

# Mother-Child Interactions in Competent and Aggressive Dyads: Implications of Relationship Stress for Behaviour Therapy with Families

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This article reviews briefly the evidence linking child and family dysfunction to the presence of adverse contextual factors and argues that such factors should not be limited to external, environmental events (e.g., socioeconomic disadvantage) but should also include interactional events that reflect a person's relational history with other persons. This leads to a distinction between environmental stress and relationship stress. This distinction is at the origin of this study, set up to compare the interactions of competent ( $n = 42$ ) and aggressive children ( $n = 42$ ) and their mothers. The study assessed mother-child interactions during a laboratory task purposely selected to elicit low levels of aggression and high levels of interest and cooperation. Even under these optimal conditions, mothers of aggressive children were less positive, more aversive, and more commanding than mothers of competent children, although children in both groups completed the laboratory task with the same degree of success and displayed comparable levels of positiveness and aversiveness. Sequential analyses showed that, while competent dyads maintained an harmonious interaction style and showed a cooperative pattern of reciprocity in their communication, mothers of aggressive children displayed a generally noncontingent pattern of communication characterized by reinforcement and punishment of both aversive and compliant child behaviour. This indiscriminate responding pattern contrasted with the behaviour of the aggressive children themselves, who tended to be more contingent than their mothers. These results provide tentative support for the concept of relationship stress, by suggesting that when assessed under the same conditions as competent dyads, aggressive dyads may behave in ways that reflect a long-standing history of relationship difficulties, rather than the stressful demands of an experimental task. Implications for behavioural intervention with aggressive children and their families are discussed.

Behavioural assessment and behaviour therapy have often been criticized by friends and foes alike for being too narrow, shallow, or superficial in focus. In essence, critics contend that human conduct is too complex to be understood, let alone modified, exclusively in terms of the observable behaviours that persons exchange in the course of their daily interactions. There is undoubtedly some truth to this criticism, one that many behaviour therapists choose to ignore, not only to their own, but to their clients' detriment. This is not to say, however, that the entire behavioural field is unaware of the obvious role that the broad developmental and socioemotional

context plays in the regulation of human behaviour. Early theorists emphasized this point repeatedly (Bijou & Baer, 1961; Kantor, 1959), and more recent discussions review the substantial, generally behavioural, literature that documents the close association between contextual variables and human functioning in general, and child and family behaviour in particular (Dumas, 1989a; Kazdin, 1982; McMahon, 1987; Voeltz & Evans, 1982; Wahler & Dumas, 1989).

There is considerable evidence to link child and family dysfunction to the presence of adverse contextual factors (for reviews see Dumas, 1989b, in press; Griest & Forehand,

1982; Wahler & Dumas, 1987). Generally speaking, adverse factors such as maternal emotional distress or depression (Brody and Forehand, 1986; Dumas, Gibson, & Albin, 1989; Forehand, Lautenschlager, Faust, & Graziano, 1986; Hops et al., 1987), marital discord (Fantuzzo et al., 1991; Jouriles, Murphy, & O'Leary, 1989; Reid & Crisafulli, 1990), social isolation (Dumas, 1986a; Dumas & Wahler, 1985; Wahler, 1980), and socioeconomic disadvantage (Dumas, 1984; Dumas & Wahler, 1983; Webster-Stratton, 1985) are associated with elevated probabilities of behavioural dysfunction in children (especially aggressive or antisocial behaviours), as well as with childrearing difficulties in parents, and commonly interfere with behavioural intervention programs for families. For example, mothers who experience severe management problems with their children often report high levels of aversive interactions with adults in their environment. In a study that compared mother-child interactions on "good" and "bad" days (i.e., days in which home observations were preceded by maternal self-reports of positive community contacts or of aversive community contacts), Dumas (1986) found that mothers were more likely to act in an aversive and indiscriminate manner toward their children when they had experienced a large proportion of aversive contacts with adults prior to an observation than when they had not, even though their children's behaviour did not differ under the two contact conditions.

