are less bothersome to parents and teachers (Weisz & Weisz, 1991). Results of the present study suggest that children exhibiting internalizing tendencies are set on a life

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course in which they and their future off-spring are at increased risk for the development of problematic behaviour patterns. It is therefore important to be able to identify these children early on and intervene.

In terms of the other predictor variables considered, mother's level of education proved to be one of the most important variables in predicting mother's current aversive behaviours, but did not contribute uniquely to the prediction of child behaviour variables. Mother's education represents a measure of both intelligence and socioeconomic status. Researchers finding increased problems in families of lower socioeconomic status do not attribute this increase to a direct effect of less money, but rather, to the consequences of reduced financial security such as parental stress, marital instability, and other such difficulties (Roff & Wirt, 1984). Further, lower educational attainment and corresponding lower socioeconomic status are also related to teenage pregnancy, a further risk factor in the prediction of parent-child interaction difficulties. Approximately half of the mothers in this sample gave birth to their children during adolescence, but the variable of teenage motherhood could not be addressed directly due to the confound of child's age: former teenage mothers were observed interacting with older children in comparison with mothers who delayed childbearing.

With respect to child characteristics under consideration, gender exhibited unique explanatory powers in relation to maternal behaviour (specifically aggressive behaviour), but not in relation to child behaviour itself. Finally, child's age proved to be important in terms of demonstrating that mothers are more reactive with younger children, providing greater support and increased aggressivity which may in fact be in response to the fact that younger children were found to engage in more restless and aggressive behaviour.

Limitations of the present study

Prior to discussing the implications of the findings of the present study, it is important to consider the limitations of this research endeavor. First, findings are based on a very small window in terms of the entire panorama that encompasses mother-child interactions. While selected based on previous research, it is impossible to determine whether the four interaction tasks capture truly the typical interactional style of the participating mothers and children. Further, with respect to those studied in the laboratory, it is unclear whether the unnaturalness of the setting impinged on the freedom with which mothers and children interacted.

To further place into question the validity of the sample of behaviour obtained, one must consider the prominence of the video recording equipment which was in full view of both participants. Based on our observations, mothers appeared somewhat inhibited by their desire to engage in socially desirable behaviour whereas their children were less constrained. For instance, we observed that some mothers, upon becoming frustrated would look briefly at the camera as though to remind themselves they were being observed. One mother even raised her hand to strike her child, but decided better likely due to the surroundings in which she found herself.

The degree of control exercised in terms of the setting is an additional limitation with respect to this study. The majority of participating dyads ($\underline{n}$=67) interacted in the laboratory while the remaining dyads interacted at home ($\underline{n}$=17). It is quite possible that the experience of interacting differs depending on whether one is in an unfamiliar room within the larger setting of a university laboratory or in the comfort of one's own home. For some, being at home might reduce anxiety whereas for others who associate painful experiences with a given room, interacting within that room might serve to increase distress. Tests comparing these two groups on variables of interest however, did not achieve significance.

In terms of statistical matters, the small sample size places constraints in terms of the number of predictors which can be considered within a given regression equation as well as in terms of the complexity of the analyses carried out. With respect to the latter, in the case where both the direct and indirect effects of predictors are of interest, it would be extremely beneficial to carry out a path analysis. Within the present study for instance, social withdrawal in childhood is negatively correlated with maternal educational achievement such that the more withdrawn the mother in childhood, the lower the number of years of schooling she completed. Also, maternal education is negatively correlated with child's age such that teenage mothers completed less education than did mothers who delayed childbearing (see Table 6). In regressions where education is found to be a significant predictor of maladaptive consequences, it would be of use to know if a history of social withdrawal in childhood began such negative paths. Similarly, in the case where child's age is a significant predictor, it would be of interest to note whether this variable's significance operates via a pathway begun by mother's educational attainment. With so few subjects however, the number of paths required for the development of a meaningful model quickly exceeds the number permitted. Hence, this form of analysis remains for future research.

Complementing the information gleaned via path analysis, sequential analysis would have contributed a more complete picture of the interaction between mother and child. The preliminary nature of the present study eliminated the possibility of appreciating the reciprocal nature of interactions on a level beyond the theoretical. Interpretations of the results obtained from the present study are limited due to the fact that it remains to be determined whether greater aversive behaviour in children is provoked and/or sustained by the behaviour of their mothers. Similarly, it is unclear whether the aversive behaviour of mothers is elicited and/or sustained by the manifestation of certain temperamental dispositions of their children towards aversive behaviour. Because of this uncertainty in terms of directionality, current maternal behaviours were not entered as predictors of

current child behaviours and vice versa. Further, due to the fact that both mother and child variables that might elicit or sustain aversive patterns in the other were used as dependent variables, they were by definition related to the predictors of interest. Hence, entering a variable, formerly considered an outcome measure as a predictor would result in a condition wherein a certain amount of overlap would occur in the explained variance. Consequently, the unique predictive powers of aggression and social withdrawal, considered due to chronology as causal factors in the prediction of current behaviour, might fail to achieve significance due to their intercorrelation with current interaction variables. By approaching mother-child interactions using sequential analysis, the direction of causality with respect to aversive mother and child behaviours might be uncovered.

Hypothesis 1: Mother's Aggression and Withdrawal in Childhood and Her Current Behaviour During Interaction with Her Off-spring.

Supportive maternal behaviour. Women who were socially withdrawn as children were found to engage in less supportive behaviour with their off-spring. In part, this trend might be explained by current child behaviours within the interaction sequence. Children of these same mothers were found to be more aggressive and it is in response to such aversive behaviours that mothers have fewer occasions in which to support prosocial, adaptive behaviours.

Other explanations for the reduced display of supportive behaviour in these women emanate from the consideration of the stability of social withdrawal. Cumulative continuity suggests that behavioural tendencies are maintained by the agglomeration of their consequences (Caspi et al., 1988a). In this instance, women who were socially withdrawn as girls failed to master the negotiation of rules of interaction due to their limited interactions with others. This lack of skill leads to further isolation which

sustains incompetence in the art of effective interaction and perhaps in adulthood results in ineffective interactions with offspring (Caspi & Elder, 1988b).

In addition to social withdrawal, demographic variables contributing to the prediction of maternal support include the educational attainment of mothers as well as the age of their children. Mothers who are more educated are more supportive of their off-spring. This finding might be explained by a relationship between knowledge on child-rearing acquired directly in schools. More likely, maternal educational attainment represents intelligence. Mothers able to complete more schooling are likely more competent in their parental roles. Other possible explanations of this finding reside with those variables which are correlated with maternal education. If mother's education is considered as a measure of socioeconomic status, those mothers who have completed more schooling likely experience a greater degree of financial security. It is possible that marital instability and other stressors associated commonly with poverty are less relevant to these women. By consequence, they might be better able to devote more effort to interactions with their off-spring as a function of not being burdened with as many constant stressors.

Finally, the finding that mothers are more supportive of younger children reflects a general observation that mothers are more reactive overall with these children, exhibiting both more supportive and more aggressive behaviour. The comportment of younger children is understood to be in need of more constant shaping and modification in contrast with that of older children. Older children have presumably already learned certain rules which are fundamental to interaction. Finally, in terms of greater supportive behaviour alone, it appears that instinctively, adults are drawn to display warm behaviour with younger children, considering accurately or inaccurately that older children are less in need of such affirmations.

Maternal aggressivity. Contrary to expectations, maternal aggression in childhood was not found to be a significant predictor of maternal aggressivity in interactions with off-spring. This failure to achieve significance might in part be attributed to the small

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sample size. The relationship between aggression in childhood and aggression in interactions with off-spring was found to be in the anticipated positive direction even though it failed to achieve significance.

Contributing to the explanation of the lack of significance for childhood aggression is social desirability. Mothers may have felt comfortable engaging in more unresponsive and less supportive forms of behaviour. Overt aversive behaviours including yelling and hitting however were likely more controlled in order to manage impressions.

The lack of support for the stability of aggression might also be attributed to the way in which aggression is defined in this study. Over time, there occurs a metamorphosis in the expression of aggression females, from a more direct expression in childhood to a more indirect form in adolescence manifested by social ostracism (Bjorkqvist, & Niemela, 1992; Cairns et al., 1989). Perhaps, the tendency of these women to engage in more unresponsive or ignoring behaviours with their off-spring reflects a certain degree of ostracism, sending the subtle message to their children that they are not worthy of any attention, let alone positive attention. Taken together, the explanations highlighted suggest that the present finding should not be taken as evidence for the lack of stability in aggressivity.

Whereas aggression and social withdrawal did not achieve significance, the demographic predictors maternal education, child's age, and child's sex were all found to contribute uniquely to the prediction of maternal aggression. As was discussed in terms of supportive maternal behaviour, the effects of education might be the result of: a) level of intelligence, b) direct learning about appropriate interactions with off-spring, c) increase in consciousness about socially desirable behaviour, or e) socioeconomic factors and other stressors related to lower educational attainment. Further, it is also possible that a maternal history of aggression in childhood might lead to early pregnancy and school drop-out.

In terms of the age of the child, younger children were found to engage in more aversive behaviours, including restlessness and aggressivity. Literature confirms this finding that more behaviour problems are found in younger children (Earls & Jung, 1987; Jensen, Bloedau, Degroot, Ussery, & Davis, 1990). Aversive behaviours emitted by children may have elicited consequent reprimand behaviours from mothers which took on a punitive, aggressive tone. Another possible explanation is that aggressivity in mothers served as a model for child behaviour given that within the interaction, mother's aggression was found to be correlated with child's aggression. Without sequential analyses of interaction sequences, it is impossible to make any firm causal statements.

The regression predicting maternal aggression was the only analysis for which the gender of the child became significant. Girls have been found to be less vulnerable to many psychosocial adversities. The reason for which this is so remains unclear; however, it is not simply the consequence of "constitutional resilience" (Rutter, 1985, p. 601) for it has been demonstrated that males are more likely to elicit harmful behaviour from other individuals. Within the present study, boys were not found to engage in more aversive behaviours than girls; however, it could be that the coding system employed was not sensitive enough to detect such provocative behaviour in boys.

Other research suggests that the increased vulnerability of boys may be attributed to differential parental attitudes towards boys and girls. A study examining data from both the United States and Australia found that in comparison with their female counterparts, boys had higher ratings of parental rejection (Eron, 1992). As well, it has been found that mothers do not respond similarly to aggressive behaviour in boys and girls (Radke-Yarrow et al., 1988). Boys are more likely to receive punishment for aggressive behaviour than are girls (Cohen & Brook, 1995; Maccoby & Jacklin, 1974; Patterson, 1976; 1982). More specifically, aggression in boys elicits maternal unhappiness and anger. In girls however, aggressive behaviour has not been found to be related significantly to maternal expressions of affect. This difference is explained in part by the

fact that aggression in boys is found to correlate positively with several other negative characteristics, including: anger and negative mood. As well, aggression correlates negatively with affection and social competence in boys, associations which were also not found in girls. These findings, when related to results of the present study may explain in part mothers' more aggressive behaviour when interacting with their boys. While no significant sex differences emerged in children's aggressive behaviour, it might be that other negative behaviour correlated with aggression in males, but not captured by this coding system lead to this differential response pattern of mothers.