The findings just outlined suggest that mother-child interactions in dysfunctional families may reflect to some extent the socioemotional context in which mothers function when they are not with their children. This is supported by findings that the long-term effectiveness of behaviour therapy with families is related to the family's socioemotional and socioeconomic conditions (Dumas, 1984; Dumas & Wahler, 1983; Wahler, 1980; Wahler & Dumas, 1987). At a one-year follow-up, Dumas and Wahler (1983) found that the effectiveness of a standardized parent training program was related to pretreatment measures of socioeconomic disadvantage and social isolation. Not surprisingly, families were least likely to benefit from the program when they were burdened by disadvantage, isolation, or both.

Although behavioural research is clearly

aware of the importance of contextual variables in any comprehensive understanding of child and family functioning, Dumas (1989a) noted that most studies of contextual factors conceptualize them as external entities that are characteristic of a person's or family's environment (e.g., unsupportive community contacts). This conceptualization may be too narrow. In keeping with a research perspective presented elsewhere (Dumas, 1989a; Dumas & LaFreniere, 1991) and with developmental research (e.g., Hinde, 1987), contextual factors need not be limited to external, environmental factors. They can also be interactional factors that reflect a person's relational history with other persons. In other words, many of the contingencies we study as researchers, and are called to modify as therapists, are part of complex repertoires of responses that characterize the persons with whom we work. It is essential to note that a context defined in terms of response classes differs from one defined exclusively in terms of environmental events (see Dumas, 1989a; Voeltz & Evans, 1982; Wahler & Fox, 1981). For example, the likelihood that a child will comply to a mother's command depends not only on the immediate stimuli that both of them exchange and on the presence of external contextual events (e.g., child involvement in a competing activity). It depends also on the interactional history that child and mother have acquired over the years or, more simply, on their *relationship*. People develop complex repertoires of responses as a function of living together and, when they seek professional assistance for relationship problems, bring such repertoires to therapy with them. To borrow Griest and Forehand's catchy title to their 1982 article, when mothers ask: "How can I get any parent training done with all these other problems going on?", they may often be telling us that they are experiencing two different sources of stress, one that originates from their unfavorable environmental conditions (*environmental stress*), and the other from their strained relationship with their children (*relationship stress*).

Findings from studies of maternal depressive symptomatology and parent-child interactions support a relationship approach to stress (e.g., Goodyer, 1990). For example, Dumas et al. (1989) and Dumas and Gibson (1990) found that maternal depressive symptomatology was systematically related to the behaviour of

conduct disorder children, not only toward their own mothers but also toward other family members. Thus conduct disorder children tended to be more compliant and less aversive toward their mothers when the latter were depressed than when they were not. However, the same children were less compliant and more aversive toward their fathers and siblings when their mothers were depressed than when they were not, suggesting that maternal dysfunction was related in a complex manner to the children's relationships with their mothers and other family members.

It may make intuitive sense that dysfunctional relationships may be sources of stress, just as diverse environmental factors do, so often been shown to be. However, the complex nature of human relationships makes them difficult to study empirically (see Hinde, 1987). Yet, if relationships can be stressful, empirically-based descriptions of differences between functional and dysfunctional patterns of interaction would appear to be essential to the development and evaluation of valid means of behaviour change. The present study represents an attempt to compare the patterns of interaction of socially competent and aggressive children and their mothers, and to specify the implications that reliable differences may have for behaviour therapy with families. Although the behaviour of aggressive children and their mothers has received considerable attention, this study differs from previous work in two important respects. First, the study assessed mother-child interactions during a laboratory task that was purposely selected to elicit low levels of aggression and high levels of interest and cooperation from all children. This choice was made to enable the study to determine the extent to which aggressive children and their mothers differ in their interactions from comparison dyads when they are observed under optimal, rather than typical conditions. Secondly, the study compared aggressive with competent, rather than average children, i.e., with children who were characterized not only by the absence of problems but also by high levels of prosocial conduct in interactions with teachers and peers. As Dumas, Blechman, and Prinz (1991) have argued, behavioural interventions with aggressive children are most likely to show long-term effectiveness if they are accompanied, not only by a reduction in aggression, but by the

acquisition of skills that are characteristic of competent children. This obviously requires knowledge of the optimal functioning of such children, knowledge that remains very limited at this time.