Maternal Unresponsiveness. Originally, it was hypothesized that unresponsive maternal behaviour reflected the adult manifestation of childhood social withdrawal. Unresponsive behaviour during interactions were characterized by an avoidant or ignoring style, effective in severing interactions. Results suggest that not only does social withdrawal in childhood predict later unresponsiveness with off-spring, but so too does childhood aggression. Hence, withdrawal can be conceived as somewhat stable with cumulative consequences resulting in isolating forms of behaviour evident in interactions with off-spring (Caspi & Elder, 1987a). As well, aggression in childhood predicts a tendency for mothers to engage in more ignoring forms of behaviour during interactions with their children. This last finding might be interpreted as the result of the developmental change in the expression of aggression in women from childhood to adolescence, moving from direct expressions to indirect forms such as social ostracism as was previously highlighted (Bjorkqvist & Niemela. 1992; Bjorkqvist, Osterman, & Kaukiainen, 1992; Cairns et al., 1989). On a related note, it has been found that girls with conduct disorder in childhood are at increased risk for the development of both externalizing and internalizing disorders in adulthood (Robins, 1986). Eron (1992) however found that these initially aggressive girls were more vulnerable only to the development of internalizing symptoms.

Hypothesis 2: Mother's Aggression and Withdrawal in Childhood and the Behaviour of Her Child During Mother-Child Interactions.

Restlessness. Results pertaining to the variable of child restlessness must be interpreted cautiously given the somewhat low Kappa reliability coefficient. The transmission of intergenerational risk was observed whereby mothers who were rated by their peers as aggressive had children who were more likely to engage in restless behaviour. This finding is a particularly interesting example of the stability of aggression into the next generation for one of the criteria on which mothers were rated in terms of aggression during childhood was the inability to sit still (see Appendix B). The question remains as to the relative contribution of genetics and environment to the development of restless behaviour in off-spring. Are children of aggressive mothers more prone to restlessness as a function of their genetic inheritance or are mothers engaging in a pattern whereby they elicit and reinforce restless behaviour in their children? Sequential analysis might provide some insight into this last question. Research suggests a compromise between nature and nurture: activity level is a heritable trait mediated by the effects of maturation (Eaton & Yu, 1989).

With respect to age, younger children in the present study were observed to engage in more restless behaviour. This finding is not unexpected given that as children develop, particularly within the school-age years, they learn gradually to control their impulses and remain seated and focused when carrying on a discussion. Our findings confirm those of others which suggest that hyperactivity, more characteristic of younger children, decreases with age (Eaton, 1994; Taylor, 1986).

Aggressivity in children. Both maternal aggression and social withdrawal in childhood were found to predict aggressivity in off-spring. Two separate explanations are proposed for these findings. Aggression is understood to be a relatively stable trait (Farrington, 1994; Huesmann et al., 1984; Olweus, 1984; Pulkkinen & Pitkanen, 1993). At the same time, it is subject to developmental change. Huesmann and colleagues (1984) suggest that while genetic and physiological factors likely contribute to the development and persistence of aggressive behaviour, the "appropriate learning conditions" (p. 1120) also play an important role. Like Patterson (1982), these researchers suggest a social learning approach whereby children learn aggression as a function of their parents' aggressive behaviour (towards them and others). Hall and Cairns (1984) propose that the development of direct aggressive behaviour in children results not only from modeling by parents, but also from social reciprocity. Social reciprocity refers to the condition where the behaviours of individuals reinforce each other and over time, these individuals' actions begin to resemble each other. Through coercive interactions, children are reinforced for displays of aversive behaviour and as a result, the probability of children engaging in such behaviour in the future is increased (Plomin, Nitz, & Rowe, 1990). Unfortunately, the scope of the present study is not wide enough to determine the directional flow of aggression between mother and child.

A second explanation relates to the unresponsive maternal behaviour predicted by both aggression and social withdrawal in childhood. When faced with an unresponsive mother, a child might attempt to engage his/her parent in an interaction by means of behaving in an aversive fashion. Based on the history of his/her interaction with his/her

mother, it is possible that the child has learned that acting out will elicit parental attention whereas prosocial behaviour will pass unnoticed. Likely, the mother will respond to aversive behaviour in her child with some form of aggressive behaviour herself. In spite of the negative flavor of her response, it is perhaps preferable to no response for the child.

In terms of demographic predictors, only child's age achieved significance, with younger children engaging in more aggressive behaviour. This finding is consistent with other studies which have found high levels of externalizing problems in younger children (Rothbaum & Weisz, 1994). As with restless behaviour, children, over time and through reinforcement, learn to control their aggressivity. Perry (in press) suggests that aggressive or undercontrolled behaviour reflects activity coordinated at the brain stem, the more primitive part of the brain. Higher areas of the brain such as the cortex, responsible for self-regulation develop in a use-dependent way. Hence, with use over time, children become more efficient in the control of impulsive behavioural displays.

Child unresponsiveness. The overall regression of child unresponsive behaviour did not achieve significance therefore, we cannot interpret individual significant main effects for they are due likely to chance. Due to the exploratory nature of this study, we might stretch the bounds of statistical rules in order to consider the relationship between maternal aggression in childhood and the unresponsive behaviour of the next generation. In general, results of child unresponsiveness might be added to the findings on child aggressivity and restlessness to conclude that aggression in the childhood of mothers predicts a wide variety of aversive behaviours exhibited by their off-spring during

interaction. The exact mechanisms of this transmission of risk, be they genetic, environmental, or a combination of the two, remain to be uncovered.

Future directions of research

Based on the findings of this study and its predecessors, childhood psychosocial problems have been found to lead to difficulties later in the lives of those who first evidenced such tendencies as well as in the lives of their school-age children. In terms of intergenerational transmission, at present, only the effects of maternal childhood aggression and social withdrawal have been assessed. The existing knowledge base should be expanded to include the impact of fathers' childhood psychosocial status as well. To obtain a more complete picture of the influences on the behaviour of children in the current sample, fathers who were not original participants in the Concordia Risk Project should also be assessed. Specifically, parenting strategies and personality characteristics should be considered in terms of their influence on the child in both the directions of risk and resilience. Knowledge about mothers explains only part of the pictures. The presence or absence of fathers alone might provide valuable information in the prediction of the behaviour of the child.

Globally, the principal direction for future research should be towards the development of intervention strategies serving to break the perpetuation of the observed cycle of problems. At present, a risk assessment study is underway to identify children who may be at elevated risk for psychosocial difficulties before they reach school age. Path analysis might provide information as to the direct and indirect effects of predictor

variables on outcome variables of interest. These predictors would including childhood

psychosocial difficulties of parents as well as more current factors in the lives of parents.

Given the important contribution to the prediction of maternal behaviours made by

educational attainment, future research should be directed towards the mediating effects

of mother's education on mothers' interactions with their infants. Further, in an attempt

to explore further the ways in which sequelae of aggression and social withdrawal in

childhood contribute to risk later in life, it would be useful to assess social support

networks, particularly in light of their buffering and cost-effective possibilities.

In order to gain more insight into the exact process whereby aversive behaviour cycles

commence between mothers and children, future research should employ sequential

analysis. In so doing, the maladaptive behaviour sequences whereby aversive child

behaviour is somehow either provoked or rewarded might be identified and targeted

during parent training.

Once the areas of vulnerability in off-spring of the original sample have been

identified, work on the development of intervention strategies can be initiated.

Intervention initiatives will be further enhanced by focusing not only on risk factors, but

considering those positive features. which contribute to resilience (Werner & Smith,

1992). That is, the identification of those factors which enable some children to

overcome their impoverished backgrounds and develop without evidencing vulnerability.

Final thoughts

The present study contributes to the collection of work housed under the rubric of the Concordia Risk Project. Over the last twenty years, findings have indicated that both aggression and social withdrawal constitute risk factors, predicting difficulties later in the lives of those who exhibit these behavioural tendencies as well as in the lives of their offspring. Knowing the importance of these behavioural indicators early in life, coupled with the critical role played by education points towards a strong need to identify these children early on, when they are malleable, and intervene very possibly in school. Education appears to play a strong role in determining risk. Perhaps, educational attainment is explained in part by heredity and intelligence. Taking a proactive stance during childhood, a time when individuals are required to be in school and are thus accessible for intervention might well serve both the child and future generations engendered by this individual. Particular attention should be paid to those socially withdrawn children who tend to go undetected in contrast with their externalizing peers. By heeding the call sounded by the Concordia Risk Project and transforming knowledge into preventive action, compensating for children's psychosocial difficulties early on, the quality of life for generations of Canadians might well be improved.

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Appendix A

Earlier findings of the Concordia Risk Project

The first phase of the Concordia Risk Project (1976-1981) found that children rated highly by their peers along the dimensions of both aggression and social withdrawal experienced immaturity in both cognitive and motor areas. As well, they obtained low school achievement and intelligence scores. Children rated by their peers as being aggressive were also found to exhibit poor school achievement, but fared well with respect to intellectual ability. As a group, the withdrawn children were not low on intelligence and displayed diverse levels of school achievement (Moskowitz & Schwartzman, 1989).

The second phase of the Concordia Risk Project (1982-1985) followed participants in their teenage years. Intellectual problems continued for both the aggressive/withdrawn and aggressive groups. With respect to physical health, medical records obtained for approximately 95% of the sample revealed that members of the aggressive group suffered from the most psychiatric and non-psychiatric medical problems, with aggressive women displaying the most non-psychiatric medical problems. Within the realm of the sexual, medical records revealed elevated levels of gynecological problems, treatment for sexually transmitted disease and pregnancy in women rated as aggressive and aggressive-withdrawn in childhood (Serbin, Peters, McAffer, & Schwartzman, 1991). Withdrawn women however exceeded women in all other groups with respect to the number of abortions obtained (Serbin, Schwartzman, Moskowitz, & Ledingham, 1991).

Beyond the gynecological sphere, withdrawn participants were not found to differ greatly from their contrast counterparts. Differences uncovered rested primarily on self-perceptions, with withdrawn adolescents evaluating themselves as being of low competence. In aggressive adolescents, the major risk factors with respect to continued adaptational problems were found to rest in family difficulties. Aggressive-withdrawn teenagers did not evidence the same overt family problems as did those in the aggressive group; however, their behavioural style may have been in response to more subtle family stresses.

Within the third phase of the Concordia Project (1988-1991) the focus shifted to the domains of social services, the justice system, occupational endeavors and marriage. Sex differences emerged with respect to criminal behaviour in all groups. Most notable was the aggressive group in which 46% of males had been to court for a criminal offense, while only 4% of aggressive females had had the same experience.

The previous phases of this project just outlined highlight some of the sequelae of the risk factors aggression and withdrawal. The current phase of the project, while continuing to assess the consequences of childhood aggression and social withdrawal across the lifespan is also being fueled by a second question, that of risk transmission. Do parents with a history of childhood psychosocial difficulties transfer that predisposition to problematic behaviour to their off-spring (Lehoux, 1995; Serbin, Peters, McAffer, & Schwartzman, 1991; Serbin, Peters, & Schwartzman, in press)?

Early efforts with the second generation of participants in the Concordia Risk Project suggest that these children of the original participants are at increased risk for psychosocial difficulties (Lehoux, 1995; Serbin, Peters, McAffer, & Schwartzman, 1991). In assessing those women who became mothers during adolescence or early adulthood, it was uncovered that mothers who, as children, were rated by their peers as being withdrawn, provided less stimulating environments for their children and were themselves less responsive to their children. Aggressivity during childhood predicted poor developmental progress in offspring and an unresponsive behaviour style in mothers.

An additional study into the transfer of risk found that sons of aggressive mothers and children of aggressive/withdrawn mothers displayed high frequency and severity of injuries as well as other medical emergencies[5] (Serbin et al., in press). Overall, these

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[5] Medicare data must be interpreted cautiously as it is in part determined by a parent's decision to seek medical help. At the same time, frequent medical treatment is also an indication of neglect and possibly, physical abuse (Serbin, Peters, & Schwartzman, in press).

initial results suggest that through genetics, environment, or a combination of the two,

psychosocial risk has been transferred.

Appendix B

Aggression and Withdrawal Items on the PEI

Aggression Items

3. Those who can't sit still[6].

4. Those who try to get other people in trouble.

7. Those who act stuck-up and think they are better than everyone else.

8. Those who play the clown and get others to laugh.

9. Those who start a fight over nothing.

12. Those who tell other children what to do.

15. Those who always mess around and get into trouble.

16. Those who make fun of people.

18. Those who do strange things.

20. Those who bother people when they're trying to work.

21. Those who get mad when they don't get their way.

22. Those who don't pay attention to the teacher.

23. Those who are rude to the teacher.

26. Those who act like a baby.

27. Those who are mean and cruel to other children.

29. Those who give dirty looks.

30. Those who want to show off in front of the class.

31. Those who say they can beat everyone up.

33. Those who exaggerate and make up stories.

34. Those who complain nothing seems to make them happy.

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[6] This item is interesting in relation to the construct of child restlessness in the present study.

Withdrawal Items

5. Those who are too shy to make friends easily.

6. Those whose feelings are too easily hurt.

10. Those who never seem to be having a good time.

11. Those who are upset when called on to answer questions in class.

13. Those who are usually chosen last to join in group activities.

17. Those who have very few friends.

24. Those who are unhappy or sad.

28. Those who often don't want to play.

32. Those who aren't noticed much.

Appendix C

Peer Nomination Technique and the Concordia Risk Project

In order to identify levels of aggression and withdrawal, the 4,109 children in 152 classrooms selected for the Concordia Risk Project participated in the administration of the Pupil Evaluation Inventory (PEI; Pekarik, Prinz, Liebert, Weintraub, & Neale, 1976). The PEI (see Appendix B), a peer evaluation measure, consists of 35 items which load onto three factors: aggression, social withdrawal and likability. For the purposes of the Concordia Risk Project, only the dimensions of aggression and withdrawal are of interest.

As a method of rating behaviour, peer evaluation has been found to be effective in the prediction of adjustment problems (Roff, & Sells, 1968; Rolf, 1972). Peers have the opportunity to interact with and observe the target subject over a long period of time and across more than one setting. Peers form part of the target child's reference group and are thus exposed to the given child's behaviour in a larger array of contexts. As well, it is more probable that peers witness rare events which may prove important in interaction. Hence, unlike the ratings of clinicians, peer ratings consist of multiple evaluations from a variety of individuals who interact with the target subject in his/her "real-life" social context (Pekarik, Prinz, Liebert, Weintraub, & Neale, 1976; Moskowitz, Schwartzman, & Ledingham, 1985; Marchessault, 1992).

To confirm the accuracy of peer evaluations, Lyons et al. (1988) undertook naturalistic observations of grade school children engaging in free play. Findings support the validity of the Pupil Evaluation Inventory (Pekarik, Prinz, Weintraub, & Neale, 1976) in revealing the distinctiveness of the aggressive and withdrawn groups. The combination of aggressive-withdrawal however was not found to be significantly different from the contrast group. And while the behaviour of members of this group was not found to stand out, the reactions of others to these children was distinct such that they received almost twice as many aggressive initiations from their peers as they gave. Likely, the behaviour of these aggressive-withdrawn children is in some way eliciting negative responses. These children are probably lacking social skills. In general, the aggressive-withdrawn group classification involves questionable validity given that these children

have been found to be the least liked by their peers (Feltham, Doyle, Schwartzman, Serbin, & Ledingham, 1985). As such, it could be that these children are nominated repeatedly for all categories that are somewhat undesirable (i.e. both aggressive and withdrawn dimensions).

In the present study, children were asked to complete the PEI by nominating up to four names of classmates they felt best conformed to the description presented in a given item. Evaluations were carried out separately for boys and girls in order to compensate for the sex differences in aggression and withdrawal. The goal herein was the attainment of equal numbers of males and females in each of the categories of interest.

To determine the group membership of a given child, the total number of evaluations received on each of the factors was tabulated and transformed into z-scores. Subsequently, a percentile rank was assigned. Children for whom aggression z-scores were equal to or above the 95th percentile (z=1.95) and for whom withdrawal z-scores fell beneath the 75th percentile (z=0.68) formed the aggressive group. The withdrawn group consisted of those children with withdrawal z-scores equal to or exceeding the 95th percentile and aggression z-scores falling below the 75th percentile. Children who were above the 75th percentile for both aggression and withdrawal were categorized as aggressive-withdrawn. Finally, contrast participants were those children who scored below the 75th percentile and above the 25th percentile on both aggression and withdrawal.

Of the 4,109 participants, the final sample included 1,774 children in the high-risk groups that is, those children who scored high on one or both dimensions of aggression and withdrawal. The control sample consisted of 1,117 children who were randomly selected from among those children whose scores fell below the 75th and above the 25th percentile on both aggression and withdrawal. For a more extensive description of the original methodology, see Schwartzman et al.(1985).

Appendix D

Demographic Information Questionnaire (DIQ)

L'INDIVIDU DANS SON MILIEU

Renseignements sociodémographiques

1. Sexe ☐ M ☐ F

2. Âge _____ ans Date de naissance $\frac{}{AN}$ $\frac{}{MO}$ $\frac{}{JR}$

3. État civil ☐ Célibataire ☐ Conjoint de fait

☐ Marié(e) ☐ Séparé(e)

☐ Divorcé(e) ☐ Veuf/veuve

Depuis combien de temps: _____ an(s) _____ mois

4. Nombre d'enfants _____

SEXE		NAISSANCE			SEXE		NAISSANCE		
		AN	MO	JR			AN	MO	JR
M ☐	F ☐	___/___/___			M ☐	F ☐	___/___/___		
M ☐	F ☐	___/___/___			M ☐	F ☐	___/___/___		

5. Scolarité complétée: Primaire

(encercler)
Secondaire I II III IV V VI

Cegep 1 2 3

Université Bacc. 1 2 3

Maîtrise 1 2

Doctorat 1 2

Post-universitaire

Étudies-tu présentement? NON ☐ OUI : Temps plein ☐ partiel ☐

VERSO →

6. As-tu un emploi?

OUI ☐		NON ☐

Occupation: _____

_____

Combien d'heures/sem.? _____

Salaire de l'heure _____ $

Depuis combien de temps? _____

As-tu déjà eu un emploi?

Oui ☐   Non ☐
                  |
                  ↓
Pendant combien de temps?
. ____an(s) ____mois

Date de la dernière semaine de travail: mois _____ 19 ____

Je me lève habituellement à ...

Lundi   Mardi   Mercredi   Jeudi   Vendredi   Samedi   Dimanche

Si je suis demandé(e) pour les questionnaires de groupe, je peux venir ...

☐ L'après-midi   ☐ Le soir

Si je suis demandé(e) pour les tests en laboratoire, sachant que ces tests ont lieu l'après-midi seulement, je peux venir ...

☐ La semaine   ☐ La fin de semaine

Vérifier si l'adresse du sujet et de ses parents et si les numéros de téléphone sont exacts ou sont manquants. Faire les corrections nécessaires ci-dessous.

_____   _____   _____
No   Rue   app.

_____   _____
Ville   Code postal

Téléphones: Personnel (_____) ____ - _____

                Travail   (_____) ____ - _____

                Parents   (_____) ____ - _____
              * Autre   (_____) ____ - _____ Lien: _____

* Si jamais on perdait ta trace, peux-tu me donner le # de tél. de quelqu'un qui reste toujours en contact avec toi et qui ne déménage pas souvent [même un interurbain]? [Inscrire aussi le lien de cette personne avec le sujet.]

Ton # de tél. personnel est au nom de qui, dans l'annuaire téléphonique? [Prendre nom complet & lien avec le S.]
[L'inscrie sur la fiche aussi] _____

October 14, 1993

Appendix E

Potential Parent-Child Conflict Questionnaire (PPCCQ)

I.D. #_____   (Parent)

Voici une liste d'éléments à propos desquels les enfants et les parents sont souvent en désaccord. Nous sommes interessés à savoir le degré auquel votre enfant et vous êtes en désaccord sur ces sujets à la maison. Veuillez évaluer chaque item sur une échelle variant de 0 à 5 où 0 = je ne suis pas en désaccord et 5 = je suis vraiment en désaccord.

1) Tâches ménagères \ Aider à la maison.   0   1   2   3   4   5

2) Travail à l'école\ devoirs, notes ou   0   1   2   3   4   5
mauvaise conduite à l'école.

3) Intimité\ ou être capable de garder   0   1   2   3   4   5
certaines choses pour lui(elle) même.

4) Écouter\ respecter les demandes et   0   1   2   3   4   5
les conseils de ces parents.

5) L'heure à laquelle mon enfant doit   0   1   2   3   4   5
être à la maison le soir.

6) Apparence physique\ façon dont il(elle)   0   1   2   3   4   5
s'habille.

7) L'heure du coucher   0   1   2   3   4   5

8) Passer du temps ensemble en tant que   0   1   2   3   4   5
famille.

9) Les ami(e)s de mon enfant\ les gens avec   0   1   2   3   4   5
qui il(elle) se tient.

10) S'entendre avec (son) ses frère(s) et   0   1   2   3   4   5
soeur(s).

11) L'argent.   0   1   2   3   4   5

12) Parler au téléphone\ regarder la   0   1   2   3   4   5
télévision.