#### Method

##### *Participants*

Children who participated in this study with their mothers were part of a large-scale, on-going evaluation of the socioemotional adjustment of young children attending preschool on a regular basis. Relying on standardized teacher ratings (see below), a random-stratified sample of 42 competent children (22 girls, 20 boys) and 42 aggressive children (25 girls, 17 boys) were selected from a representative sample of 994 children of French-Canadian background recruited from 60 different preschool classrooms in the Montreal Metropolitan area. Children ranged in age from 33 to 74 months. The mean age of girls was 52.2 months (s.d. = 10.1, range 34-74) and the mean age of boys was 47.8 months (s.d. = 9.6, range 33-69).

##### *Procedures and Measures*

*Teacher Evaluations.* Children were evaluated by two classroom teachers toward the end of the fall session (1989 or 1990) using the Preschool Socioaffective Profile (PSP; LaFrenière, Dumas, Capuano, & Dubeau, in press). This new instrument is an 80-item rating scale which provides standardized measures of social competence and emotional and behavioural dysfunction. Strong evidence of validity and reliability has been obtained for the PSP. Specifically, the instrument has been shown to discriminate clearly between functional and dysfunctional children and to be related to comparable teacher instruments and to direct observational measures of competence and dysfunction. The PSP yields summary scores on three factors labeled "Social Competence" (SC), "Anger-Aggression" (A-A), and "Anxiety-Withdrawal" (A-W). Children were selected for participation in the study if their scores on the PSP placed them in either a competent or aggressive group. Socially competent children were described by their teachers as scoring high on items such as "Negotiates solutions to conflicts with other children", "Cooperates with other children in group activities", and "Comforts or assists another child in difficulty", while aggressive children were described as scoring high on items such as "Irritable, gets mad easily", "Forces other children to do things they don't want to", and "Defiant when reprimanded". Using standardized norms established separately for boys and girls, the competent group was formed of children whose scores were 1.0 s.d. or more above the mean on the SC scale and at least 0.25 s.d. below the mean on both the A-A and A-W scales.

Specifically, the mean standardized scores for the competent group on all three scales were as follows: SC scale = 1.44 (s.d. = .32), A-A scale = -1.08 (s.d. = .55, and A-W scale = -1.07 (s.d. = .49). The aggressive group was formed of children whose scores were 1.0 s.d. or more above the mean on the A-A scale and at least 0.5 s.d. higher than their score on the A-W scale. The mean standardized scores for the aggressive group on all three scales were as follows: SC scale = -1.81 (s.d. = .75), A-A scale = 1.61 (s.d. = .65), and A-W scale = -.07 (s.d. = .73).