13) Garder sa chambre en ordre.   0   1   2   3   4   5

14) Prendre un bain\ une douche.   0   1   2   3   4   5

15)_____   0   1   2   3   4   5

16)_____   0   1   2   3   4   5

17)_____   0   1   2   3   4   5

18)_____   0   1   2   3   4   5

I.D.# _____   (Enfant)

Voici une liste d'items à propos desquels les parents et enfants sont souvent
en désaccord. Nous sommes interessés à savoir à quel degré ta mère et toi êtes
en désaccord sur ces sujets à la maison. Evalue chaque item sur une échelle
variant de 0 à 5 où 0 = je ne suis pas en désaccord et 5 = je suis vraiment en
désaccord

	0	1	2	3	4	5

:) Mes tâches ménagères / aider à la maison.   0   1   2   3   4   5

:) Mon travail à l'école / devoirs, notes ou   0   1   2   3   4   5
      mauvaise conduite à l'école.

) Mon intimité / être capable de garder   0   1   2   3   4   5
ertaines choses pour moi.

) Écouter / respecter les demandes et les   0   1   2   3   4   5
   conseils de mes parents.

) L'heure à laquelle je dois être à la maison   0   1   2   3   4   5
     le soir.

) Mon apparence physique / la façon dont je   0   1   2   3   4   5
     m'habille.

) L'heure à laquelle je dois me coucher.   0   1   2   3   4   5

8) Passer du temps ensemble en tant que   0   1   2   3   4   5
         famille.

9) Mes amis / les gens avec qui je me tiens.   0   1   2   3   4   5

10) M'entendre avec mes frère(s) et / ou soeur(s).0   1   2   3   4   5

11) L'argent.   0   1   2   3   4   5

12) Parler au téléphone.   0   1   2   3   4   5

13) Regarder la télévision.   0   1   2   3   4   5

14) Garder ma chambre en ordre.   0   1   2   3   4   5

15) Prendre un bain / une douche.   0   1   2   3   4   5

16)_____   0   1   2   3   4   5

17)_____   0   1   2   3   4   5

18_____   0   1   2   3   4   5

Appendix F

High Risk Interaction Coding System (H-RICS)

HIGH RISK INTERACTION CODING SYSTEM (H-RICS)

This manual contains the operational definitions of the constructs included in the High Risk Interaction Coding System (H-RICS). This coding system was designed to detect patterns of interaction characteristic of high-risk mother-child dyads and those more adaptive patterns evidenced in "control" pairs. Within the context of this study, high-risk dyads are defined as mother-child pairs at-risk for psychosocial problems based on the rating of mothers in childhood by their peers as aggressive, withdrawn, or aggressive/withdrawn.

Behaviours are considered on two levels within this coding system: the molecular level and the aggregate cluster level. Molecular codes include specific micro units of behaviour involving the entire body while aggregate clusters include overall impressions across a given task, based on the occurrence of specific molecular codes. Within H-RICS, attention is focused on the quality of the interaction as well as bi-directional influences such that each member of the dyad is considered to play a critical role in shaping the flow of the interaction.

LEGEND
§ BASED ON THE FICS CODING MANUAL (REID, 1978)
Õ BASED ON THE FPC CODING MANUAL (DISHION, GARDNER, PATTERSON, REID, SPYROU, & THIBODEAUX, 1984)
^BASED ON PETT, VAUGHAN-COLE, EGGER, & DORSEY (1988)
* [H-RICS] COOPERMAN AND STEINBACH (1995)

2. COMMAND NEGATIVE (CN)§ cont'd.

<u>Examples of CN</u>:
1. "Ferme ta grande bouche!"
2. "You're going to get it unless you start cooperating!"
3. "Enough, sit down and be quiet", stated in a raised voice

<u>Non-Examples</u>:
1. Mother gently pushes aside child's hand in order to gain a better view of the game. [code CM]

3. COMPLIANCE (CO)§

This code is employed when an individual performs that which is asked of him/her or indicates either verbally or behaviourally that s/he will in the very near future. Delay of compliance beyond 10 seconds is NC.

CLEAR OBEDIENCE TO DIRECTIVE IS NECESSARY.
FOR TASK 4, FUTURE COMPLIANCE WILL BE CODED AS CO, DEPENDING ON THE CONTEXT. SINCERITY OF THE RESPONDENT IS ESSENTIAL.

<u>Examples of CO</u>:
1. Stefane passes his mother the carrots card that she requested.
2. Louise sits quietly after her mother asks her to refrain from jumping around.

<u>Examples of Future Compliance</u>:
1. "I will go to bed when you ask me to." [said with sincerity]
2. "I will try to be more understanding when you tell me I can't go to Johnny's house."

4. NON-COMPLIANCE (NC)§

This code is used when an individual fails to perform that which is requested of him/her in response to a CM or CN within 10 seconds of the request being issued. NC can be verbal or gestural.

CLEAR DISOBEDIENCE TO DIRECTIVE IS NECESSARY.

Examples of NC:
1. Mom asks child to clean up his clothes from now on, child refuses.
2. "Non, je ne vais pas t'aider. C'est a toi de le faire."
3. Crosses arms and sits back in chair in response to a command asking child to participate in the task. [also gets coded OD]

Non-example:
1. "Je ne pense pas."
2. "No, we can't go to Africa for the week-end."

5. OPPOSITIONAL DEFIANCE/RUDENESS (OD)*

Oppositional Defiance is coded when a child displays negativistic, defiant, disobedient, and hostile behaviours towards his/her mother. Negativistic behaviours are characterized by persistence, stubbornness, resistance to directions, and unwillingness to compromise. Defiance may include deliberate testing of the limits, usually by ignoring orders and arguing. Aggression and one of the following must be present for OD to be coded:

1. active defiance or refusal to comply with mother's requests or rules
2. deliberate attempt to annoy the mother
3. anger or resentment
4. spitefulness or vindictiveness
5. arguing

THIS CODE CAN BE USED IN CONJUNCTION WITH NON-COMPLIANCE.

5. OPPOSITIONAL DEFIANCE/RUDENESS (OD)* cont'd

Example of OD:
1. "I'd keep my room clean if I had decent furniture!"
2. "Forget it. I'm not playing this stupid game." [NC coded as well, if preceded by CM]
3. a child makes a rude comment
4. a child makes an inappropriate gesture
5. a child engages in behaviour previously prohibited by the mother
6. a child rudely accuses his/her mother of something or other

6. NEED FOR APPROVAL (ND)*

Use this code whenever a person attempts to elicit approval from another person. This can be a verbal request or a gestural behaviour (usually followed by AP, or IG).

Examples:
1. Child chooses a food card and immediately looks to mother for approval.
2. Child chooses a food card and says Mom? + looks at her
3. Child moves closer to mother.
4. Direct request for approval: "Is this O.K.?"
5. Pointing out achievement: "Look mom, I did it!"

7. APPROVAL (AP)§

Approval is coded when there is "a clear indication of positive interest or involvement." (Reid, 1978, p. 25) It is reinforcing and can be gestural or verbal in nature. Further, it need not be elaborate or lengthy, but should be used to indicate even the smallest positive gesture. Approval is directed at, and is in response to the behaviour of another person. It does not include agreement, nor does it encompass the giving of permission to perform an activity.

DISTINGUISH APPROVAL FROM SIMPLE LOOKING.
WHEN AP IS CODED, THE CORRESPONDING AFFECT RANGES FROM 1 TO 3.

7. APPROVAL (AP)§ cont'd

Examples of AP:
1. Smiles, head nods.
2. "Bon effort", "Merci beaucoup", "Tu as raison"
3. "Good."
4. "O.K."
5. "I like the way you prepared that meal." [code R]

Non-Examples:
1. "Yes. That is what we'll do."
2. "Oui, on pourrait faire ca."
3. "Yes, your sister is sometimes difficult."

8. DISAPPROVAL (DI)§

Disapproval is coded whenever an individual provides a verbal or gestural criticism of the other person's behaviour, statement, or characteristics. In verbal statements, the content of the statement must explicitly states criticism or disapproval of the subject's behaviours. DI can be coded simultaneously with CM, but never with CN , as CN always implies disapproval. Code DI only when verbal disapproval (i.e. "I don't like you doing that") or gestural disapproval is implied by facial expression, vigor of the gesture, or the critical tone of voice.

> DISAGREEMENT WITHOUT REFERENCE TO THE PARTNER'S PERSON IS NOT CODED DI. DI CANNOT CO-OCCUR WITH CN AND PN [REDUNDANT]. CN AND PN BY THEIR NATURE IMPLY DISAPPROVAL. IF UNSURE ABOUT WHETHER TO CODE AS STATEMENT IS DI AND NOT DISAGREEMENT, USE NEGATIVE TONE OF VOICE AS AN INDICATOR OF DI. WHEN DI IS CODED, THE CORRESPONDING AFFECT RANGES FROM 3 TO 5.

Examples of DI:
1. Shaking the head or finger, glaring in anger
2. "Je n'aime pas quand tu fais cela."

Non-Examples:
1. "Je ne pense pas."
2. "Non, on ne peut pas aller en Europe pendant deux jours."
3. "No. That's not part of a healthy meal." [instruction/guidance]
4. Removal of objects from another's possession, i.e. taking a playing card away from child in an abrupt manner. [code PN]

9. IGNORE (IG)§/UNRESPONSIVE (UN)*

Ignore/unresponsive is coded when an individual deliberately fails to respond to the other interactant's behaviour. There is no question as to whether or not the subject has heard/seen the behaviour emitted by the other. S/he has obviously chosen to abstain from responding. Ignore/unresponsive is also used when one person is somewhat attentive to the task at hand, but is unresponsive. For instance, the subject is asked a question, but fails to provide an adequate response.

Examples of IG/UN:
1. Child looks to mother for approval. Mother, aware of child's attempt at interaction, stares at her nails.
2. Not watching as the other plays the game/plans meal. [distracted]
3. Child expresses ND, mom looks, but doesn't approve/smile; she just stares at her child.
4. Mom asks: "Where would you like to go on holiday?" Child responds with shoulder shrugs.

*IG CAN BE CODED IN CONJUNCTION WITH NC FOLLOWING CM OR CN.

12. POSITIVE PHYSICAL CONTACT (PP)§

This code is used when a person communicates with the other by touch in a warm and loving manner.

> WHEN UNSURE IF TOUCHING IS ACCIDENTAL, CODE PP IF OTHER PPs HAVE BEEN CODED.

Examples of PP:
1. A hug, a pat, a kiss.
2. An arm around shoulders, holding hands, ruffling hair, stroking, kissing or caressing.

Non-Example:
1. Mom accidentally brushes her hand over her child's arm while changing cards in Task 1. [not coded]

13. NEGATIVE PHYSICAL CONTACT (PN)§

PN is coded when an individual "physically attacks or attempts to attack another person." (Reid, 1978, p. 24) The attack must have the potential or intention to inflict pain, i.e., biting, kicking, slapping, hitting, spanking, or taking an object roughly from another person. The circumstances surrounding the act should serve to provide meaning to the observed physical contact.

INCLUDE MATERNAL GESTURES AS THOUGH ABOUT TO SLAP (physical threat). DISTINGUISH BETWEEN A GENTLE PUSHING OF THE HAND ASSIDE [CM] AND A LARGER EXERTION OF PHYSICAL FORCE [PN]. WHEN PN IS CODED, THE CORRESPONDING AFFECT RANGES FROM 3 TO 5.

Examples of PN:
1. Mother grabs child's arm and/or shoves the child.
2. Child abruptly yanks toy away from mother.
   [code of CN might accompany PN, depending on the context]

16. WHINE (WH)*

Whine is coded when an individual uses a nasal, slurring, or sing-song voice. Attention is directed to the tonal quality of the expressed statement, and not the content (which could be positive, negative or neutral).

00. NEUTRAL/TRANSITION (NT)*

This code is used primarily as a means to facilitate the recording of other codes. It does not on its own consist of a code of interest. It enables the continual coding of changes in gaze and affect in situations in which the mother-child dyad under scrutiny fails to engage in many codable behaviours from a molecular perspective. Neutral/transition is coded under the following conditions:

1. the coder is currently focused on one interactant, but the other interactant displays a codable behaviour

2. when the focus interactant does not display a molecular behaviour of interest, but noticeably changes his/her gaze and/or affect

AFFECT CODES[7]

1. UNRESTRAINED NEGATIVE (AF1)Õ

AF1 is coded when the interactant manifests clear and unambiguous anger, disapproval, unhappiness, or demeaning affect. When AF1 is coded, the emotional tone of the interactant is very negative; reflecting pronounced dissatisfaction with the other interactant or the given situation. Facial expressions and gestures reflecting hostility, anger, extreme irritation, depression or disapproval are coded as unrestrained negative. Voice tones include loud, harsh, tense, threatening, angry, provocative, extremely sad, depressed, or unhappy. Note obvious lack of control.

Descriptive adjectives:
abusive, belligerent, clearly disapproving, angry, enraged, inflamed, outburst of tears

2. NEGATIVE AFFECT (AF2)Õ

AF2 is coded when either or both voice tone and facial expression suggest the subject's mild displeasure, irritation, sadness, slight hostility and/or mild disapproval. Facial expressions and tone of voice are like those described as unrestrained negative, but are less intense or less pronounced.

Descriptive adjectives:
complaining, whining, cold, dismissive, somber, curt, rejecting, defensive, sour, bitter, tearful, apathetic, unhappy, querulous, peevish, contemptuous

3. NEUTRAL (AF3)Õ

AF3 is coded for behaviours that are accompanied by a neutral tone of voice in the absence of either happy, sad, or hostile non-verbal gestures. Neutral affect represents a level of social exchange that is characteristic of general conversations between mother and

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[7] Inter-rater reliability was calculated by averaging affect scores across all four laboratory tasks for each interactant. Pearson correlation coefficients obtained were .94, $p<.001$ for mothers and .85, $p<.001$ for children.

3. NEUTRAL (AF3)Õ cont'd

child. Only slight alternations in affect remain coded in AF3. Greater changes
necessitate the scoring of either positive or negative valence.

IF GENERAL CONVERSATION IS TAKING PLACE IN ABSENCE OF SMILING,
CODE AF3.

Descriptive adjectives:
calm, mild, quiet, cordial, polite, pleasant

4. POSITIVE AFFECT (AF4)Õ

This code is used when an interactant's behaviour portrays warmth, interest, joy,
supportiveness or affection. AF4 is coded when a behaviour is expressed with
pleasurable facial manifestations (smiling), affection and/or enthusiasm. AF4 is
separated from AF5 by the degree of control in the expression of emotion.

Descriptive adjectives:
warmth, responsive, concerned, affectionate, interested, lively, pleasurable, happy,
approving, animated, energetic

5. EXUBERANT (AF5)Õ

This code represents expressions of intense joy, love, enjoyment or supportiveness. The
difference between AF4 and AF5 is that AF5 indicates more intense expressions of
positive affect that are less controlled. Intensity may be reflected by loudness, or the
intensity of voice intonation or gesture. For example, AF5 may be coded when the
interactant whispers if his/her facial expression and gestures indicate intense happiness,
approval or affection.

WHEN OUTBURST OF LAUGHTER IS OBSERVED, AF5 IS CODED RATHER
THAN AF4.

Descriptive adjectives:
overjoyed, exhilarated, rejoicing, excited, enthusiastic, outburst of laughter, intense arm
movements

AGGREGATE CLUSTERS

Aggregate clusters are summative ratings evaluating behaviours witnessed during a given task. On some items, ratings are made individually for mother and child. For ratings of relationship quality, cooperation and proximity, the dyad is considered as a unit.

RELATIONSHIP QUALITY (RELQUAL)*

This category refers to an overall impression of the quality of the relationship between mother and child. Do the interactants appear to be comfortable with each other or is there strain or indifference in the relationship? This code is used only once: overall for both members of the dyad.

<u>Codes</u>:

1- VERY POOR RELQUAL is coded when there is an obvious breakdown in communication between mother and child. The interactions occur under strained conditions. The mother rarely, if ever, responds to the child's needs, or looks at the child. She makes no attempt to guide the child under any circumstances. Interaction may be present at the beginning of a task, but quickly breaks down into long periods of silence (one minute or more). Both mother and child tend to be non-compliant to the commands of the other. Interactants rarely, if ever look at their partners and make no attempt to engage each other.

      FREQUENTLY OCCURRING MOLECULARS: NC, DI (greater than 4)

      MOLECULARS OFTEN PRESENT: PN, CN, AF1, AF2

      RARELY OCCURRING MOLECULARS: AP, PP, CO, AF4, AF5

RELATIONSHIP QUALITY (RELQUAL)* cont'd

2- POOR RELQUAL is coded when the interactions between mother and child appear strained. There is a marked absence of "being at ease with each other." The mother inconsistently or rarely responds to the needs of the child and the child does not attempt to facilitate the relationship. Depending on the parenting style of the mother, she may either be very controlling or she may display a laissez-faire attitude, making no attempt to guide the child's behaviour. There may be many breaks in the interaction.

MOLECULARS PRESENT: IG/UN (3-4 present)

MOLECULARS OFTEN PRESENT: NC, AF3, AF2

MOLECULARS RARELY PRESENT: AP, PP

3- AVERAGE RELQUAL is coded when the interactants appear to be comfortable with one another, but there may be moments when the interaction appears strained. The mother occasionally guides her child's behaviour, but can be somewhat controlling. Up to two breaks may occur. What characterizes this code from a stronger one is that there is nothing striking about the relationship.

MOLECULARS PRESENT: AP, PP, AF4, AF3 (1-2 present)

MOLECULARS RARELY PRESENT: AF5, OD

MOLECULAR CODES THAT NEVER APPEAR: PN, CN, AF2, AF1

4- STRONG RELQUAL is coded when the interactants appear to be comfortable with one another. The mother correctly interprets the behaviours and needs of the child the majority of the time. This code is distinguished from VERY STRONG RELQUAL by the fact that the positive codes are not coded as often and more negative codes may be seen. The number of positives should outnumber the negatives. No more than 1 break lasting less than 10 seconds occurs.

MOLECULARS PRESENT: AP, PP, AF4, AF5 (3-4 present)

RARELY APPEARING MOLECULARS: NC, IG/UN, OD, AF3

MOLECULAR CODES THAT NEVER APPEAR: PN, CN, AF1, AF2

RELATIONSHIP QUALITY (RELQUAL)* cont'd

5- VERY STRONG RELQUAL is coded when the interactants appear to be very comfortable with each other. The mother interprets the behaviours of her child consistently and appropriately (i.e. responds to ND, answers questions, provides explanations). The mother attempts to guide the child and not to control him/her. No breaks occur.

MOLECULARS PRESENT IN HIGH #: AP, PP, AF4, AF5 (>4 present)

RARELY APPEARING MOLECULARS: NC, OD, IG/UN, AF3,

CODES THAT NEVER APPEAR: PN, CN, AF1, AF2

PROXIMITY (PROX)*

This code takes into consideration both members of the dyad simultaneously.
How close do members of the dyad sit with respect to one another? Use the initial positioning of the interactants as a base rate and note if they approach each other during the task , if they remain neutral or if they distance themselves.
*Note starting distance and any changes that occur throughout the session
If members of the dyad begin at close proximity (i.e. within 3 inches of each other and remain there), very close is coded and NOT average.

Codes:

1- VERY FAR is coded when the interactants make a concerted effort to distance themselves from one another. There is no PP or PN. There are no instances of interactants leaning towards each other.

2- FAR is coded when the interactants infrequently engage in positive physical touch and spend most of the time at least 2 feet away from each other. Occasionally, one interactant leans toward the other, but no more than once per task.

3- AVERAGE is coded when the interactants remain seated in their chairs at a comfortable distance from each other. Time spent at close proximity and at a distance defined by subjects sitting comfortably in their chairs is approximately balanced.

PROXIMITY (PROX)* cont'd

4 -CLOSE is coded when the interactants spend the majority of their time leaning towards each other. PP need not be coded for proximity to be close as long as the members of the dyad do not frequently withdraw from each other. There must never be active attempts by one interactant to place distance between him/herself and his/her partner. The majority of time should be spent between 3 inches of each other and the distance defined by subjects sitting comfortably in their chairs.

5- VERY CLOSE is coded when the interactants spend most of their time within 3 inches of each other and make very few changes in proximity. PP should be coded frequently for both interactants.

AGGRESSION (AGGRESS)Õ

Any low-grade aversive physical contact, including light hitting, pinching, slapping, ear flicking, grabbing another's hand, or destructiveness to objects. The inherent aversiveness of the physical behaviour embodies this category. Aggression also includes verbally aggressive behaviour such as negative commands, oppositional defiance, and hostility.

Codes:

1- NO AGGRESSION is coded when no episodes of CN, PN, or OD are observed.

2- LITTLE AGGRESSION is coded when one episode of CN, OD, or PN is observed.

3- MODERATE AGGRESSION is coded when 2-3 episodes of CN, PN, or OD in any combination are observed (e.g. 2 OD, 1 CN).

4- AGGRESSIVE is coded when 4+ episodes of OD, or CN are observed in any combination. Less than 4 instances of PN may be observed to qualify for this code.

5- VERY AGGRESSIVE is coded when CN, OD, and PN are frequently observed (4+ episodes) *note that the presence of PN is a requirement in only this last condition...its presence distinguishes between aggressive and very aggressive).