**Laboratory Task.** Mothers whose children were classified as competent or aggressive were invited to come with their child to a university laboratory to participate in a "grocery task" game. The mother-child dyads were greeted by a research assistant upon arrival and taken to the laboratory where the experimental task was shown and explained to them. The task, which was based on a paradigm developed by Gauvin and Rogoff (1989) and adapted by us for use with preschool children, consisted of planning an efficient route through a miniature grocery store laid out as a three-dimensional board game on a 71 x 61 cm table which a 3-4 year-old could easily reach while standing. Fifty-six miniature items of general use were arranged on six shelves on each side of three rows and on four shelves along the inside of the store's outer walls (see Figure 1). The items were grouped in the following categories: vegetables (5 items), baked goods (7), candy (4), pasta and sauce (3), meat and fish products (6), fruit (6), cereals and dried goods (6), toiletries (10), and dairy products (9). After explaining the task to the child and the mother through verbal instructions and modeling, the research assistant gave the child a practice "shopping list" consisting of three 8 x 12 cm cards with easily identifiable pictures of items available in the store. The child was then asked to move a small toy "shopper" through the store to "buy" each item, while abiding by three simple rules: (1) make the "shopper" take the shortest path to the item; (2) do not allow the "shopper" to fly over the store to reach an item; and (3) do not allow the "shopper" to buy items not on the shopping list. Following this practice session, the assistant clarified the instructions or provided additional information if needed. After making sure that both child and mother understood the game, the assistant presented the child with different lists of five items each for up to five separate trials, but made no further intervention except to verify that the child recognized all five items on the list before each new "shopping trip". After each list was completed, the child checked out the groceries using a Fisher-Price toy register. Mothers were instructed to assist the child as needed in the completion of the game for the first three shopping lists, but not to complete the task for the child.

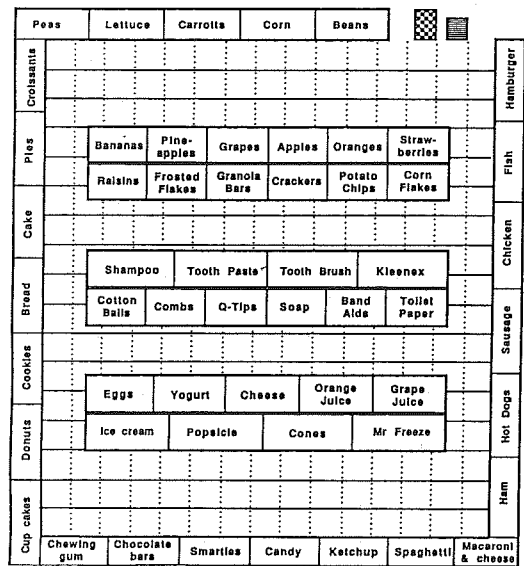


Figure 1. Schematic illustration of the "grocery task" game.

After completion of three lists, or after 18 minutes if three lists had not been completed, the assistant invited the mother to complete a different task on an adjacent table and the child to continue the grocery task alone, with the understanding that at any time the mother could assist the child, or the child could ask her for help if needed. Children then completed two "shopping trips" alone, or worked on the task for six minutes, whichever came first.

**Laboratory Observations.** The extent to which child and mother completed the task as instructed was recorded by a research assistant who observed them behind a one-way mirror. Specifically, three measures were taken: number of lists completed with mother present, number of lists completed alone, and total number of lists completed without any rule violations.

In addition, mother-child interactions during the task were videotaped through the one-way mirror and later coded with the INTERACT coding system, a real-time microcomputer coding system developed by Dumas (1984, 1987). Coding was done by two graduate students with extensive training and experience in the use of the system. The INTERACT system consists of five categories of codes (actor, behaviour, setting, adverb, and valence) that are combined according to specific syntactical rules to form discrete observation strings to summarize commonly occurring instances of parent-child interactions. Following coding of each videotape, all raw data were stored on a desktop computer for later cleanup, verification, and analysis with the INTERACT software system (Dumas, 1988).

For the purpose of this study, individual behaviour codes were collapsed to form comparable

clusters of mother and child behaviours: (a) *positive* consisted of laughter, helping, approving, and affectionate behaviour; (b) *aversive* consisted of critical, punishing, disapproving, or aggressive behaviour, and of intrusive/coercive commands; (c) *command* consisted of clearly stated requests or instructions with which the person could immediately comply or refuse to comply; (d) *compliance* consisted of compliance within 10 seconds with a preceding command; (e) *noncompliance* consisted of active refusal to comply within 10 seconds with a preceding command; (f) *positive affect* consisted of the expression of positive emotions (e.g., smiling) that accompanied any coded behaviour; and (g) *negative affect* consisted of the expression of negative emotions (e.g., loud or sarcastic tone of voice) that accompanied any coded behaviour.

The following measures were derived from the behavioural observations. *Overall proportions* of occurrence of each behaviour cluster (relative to total behavioural output) were calculated separately for each mother and child and averaged by group. *Conditional probabilities* of occurrence of specific behaviour cluster combinations were also obtained to assess the extent to which mothers and children responded contingently to each other's immediately preceding (i.e., within 15 seconds) behaviours and matched each other's affect. Specifically, conditional probabilities of positiveness and aversiveness in response to preceding positiveness, aversiveness, compliance, or noncompliance, as well as conditional probabilities of positive or negative affect in response to positive or negative affect were calculated separately for mother and child and then averaged by group.

The reliability of the INTERACT coding system was assessed by having the observers code 40% of the observations simultaneously but independently. For each cluster of behaviour, the INTERACT software system computed a 2x2 matrix of observer agreements and disagreements that reflected the extent to which both observers recorded the same event within 10 seconds of each other. On this basis, the software calculated percentage agreement, a liberal measure of inter-observer agreement, and Cohen's kappa, a much more stringent measure of agreement which controls for chance agreement. These measures were obtained for each observation and then averaged across observations. Results (see Table 1) show that, for all seven clusters, the level of agreement between coders was satisfactory.

## Results

### *Preliminary Analyses*

Preliminary analyses were conducted to compare the groups on age and gender and to evaluate the extent to which children and mothers completed the task as instructed.

Table 1: *Estimates of Reliability for INTERACT Code Clusters*

Clusters	Percent. Agreement		Kappas	
	Mean	S.D.	Mean	S.D.
Positive	.98	.02	.89	.13
Aversive	.98	.04	.85	.17
Command	.96	.04	.79	.17
Compliance	.95	.04	.64	.23
Noncompliance	.99	.02	.55	.38
Positive Affect	.95	.08	.58	.22
Aversive Affect	.97	.06	.67	.22

Results showed that the two groups did not differ in age ( $t[82] = .66$ , n.s.) or gender (chi-square  $[1] = .76$ , n.s.), or in the number of lists children completed in the presence of their mother ( $t[82] = .55$ , n.s.), completed alone ( $t[82] = 1.04$ , n.s.), or completed without any rule violations ( $t[82] = -.12$ , n.s.). However, task performance was found to be related to age (but not gender or Age x Gender interactions), as younger children completed fewer lists in the presence of their mother ( $F[1,80] = 4.28$ ,  $p < .05$ ), alone ( $F[1,80] = 27.19$ ,  $p < .0001$ ), or without rule violations ( $F[1,80] = 9.258$ ,  $p < .01$ ) than their older counterparts.

### *Overall Proportions*

*Positiveness and Aversiveness.* A multivariate analysis of variance was conducted on the four measures of mother and child positiveness and aversiveness with the grouping variable (competent, aggressive) as factor. This resulted in a significant effect for group, Wilks' lambda = .85, ( $F[4,79] = 3.43$ ,  $p < .02$ ). Given this overall effect, univariate analyses were conducted on each measure to evaluate its contribution to that effect. Means, standard deviations, and  $F$  ratios for these analyses can be found in Table 2. They show that mothers, more than their children, were generally responsible for group differences. Specifically, mothers of competent children were significantly more positive and less aversive than mothers of aggressive children, but no such difference was found in their children's behaviour. Although positiveness and aversiveness, when added, represented approximately 16% to 18% of all the behaviours mothers directed to their children and children directed to their mothers in both groups, the ratio of

Table 2: Means, Standard Deviations, and F Ratios for All Measures of Mother and Child Behaviour in Both Groups