COOPERATION (COOP)*

This code takes into consideration both members of the dyad simultaneously. It reflects the degree to which interactants are cooperative with their counterparts. Commands are followed by compliance, questions by answers... Both members of the dyad should be engaged in the task at hand and should work together to achieve its completion.

Codes:

1- VERY POOR COOPERATION is coded under the following conditions:

RARELY OCCURRING CODES: CO, AP
(>4 instances of missing these behaviours)

FREQUENTLY OCCURRING CODES: NC, IG/UN, DI, OD
(>4 instances of any of the above codes)

2- POOR COOPERATION is coded under the following conditions:

MOLECULAR CODES: CO, AP
(4 instances of missing these behaviours when they are required)

OCCASSIONALLY OCCURRING CODES: NC, IG/UN, DI, OD
(4 instances of any of the above codes)

3- AVERAGE COOPERATION is coded under the following conditions:

MOLECULAR CODES: CO, AP
(3 instances of missing these behaviours when they are required)

OCCASSIONALLY OCCURRING CODES: NC, IG/UN, DI, OD
(3 instances of any of the above codes)

4- STRONG COOPERATION is coded under the following conditions:

FREQUENTLY OCCURRING CODES: CO, AP,
(2 instances of failing to behave according to the above codes when such responses are required)

RARELY OCCURRING CODES: NC, IG/UN, DI, OD
(2 instances of any of the above codes)

COOPERATION (COOP)* cont'd

5- VERY STRONG COOPERATION is coded when the majority of questions are followed by answers, commands are followed by compliances. Each interactant frequently helps the other.

> FREQUENTLY OCCURRING CODES: CO, AP
> (only 1 instance of failing to behave according to the above codes when such responses are required)
>
> RARELY OCCURRING CODES: NC, IG/UN, DI, OD
> (only 1 instance of any of the above codes)

AFFECT (AFFECT)õ

Affect describes the emotional tone of the content behaviours and is coded on the basis of non-verbal gestures, body posture, facial expressions, and tone of voice and/or inflections. Affect is coded on a continuum, ranging from unrestrained negative to exuberant. The scale is intended to represent a normal distribution of the emotional quality of behaviour in interactions. In a normal distribution, roughly 60% of all content behaviours will be rated as neutral; 30% as either negative or positive and the remaining 10% as exuberant or unrestrained negative. Use this aggregate cluster as an average of molecular affect scores over the duration of a given task. This aggregate cluster is computer-generated.

(see definitions, AFFECT codes 1 to 5)

Codes:

1 UNRESTRAINED
2 NEGATIVE
3 NEUTRAL
4 POSITIVE
5 EXUBERANT

SUPPORT (SUPPORT)^

This category reflects the degree to which the mother provides support for her child. Support is displayed by encouragement, displays of affection and comforting behaviour, assistance and praise. This aggregate cluster focuses on the following molecular codes: AP, PP, GA1-0, AF1-5, and IG/UN.

Codes:

1- NO SUPPORT is coded under the following conditions:

> ABSENT CODES: AP and PP

> FREQUENT CODES: IG/UN, CN, DI, OD (6+ episodes)

> FEW POSITIVE BEHAVIOURS ARE WITNESSED.

> NO SUPPORT IS DISTINGUISHED FROM LITTLE SUPPORT IN THAT THERE IS AN ACTIVE, REJECTING QUALITY TO THE INTERACTION.

2- LITTLE SUPPORT is coded under the following conditions:

> THE NUMBER OF POSITIVE CODES < THE NUMBER OF NEGATIVE CODES.

> RARELY CODED: AP and PP
> (a combination of 1-3 AP, PP)

> A COMBINATION OF 5 OF THE FOLLOWING IS CODED: IG/UN, CN, DI, (this could include doubles/triples... of a single code presented above)

3- AVERAGE SUPPORT is coded under the following conditions:

> THE NUMBER OF POSITIVE CODES=THE NUMBER OF NEGATIVE CODES (approx.).

> OCCASSIONALLY CODED: AP, PP
> (a combination of 4-6 AP, PP)

SUPPORT (SUPPORT)^ cont'd

4- SUPPORTIVE is coded under the following conditions:

      FREQUENTLY OCCURRING CODES: AP, PP, AF4-5
         (a combination of 7-10 AP, PP)

      ONE OF THE FOLLOWING PRESENT: IG/UN, DI, CN

      ABSENT CODES: PN (and/or humiliation only, teasing is fine)

5- VERY SUPPORTIVE is coded under the following conditions:

      FREQUENTLY OCCURRING CODES: AP, PP, AF4-5, AND
      SMILING THE MAJORITY OF THE TIME
         (a combination of 11 or more AP, PP)

      ABSENT CODES: IG/UN, DI, CN, PN,

ENGAGEMENT IN TASK (ENGAGE)*

Engagement refers to the degree to which the interactant is involved in the task. This category should reflect IG/UN, and GA0-1codes. Note content of conversation for clues.

<u>Codes</u>:

1-NO ENGAGEMENT is coded when the subject never participates in the completion of the task. IG/UN is present.

2-NOT VERY ENGAGED is coded when the subject appears to be merely going through the motions of the task. With child subjects, a great deal of restless behaviour warrants this code. IG/UN may be coded.

3-AVERAGE is coded when attention is paid to the task, but breaks may occur. Interactants appear to be involved, but not excessively interested in the task at hand.

4-ENGAGED is coded when there is active participation in the task. There is perhaps one break of short duration, if any is to occur at all)

ENGAGEMENT IN TASK (ENGAGE)* cont'd

5-VERY ENGAGED is coded if there are no breaks in the interaction and the individual is engrossed in the task. The individual must display disappointment when the task is over or continue with the task even after the RA enters the room. IG/UN must never be coded.

GUIDANCE VS. FOSTERING INDEPENDENCE (FOSTER)*

This aggregate cluster is scored on a 5 point likert scale ranging from very controlling (1) to fostering (5).

Foster is coded for mothers only. Does the mother support her child's independent exploration and/or problem-solving? Is the mother's guidance rigid and strict or is it helpful? Does she try to control the behaviour of her child?

1- VERY CONTROLLING Mother expresses DI and/or responses that serves to humiliate when the child displays independence. She often raises her voice, may use PN to elicit desired behaviour from her child and she never lets up on the child. Again, the mother does not allow her child to make decisions. Frequently occurring codes include: CM, CN, and PN.

2- CONTROLLING This code is used when the mother fails to allow her child to make decisions. Frequently observed codes include CM, and CN. Occasionally, DI is coded in response to displays of independence in the child.

3- LAISSEZ-FAIRE is coded when mother is neither controlling nor lostering of the child's independence. The child is basically allowed to do as s/he pleases. The code characterizing this category is IG/UN. Very little CM, CN, PP, PN, and absence of interest in the child's behaviour.

4- FOSTERING: What distinguishes a code of 4 versus a code of 5 is that occasionally, the mother is controlling, but most of the time, she lets the child explore on his/her own.

    FREQUENTLY USED CODES: PP, AP, A FEW CM

5- VERY FOSTERING is coded when for most of the condition, the mother is very helpful in facilitating the child's independent contribution to the task at hand. She allows her child to make decisions. She encourages her child to use his/her intellect.

    FREQUENTLY USED CODES: PP, AP

    INFREQUENTLY USED CODES: CM CN

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Appendix G

Background Information on the Family Interaction Coding System (FICS)

Focusing on the observable, Patterson (1969) and his colleagues devised the Family Interaction Coding System (FICS; Patterson, Ray, Shaw, & Cobb, 1969), a coding system used to record family interactions. Much of the focus of the original work with the FICS centered on aggressive children and their families. Researchers aimed to conceptualize the process of aggression, treat families in which it occurred, and measure aggression as a construct. The FICS allows for the evaluation of treatment process and outcome in addition to more purely research-oriented pursuits.

The FICS was developed as a response to the problem of biased sources of feedback on children's behaviour such as parents and teachers. In order to rectify this situation, Patterson (1969) and his colleagues at the Oregon Social Learning Centre created a system which emphasized the encoding of sequential events. The assumption is that the behaviour of a given family member exerts a certain degree of influence over the behaviour of the family member with whom s/he is interacting. In the context of the mother-child relationship, the behaviour of the child as well as the antecedents and consequences provided by parents are of interest. As a result, the FICS involves the continuous coding of interaction by independent observers (Reid, 1978).

Approaching family dynamics in this empirical way, researchers assumed that events which are external to the child can explain pathological aggression, that meaningful elements of the behaviour of others are observable by an outside source, and that the meaning of family interaction is best embodied by interpreting unidirectional event sequences. This last assumption does not hold for the present study as both parent and child effects one each other are considered.

The FICS has been the most widely used of the family interactive coding schemes and has the greatest amount of psychometric evidence (Grotevant & Carlson, 1987). Grotevant & Carlson (1989) reported that the inter-rater reliability on the FICS typically

ranges from between .30 to .96 with respect to percent agreement. Correlations range from between .59 and 1.00.

In general, it is difficult to establish the validity of a given observational coding system due to the fact that these tools are often adapted to meet the specific needs of the investigators (Grotevant, & Carlson, 1987). The most commonly considered kinds of validity with respect to observational family coding include criterion-related, construct and content. Criterion-related validity is achieved through the linking of scores for variables within the coding system to relevant external criterion scores. Construct validity refers to the attainment of correlations between observation scores and other measures of the same construct. Finally, content validity is established through the inclusion in the coding system of variables relevant to the area of study.

With respect to criterion-related validity, the FICS has been found to differentiate families with normal children from families with antisocial children. As well, families of hyperactive children are distinguished from those with socially aggressive children. With respect to construct validity, the FICS correlates reasonably with alternate measures of family coercion, such as the Parent Daily Report (Grotevant, & Carlson, 1987).

Appendix H

Qualitative Analysis of Conflict (QAC)

Qualitative Analysis of Task 4

1. Mom changes topic/avoids confronting the issue.

    YES   NO

2. Child changes topic/avoids confronting the issue.

    YES   NO

3. Mom was attentive when child expressed him/herself.

    YES   NO

4. Child was attentive when mom expressed herself.

    YES   NO

Content of Discussion and Comments:

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
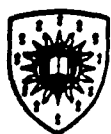_____
_____
_____
_____
_____
_____

* Does mother explain reason for which she demands compliance?

Family ID* _____   YES   NO

Mother's ID* _____

Appendix I

Consent Form

UNIVERSITÉ
Concordia

I.D.# _____

Formulaire de consentement

Je _____ accepte de participer avec mon enfant

_____ à l'étude «mère et enfant» du projet

«L'individu dans son milieu» de l'université Concordia. Je

comprends que nous serons testés(es) en une session pour une

période d'environ deux heures. Nous remplirons des questionnaires

et nous donnerons des échantillons de salive. Ces échantilons

seront prélevés à deux reprises à l'aide de cotons dentaires que

nous garderons à l'intérieur de notre bouche pendant 2-3 minutes.

Cette procédure ne provoque aucune douleur et ne comporte aucun

risque pour notre santé. Je comprends que nos réponses et notre

dossier resteront confidentiels et que tous les renseignements et

les prélèvements ne seront identifiés que par un numéro. Je

recevrai la somme de 40$ pour ma participation et mon enfant

recevra 5$. Je comprends que notre participation à cette étude

est entièrement volontaire et que nous pouvons cesser de

participer à n'importe quel moment au cours de l'étude.

Nom: _____

Signature: _____

Date: _____

Expérimentateur(trice) _____

Appendix J

Parent-Child Research Strategies

Two basic approaches exist in the identification of psychological phenomena (Fiske, 1974). The first includes the evaluation of an individual's characteristics by means of report or interview format. The second approach to the study of human behaviour is direct observation of the behaviour of interest. It is this last method on which the current study is based. Where rating systems are contaminated by the values of the raters and their implicit or explicit beliefs, observational coding systems, while not immune to subjective interpretations, do provide a format which reduces the influence of such noise variables. The use of operational definitions and multiple, "blind" raters lend credence to the observational pursuit as being relatively reliable and unbiased. Some researchers comment however that observational methods provide a false sense of objectivity for it is possible that those who train coders tend to pass on their own biases (Mussen, 1983).

Behavioural observation offer one of the richest approaches to the collection of data within the realm of family dynamics. Particular to the observational method is the identification and appreciation of patterns. Within families, patterns of interaction tend to become entrenched and generalize to other relationships (Bowlby, 1980).

Coding techniques which approach behaviour from a microanalytic perspective aid in the preservation of the specific actions of family members. Unlike actones, molar units related to one specific part of the individual, molecular units of behaviour preserve actions involving the entire person (Fassnach, & Bryant, 1982). This empirical approach further provides flexibility in terms of the quantification of data (Grotevant, & Carlson, 1987). Microanalytic observational techniques are critiqued however for their failure to assess qualities of entire relationships, focusing instead on the behaviour of the individuals within a relationship (Grotevant, & Carlson, 1989). Within this project, both molecular and global coding in the form of aggregate clusters are used in order that both individual behaviours and the unity of the relationship are considered.

Appendix K

Protocol for Interaction Tasks

PROTOCOLE

1) Acceuil de la mère et de l'enfant.

2) Signatures des formulaires de consentement;

        1. Formulaire de consentement général.
        2. Formulaire de consentement pour le cortisol
        3. Formulaire de consentement pour la participation des professeurs.

3) Premier prélèvement de salive (avant l'interaction).

a) <u>Prise de température</u> avec les thermomètres jetables.

    - Placer le thermomètre sous la langue sur le côté de la bouche le plus loin possible. Demander de fermer la bouche.

    - Attendre 60 secondes.

    - Retirer le thermomètre.

    - <u>Lecture</u>: Attendre environ 10 secondes pour lire la température indiquée par le dernier point bleu.

    - Jeter le thermomètre.

    - Ecrire la température sur l'éprouvette et sur la feuille de données pour chaque sujet.

b) <u>Prélèvement de salive</u>: Pour les échantillons de salive prélevés avant l'interaction, il faut utiliser les éprouvettes suivantes:

        -BLEU--Mères

        -ROUGE--Enfant

    - Dire à la mère et à l'enfant de penser à leur repas préféré afin de les inciter à saliver.

- <u>Procédure</u>: Placer un cotton en forme de "J" dans la bouche des sujets. Il faut laisser un pouce de cotton à l'extérieur de la bouche pour faciliter la manipulation de ce dernier. Après deux ou trois minutes le cotton devrait être saturé de salive. Vérifier à chaque minute si tout va bien (il est bien important de ne pas avaler la salive).

- Lorsque cotton est entrain de s'humidifier, ouvrir deux seringues et préparer les éprouvettes.

- Indiquer le numéro des sujets sur l'éprouvette et l'heure à laquelle les échantillons ont été pris.

- Retirer le cotton de la bouche des sujets. Il est important d'utiliser des gants et de se laver les mains après avoir manipulé les cottons humidifiés.

- Placer le cotton à l'intérieur de la seringue. Placer l'extremité de la seringue à l'intérieur de l'éprouvette et pousser pour extraire la salive. Appuyer lentement et avec précaution sur la seringue pour ne pas la faire déborder ce qui pourrait produire de l'écume. Si cela se produit il faut frapper l'éprouvette avec douceur sur la table. La pression dans la seringue pourrait aussi déformer l'orifice du tube et il ne pourrait alors être scellé adéquatement. Si cela arrive, il est mieux d'utiliser une autre seringue pour retirer la salive du tube endommagé et de la mettre dans un autre tube.

-Il est important de ne pas trop remplir l'éprouvette. Si celle-çi est trop pleine, elle va éclater lorsqu'on va la congeler. Il faut la remplir au moins jusqu'à la ligne inférieure de l'étiquette blanche. Il serait encore mieux d'avoir deux tubes par personne. Si on a pas assez de salive avec l'emploi d'un seul cotton, il faut répeter les étapes précédentes avec un nouveau cotton. On peut alors mettre la salive des deux cottons dans la même éprouvette.

- Lorsque les éprouvettes sont pleines, il faut mettre les bouchons et les serrer délicatement.

- Mettre les étiquettes sur les éprouvettes et les mettre dans le congélateur.

4) Interactions Mère-Enfant

a) La mère et l'enfant sont séparés pour remplir le questionnaire portant sur la résolution de conflits (Potential Parent-Child Conflict Questionnaire).

Directives: Voici une liste de thèmes à propos desquels les enfants et les parents sont souvent en désaccord. Nous sommes intéressés à connaître le degré auquel votre enfant et vous (ta mère et toi) êtes en désaccord sur ces sujets à la maison. Veuillez évaluer chaque item sur une échelle variant de 0 à 5 où 0=je ne suis pas en désaccord et 5=je suis vraiment en désaccord.

*Allumer l'équipement audio-visuel.

b) **La mère et l'enfant sont réunis pour l'interaction non-structurée avec le jeu Sapimento.** (3 minutes)

Directives: Voici un jeu que _____ (nom de l'enfant) peut trouver intéressant. Il sagit de combiner deux images. Lorsque la combinaison est bonne, vous entendrez un petit son. Et si la combinaison n'est pas bonne vous n'entendrez rien (faire un example avec eux). J'aimerais que vous _____ (Nom de la mère) aidiez votre enfant à jouer avec ce jeu. Vous pouvez choisir les cartes que vous voulez parmis celles-çi (montrez la pile de cartes). J'aimerais que _____ joue avec ce jeu et vous pouvez l'aider.

c) **Enseignement (Teaching Task)** (3 minutes)

Directives: La prochaine tâche consiste à enseigner à votre enfant comment planifier un repas équilibré pour une famille de six personnes. (enfants 8, 10, 12, 16 ans). _____ (nom de l'enfant) devra selectionner la nourriture nécessaire à partir de ces images (montrer les images de nourriture en les plaçant sur la table). Vous n'avez pas à vous préoccuper du prix de la nourriture mais il est important que votre enfant dise quelle quantité de nourriture sera nécessaire. Votre rôle consiste alors à expliquer cette tâche à votre enfant. Dans une minute je vais vous conduire dans la pièce ou se trouve votre enfant. Il n'y a pas de bon ou de mauvais choix mais le repas doit absolument être équilibré. Il se peut que votre enfant ait déja des idées mais il est important que vous utilisiez votre expérience pour lui donner des conseils afin de le/la guider. Les deux critères importants sont les suivants:

       1) Le repas doit être équilibré

       2) _____ devrait choisir une bonne quantité de nourriture afin de nourrir toute la famille.

-Avez-vous des questions?

-La mère et l'enfant sont réunis pour l'interaction.

-Dire à l'enfant que sa mère va lui exliquer la nouvelle tâche. Mettre les images de nourriture sur la table. Si l'enfant pose des questions, il faut lui demander de questionner sa mère tout en lui disant qu'elle va tout lui expliquer.

* Il est important de ne pas leur donner une limite de temps pour ne pas influencer la méthode d'enseignement de la mère. Dire quelque chose comme: Je vais revenir dans quelques minutes.

-Si la mère et l'enfant n'ont pas terminé après trois minutes, l'assistant(e) de

recherche doit entrer dans la pièce et dire: je sais que vous n'avez pas terminé mais vous avez l'air de bien savoir choisir la nourriture pour préparer un repas équilibré. Nous allons arrêter cette activité avant d'avoir trop faim !

d) Tâche de Planification (4 minutes)

1) Ranger le matériel utilisé au cours de la tâche précédente.

2) Donner les directives suivantes:

Directives: Cette tâche est un peu différente de la tâche précédente. Nous aimerions maintenant que vous imaginiez que vous allez faire un voyage de deux jours ensemble. Vous partiriez le samedi matin pour revenir le dimanche en début de soirée. Nous aimerions que vous planifiez ensemble ce que vous feriez pendant ce voyage: nous aimerions que vous décidiez plus particulièrement:

1) où vous allez

2) comment vous allez vous y rendre

3) où vous allez passer la nuit de samedi à dimanche

4) ce que vous allez faire pendant ces deux jours

-Toutes les questions auxquelles vous devez répondre se trouve sur cette feuille (montrer la feuille et la placer entre la mère et l'enfant) Avez-vous des questions? Je vais revenir dans quelques minutes.

e) **Tâche de Résolution de Conflit** (6 minutes)

L'assistant(e) de recherche doit avoir selectionné le sujet de discussion à partir des questionnaire remplis par la mère et par l'enfant (Potential Parent-Child Problem Questionnaire). Le sujet de discussion doit être choisi à partir du sujet que la mère et l'enfant auront évalué comme étant problèmatique sur l'échelle.

- Choisir le sujet qui possède le score le plus élevé et où les scores chez la mère et l'enfant sont très semblables.

Directives: Nous vous avons demandé tout à l'heure de remplir un questionaire afin d'identifier certains thèmes qui peuvent causer des problèmes dans votre famille. Après avoir regardé chacune de vos réponses, j'ai choisit un sujet qui semble être l'objet d'une mésentente entre vous et qui ferait l'objet d'une discussion interessante. Le sujet que vous avez identifié est _____.
-J'aimerais que vous preniez les six prochaines minutes pour discuter ensemble de ce sujet. Il est important que vous participiez tout(e) les deux. Je vais maintenant vous laisser seul(e)s et je vais revenir dans six minutes. Avez-vous des questions? Vous pouvez commencer.
- L'assistant(e) de recherche entre dans la salle pour terminer l'interaction.

Transition: La mère et l'enfant retournent dans des salles de testing séparées.

1) La mère retourne dans une salle pour compléter une série de questionnaires.

2) L'enfant reste dans la même salle de testing où il complétera avec l'assistant(e) une série de questionnaires.