		Mother behaviour			Child behaviour		
		Mean	S.D.	F[1,82]	Mean	S.D.	F[1,82]
Positiveness	C	.133	.078	6.25*	.099	.100	1.07
	A	.093	.069		.075	.117	
Aversiveness	C	.036	.039	5.80*	.088	.145	.00
	A	.063	.060		.088	.104	
Command	C	.130	.081	5.73*	.073	.048	9.04**
	A	.197	.140		.135	.111	
Compliance	C	.400	.440	1.19	.760	.195	2.04
	A	.293	.306		.691	.188	
Noncompliance	C	.009	.038	6.10*	.036	.085	2.81
	A	.125	.280		.082	.133	
Positive affect	C	.216	.185	4.64*	.180	.185	13.76***
	A	.134	.164		.058	.107	
Aversive affect	C	.025	.062	2.26	.056	.096	.02
	A	.049	.087		.059	.089	

\*  $p < .05$  \*\*  $p < .01$  \*\*\*  $p < .001$

positiveness to aversiveness differed significantly between groups for both mothers and children. Mothers of competent children displayed an average of 70% of positive, to 21% of aversive behaviors, whereas the same ratio was 58% to 42% for mothers of aggressive children ( $t[82] = 3.65$ ,  $p < .001$ ). Similarly, competent children displayed an average of 65% of positive, to 35% of aversive behaviours, compared to a ratio of 45% to 55% for their aggressive counterparts ( $t[70] = 2.40$ ,  $p \cong .02$ ).<sup>1</sup>

*Command, Compliance, and Noncompliance.* Proceeding in the same manner as above, multivariate analysis of variance conducted on the six measures of mother and child command, compliance, and noncompliance resulted in a significant effect for group, Wilks' lambda = .73,  $F(6,57) = 3.57$ ,  $p < .005$ . The univariate analyses conducted on each measure to evaluate its contribution to that effect can be found in Table 2. In keeping with the results obtained for positive and aversive behavior, mothers of competent children issued a significantly lower proportion of commands than mothers of aggressive children and generally did not actively refuse to comply to

a command issued by their children, whereas mothers of aggressive children refused to comply to 12% of their children's commands. In contrast, both groups of children did not differ in the proportion of commands they issued and showed comparable levels of compliance and noncompliance. Group differences are again highlighted by a comparison of the ratio of maternal compliance to noncompliance. Both groups of mothers responded to the same proportion of child commands (approximately 41%) by either complying or noncomplying. However, whenever they responded mothers of competent children complied to 93% of child commands, noncomplying to 7%, whereas mothers of aggressive children only complied to 77% of child commands, noncomplying to 23% ( $t[42] = 1.68$ ,  $p = .05$ ).

*Positive and Negative Affect.* Finally, a multivariate analysis of variance was conducted on the four measures of mother and child positive and negative affect as above. This resulted in a significant effect for group, Wilks' lambda = .83,  $F(4,79) = 3.93$ ,  $p < .006$ . Results of univariate analyses conducted on each measure (see Table 2) showed that mothers

and children in the two groups did not differ in the negative affect they displayed. However, significant group differences were again found in the ratio of positive to negative affect. On average, 85% of affective displays by mothers of competent children were positive in nature, to 15% negative, in comparison to a ratio of 62% to 38% for mothers of aggressive children ( $t[76] = 2.91, p < .0025$ ). Similarly, 73% of affective displays by competent children were positive in nature, to 27% negative, in comparison to a ratio of 44% to 66% for aggressive children ( $t[58] = 2.76, p < .005$ ).

#### *Conditional Probabilities*

*Competent Group.* Conditional probability analyses comparing the degree of mother and child responsiveness were conducted within groups. Each conditional probability was compared to its relevant base rate or expected probability. (All base rates were calculated with a time-based procedure described in Moran, Dumas, & Symons, in press.) These comparisons relied on a  $z$  statistic that controls for autocorrelation (Dumas, 1986b). This statistic provides a test for the existence of lagged dependencies in the behaviour of two persons. It rests upon the assumption that the hypothesis of no dependence corresponds to the statement that the conditional probability of Person A's behaviour given Person B's behaviour is equal to the base rate probability of Person A's behaviour. To reduce the probability of Type I error,  $z$  statistics were only considered if they were significant at the  $p = .01$  level or higher. Results, which are reported in Table 3, show that mothers of competent children responded positively (i.e., issued contingent praise or affection) to immediately preceding child positiveness and compliance, but not child aversiveness and noncompliance. Similarly, mothers of competent children did not respond with increased aversiveness to child positiveness and compliance, but responded aversively (i.e., issued contingent criticism and disapproval) to child aversiveness and noncompliance. Competent children, for their part, responded positively to immediately preceding maternal positiveness (but not compliance) and aversiveness, and responded aversively to maternal aversiveness. Finally, both mothers and children responded to positive affect with positive affect, and to negative affect with negative affect, thus contingently matching

each other. In addition, child negative affect exercised an inhibitory effect on the expression of maternal positive affect in competent dyads.

*Aggressive Group.* In contrast to their counterparts in the competent group, mothers of aggressive children did not respond with increased positiveness to child positiveness, or with increased aversiveness to child noncompliance. However, they responded with increased positiveness to child compliance and aversiveness, and with increased aversiveness to child aversiveness and compliance, thereby displaying both discriminate and indiscriminate responding. For their part, aggressive children responded positively to immediately preceding maternal positiveness (but not compliance or aversiveness) and responded aversively to maternal aversiveness. Finally, like their counterparts in the competent groups, mothers and aggressive children both matched each other's positive and negative affect. In addition, maternal positive affect exercised an inhibitory effect on the expression of child negative affect in aggressive dyads.

#### Discussion

Results show that, in contrast to mothers of competent children, mothers of aggressive children were less positive, more aversive, and more commanding, even though children in both groups completed the laboratory task with the same degree of success and displayed comparable levels of positiveness and aversiveness. The use of more commands by mothers of aggressive children was paralleled by the use of more commands by their children. However, far from leading to increased levels of reciprocal compliance, this heightened directiveness was associated with active noncompliance in mothers of aggressive children, who refused to obey to almost 25% of their children's directives. The generally more positive, less directive nature of the relationship of competent dyads was reflected in the greater levels of positive affect that competent children and their mothers exchanged in the course of the laboratory task.

Differences between competent and aggressive dyads were highlighted further by the conditional probability comparisons. Presented with a cooperative laboratory task, competent dyads responded by maintaining a harmonious interaction style and showing a coherent pattern of reciprocity in their

Table 3: *Conditional Probabilities of Mother and Child Responsiveness in Both Groups*

		n <sup>1</sup>	Mother behaviour			n	Child behaviour		
			p(A) <sup>2</sup>	p(A/B)			p(A)	p(A/B)	
Positiveness/ positiveness	SC	34	.107	.201	3.52**	42	.031	.131	13.01***
	AG	30	.083	.127	1.27	41	.016	.064	7.25***
Positiveness/ aversiveness	SC	22	.101	.111	.39	29	.028	.059	2.34*
	AG	29	.067	.127	2.73*	37	.017	.020	.43
Positiveness/ compliance	SC	42	.109	.169	4.40***	21	.032	.000	-1.09
	AG	42	.078	.134	5.63***	18	.019	.000	-.95
Positiveness/ noncompliance	SC	12	.098	.025	-1.56				
	AG	20	.078	.048	-.91				
Aversiveness/ positiveness	SC	34	.039	.039	-.03	42	.033	.028	-.59
	AG	30	.054	.032	-.79	41	.031	.021	-1.06
Aversiveness/ aversiveness	SC	22	.055	.133	3.99***	29	.043	.183	8.45***
	AG	29	.070	.151	3.55**	37	.034	.120	7.63***
Aversiveness/ compliance	SC	42	.037	.050	1.54	21	.019	.028	.40
	AG	42	.060	.103	4.82***	18	.036	.044	.32
Aversiveness/ noncompliance	SC	12	.076	.375	6.81***				
	AG	20	.077	.095	.54				
Pos. affect/ pos. affect	SC	29	.246	.422	6.45***	38	.070	.131	7.46***
	AG	15	.232	.467	5.15***	30	.030	.092	8.79***
Pos. affect/ neg. affect	SC	18	.262	.168	-1.98	20	.068	.040	-1.07
	AG	20	.181	.203	.45	26	.017	.009	-.93
Neg. affect/ pos. affect	SC	29	.015	.007	-1.03	38	.024	.017	-1.33
	AG	15	.039	.000	-1.96	30	.021	.032	1.84
Neg. affect/ neg. affect	SC	18	.043	.129	4.05***	20	.038	.190	7.44***
	AG	20	.088	.216	3.68**	26	.023	.057	3.37**