* * * 20 minutes après la fin de la tâche de résolution de conflit, un deuxième prélèvement de salive sera effectué chez la mère et l'enfant. Voir #3 pour description détaillée.
Unique changement: la couleur des éprouvettes

VERT---Mère

JAUNE--Enfant

* *Il est important que le deuxième prélèvement de salive se fasse em même temps pour la mère et l'enfant sans qu'ils soient nécéssairement dans la même pièce.

Collation: collation pour l'enfant (10 minutes).

L'enfant et la mère continuent à compléter leurs questionnaires dans leur salle de testing respective.

Appendix L

Training on the H-RICS

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Training on the H-RICS took place in two phases: the first occurred in the early stages of the development of the H-RICS, and the second, in the final phases of the H-RICS development. Within the first phase, the coders committed alphabetical codes to memory and learned the associated operational definitions. Part of the training in this early stage involved the creation of scenarios which could present coding confusion. Coders deliberated over these situations until they came to an agreement on how to proceed.

Upon gaining a satisfactory level of familiarity with the codes, the coders set about practicing with actual footage using the pilot data video tapes. This first coding experience was carried out by hand (see Appendix N). In this first coding attempt, interactions were observed twice. The first viewing involved the decision of which interactant would serve as the initial target of observation (that is, who is considered to begin the interaction). The first viewing also included the formation of a general impression of the quality of the interaction. During the initial screening of tapes, breaks in the interaction were also coded. Areas of interest with regards to breaks included: 1) the identity of the individual who elicited the break(s), 2) the behaviour(s) emitted that brought about the break(s), 3) the duration of the break(s), 4) what occurred during the breaks, 5) the identity of the individual who re-initiated interaction, and 6) the behaviour(s) emitted which served to re-establish contact. Finally, the first viewing was used to identify start and stop times as well as to divide the interaction tasks into 30 second blocks to facilitate later reliability calculations.

During the second viewing of the tape, molecular behaviours were coded simultaneously with the direction of the focal interactant's gaze and his/her affect. Behaviour was coded continuously with the coder's attention shifting sequentially between mother and child. Finally, at the close of the coding of each laboratory task, aggregate cluster ratings were made.

Upon achieving percent agreement ranging from 0.70 and 0.80 for a select number of codes on the pilot tapes, 25 mother-child dyads were coded by the honours student, eight of which were double coded by the first author. Once more, reliabilities were assessed using percent agreement. Values were found to range from 0.67 to 1.00.

After this first wave of coding, coders re-evaluated the utility of some of the codes. Based on new information gleaned from observing this random sampling of mother-child interactions from the actual data set, certain codes were redefined or dropped while others were added. In the second phase of training, the new and improved operational definitions were learned and coders spent an extensive amount of time conferring on scenarios that might present some difficulty in interpretation until agreement was reached. Former alphabetical codes were transformed into numeric codes during this phase in order to facilitate direct coding into the computer. Upon memorization of codes and the coding protocol (see Appendix O), the coders once again set about coding pilot tapes, this time using the H-RICS computer program (Tang, & Cooperman, 1995). When reliability estimates per code attained percent agreement values greater than or equal to 0.75, actual tapes of interactions were coded.

Appendix M

Mother-child interaction: Transactional model

Socialization is composed of "circular interactive processes composed of mutually dependent parts" (Grotevant, 1987, 49). According to the perspective of reciprocal determinism, an individual's psychological functioning is determined by the environment, his/her behaviour, and personal characteristics. These three forces interact such that their influences are reciprocal. There exists a transaction between environment and organism such that the individual's genotype plays a role in determining environments to which she is exposed and how these environments are experienced (Olweus, 1984; Scarr & McCartney, 1983). Not only does the environment shape the individual, but so too does the individual shape the environment (Bell & Harper, 1977; Dumas & Wahler, 1985; Jacob, 1987; Lytton, 1980; Richards, 1974). For instance, a child developing in the context of punitive parenting will likely display antisocial behaviours. This same child evidencing antisocial behaviour will also likely elicit counter-attacks, creating an environment that tends to be aversive in response to his/her own aversive behaviour (Cohen & Brook, 1995; Jacob, 1987). Do children, behaving in an antisocial fashion elicit greater punishment, or is it the received punishment that inadvertently teaches these children to act out by serving as a model of the very behaviours the discipline is intended to terminate? Cohen & Brook (1995), in a prospective study found that eight years after initial screening, children of parents more prone to punish were twice as likely as children of those who employed alternate disciplinary measures to develop conduct disorder. This figure rose to three times as likely at the 10 year follow-up.

And while current directions in understanding parent-child interaction are moving towards the contributions made by both members of the dyad, the majority of the literature in this area deals only with the effects of parents on children[8]. For instance, the impact of parental psychopathology is frequently examined in terms of its consequences for the

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[8]Within the context of this study, the reciprocal effects of both parents and children are appreciated on a theoretical level. Limitations of the research are such that no directional statements are made with respect to the behaviour of mother eliciting and/or reinforcing the behaviour of the child, or the reverse.

parent's interaction with his/her off-spring (Bousha, & Twentyman, 1984; Burbach, & Borduin, 1986; Burge, Hammen, & Cook, 1992; Burgess, & Conger, 1978; Crittenden, 1981; Feldman, Stiffman, & Jung, 1987; Goodman, 1990; Gordon, Burge, Hammen, Adrian, Jaenick, & Hiroto, 1989). The adoption of a unidirectional model of causation in which parents are the prime constructors of the behaviour of their children and interaction sequences in general rests largely on the Lockean vision of children as "tabula rasa", blank slates upon which the wisdom of the elders is to be writ. From this perspective, parents respond to their children as a function of thoughts and feelings residing within themselves, and not as a consequence of the effects their children have on them (Bell & Harper, 1977).

Attributes of both mothers and children are critical in shaping interaction. Characteristics such as warmth, responsiveness, and sensitivity aid in the determination of mothers' contributions to interactions. Within dysfunctional families, mothers are found to exhibit more difficulties in child-rearing, problems which are not necessarily due to a dearth of parenting skills, but instead may be due to a deficiency in maternal attention induced by stress (Wahler & Dumas, 1989). Mothers evidencing difficulties in the socialization of their children often have children who are more difficult to manage. Child temperament also plays a role in creating or adding stress to dysfunctional family situations (Pianta, Egeland, & Erickson, 1989). In summary, maternal skills, child characteristics, and family situations together determine the quality of interactions.

The mother-child dyad is a coevolutive system in which partners hold "reciprocal, but asymmetrical roles" (Fivas-Depuersinge in Broderick, 1993, p. 106). One, the framing partner serves as a mentor for the other, the developing party. Due to the maturational differences between interactants, the child is much more plastic to the parent's influence (Feldman, Stiffman, & Jung, 1987). The role played by the child in shaping the behaviour of his/her parent(s) changes over time as the child gains greater conscious awareness of his/her intentional behaviour (Bell & Harper, 1977).

The transactional model incorporates a vision of children as active constructors of their environment. Children enter the world already endowed with a variety of characteristics, innate predispositions allowing them to gain mastery over their environment. Inborn in every individual is the strong desire to make order out of chaos, to structure the environment and make it predictable, thus enabling an adaptive fit. This view acknowledges that children are in possession of needs that require satisfaction and that they will manipulate their environment to achieve a desired end.

Appendix N

By-Hand Coding Sheet

HIGH RISK CODING SYSTEM: SHEET # _____

FAMID# _____   SUBJECT MOTHER/CHILD   SEX M/F
TASK# 1 2 3 4   START: _____   STOP: _____

T1 _____   T19 _____

T2 _____   T20 _____

T3 _____   T21 _____

T4 _____   T22 _____

T5 _____   T23 _____

T6 _____   T24 _____

T7 _____   T25 _____

T8 _____   T26 _____

T9 _____   T27 _____

T10 _____   T28 _____

T11 _____   T29 _____

T12 _____   T30 _____

T13 _____   T31 _____

T14 _____   T32 _____

T15 _____   T33 _____

T16 _____   T34 _____

T17 _____   T35 _____

T18 _____   T36 _____

RELQUAL 1-2-3-4-5   COOP 1-2-3-4-5   AFFECT   1-2-3-4-5
PROX   1-2-3-4-5   RECIP 1-2-3-4-5   SUPPORT 1-2-3-4-5
AGGRESS 1-2-3-4-5   ABUSE 1-2-3-4-5   ENGAGE   1-2-3-4-5
SEVER   1-2-3-4-5

Appendix O

Coding Protocol

<u>Coding Protocol</u>

1. Work from copies of 8mm tapes (with time codes on screen), not originals.

2. Set up VCR and TV:
    a) turn on VCR, and insert tape
    b) turn on television and select channel 3, then press enter
    c) advance tape to Task 1
    d) press play and pause as required

3. Block each task for each family: Run through the video and record when breaks occur, who severs and who reinitiates. As well, watch Task 4 a second time to do the qualitative analysis. Finally, complete reliability blocking sheet by indicating the start time, thirty second intervals thereafter, and the stop time.

4. Turn on computer and access H-RICS computer programme through VAX2:

    Login: ALEXES1
    Password: MONET$1

    $: SD [.JESSICA]

    $: run coo....

5. Indicate coder (Jess=1 or Lisa=2).

6. Enter family identification number, followed by mother's identification number.

7. Enter Task number (1-4).

8. Enter child's sex (M or F).

9. Indicate start time in the form [0:00:00].

10. Indicate who begins the interaction sequence (Mother or Child)

11. Code molecular behaviour(s) for a given interactant. Press return and code gaze. Press return again and code affect.
With respect to molecular codes, a maximum of three 2-digit molar codes can be entered (please see coding manual for code descriptions). Alternate continuously between mother and child, noting responses to each participant's behaviour. For those non-codable contributions to the interaction by mother or child, but for which the affect is significantly different from base rate, code two zeroes then press the return key. This procedure of entering six zeros is

also to be followed after breaks when re-initiation occurs by a behaviour in which this coding system is not interested.

12. In the event of a break, enter a code of b for the interactant following the action of the severing individual. For instance, the mother ignoring the child begins a break so the child prompt following the mother's code of ignore is scored b. After a code of b is entered, the computer will ask for the identity of the individual who re-initiated the interaction. Please refer to the break forms for this information.

13. A code of t is entered every 30 seconds for the purposes of reliability calculations. Upon entering a t, the computer will prompt the coder once more with the same interactant so that the coding flow is not interrupted by reliability blocking.

14. Type q at the end of the task. The computer will prompt the coder with the request for the stop time. Following the entry of this value, a list of codes and their respective frequencies appears on the screen.

15. Based in part on the frequency of the observed codes, aggregate clusters are rated (see coding manual for details).

16. Answer the question of whether or not the task was completed according to to the protocol.

17. Repeat procedure for Tasks 2-4.

***To edit: note # interaction segment (t3 mother:)
                   ed jc12t1.dat and ed jc12t1.txt
                   you cannot simply insert text. you must also delete
                   the old.