\*  $p < .01$  \*\*  $p < .001$  \*\*\*  $p < .0001$  (the minimum level of significance was set at  $p = .01$  to reduce the probability of Type I error).

<sup>1</sup>n corresponds to the number of dyads who exhibited the behaviours of interest during observation; results are not reported when fewer than 25% of dyads in the sample exhibited such behaviours.

<sup>2</sup>p(A) corresponds to the base rate probability of A (e.g., maternal positiveness), and p(A/B) corresponds to the conditional probability of A given that B occurred in the immediately preceding 15 seconds (e.g., maternal positiveness given child aversiveness).

communication. Typically, competent mothers responded positively to child positiveness and compliance, and aversively to child aversiveness and noncompliance. Similarly, competent children responded positively to maternal positiveness and aversively to maternal aversiveness (and showed a tendency to respond positively to maternal aversiveness also). In keeping with this pattern of reciprocity, competent dyads generally matched each other's affect.

In contrast, aggressive dyads presented with

the same cooperative task completed it with the same degree of accuracy as competent dyads but displayed a generally noncontingent pattern of communication while doing so. Although both members of the dyad tended to match each other's affect throughout the task, mothers of aggressive children generally ignored child positiveness and noncompliance and responded indiscriminately to child aversiveness and compliance, reinforcing and punishing both of these behaviour patterns. This indiscriminate responding pattern con-



trasted with the behaviour of the aggressive children themselves, who tended to be much more contingent than their mothers, but was in keeping with earlier findings obtained with dysfunctional families (Dumas & Wahler, 1985; Snyder, 1977). However, the results obtained here go beyond this earlier work, as they were not obtained in the course of baseline assessments of parent-child deviance in clinic-referred families, but in the course of a laboratory task specifically set up to elicit cooperative parent-child interactions. These results show that, even within a low conflict task, clear differences emerge in the dyadic interactions between on the one hand and their aggressive children on the other, and mothers and their competent children on the other. These differences suggest that under relatively non-threatening laboratory conditions aggressive dyads are likely to display major dysfunctions in their pattern of communication. If this is correct, the present results offer tentative support for the concept of relationship stress, by suggesting that when assessed under the same conditions as competent dyads, aggressive dyads may behave in ways that reflect a long-standing history of relationship difficulties, rather than the stressful demands of an experimental task. This interpretation must be made cautiously, however, as it is limited by the fact that the study did not assess mother-child interactions over an extended period of time or by manipulating mother-child relationships experimentally (e.g., by observing mothers interact with their own and a stranger child, as was done by Dumas and LaFrenière, 1991).

The results have ramifications for behavioural intervention with aggressive children and their families. In keeping with standard behavioural practice, the results suggest that behavioural family therapy should focus on the development and maintenance of positive and consistent patterns of interaction between mother and child, that stress contingent responding to positiveness and compliance and firmness in dealing with aversive behaviour and noncompliance (e.g., Patterson, 1982). Although this suggestion is far from new, the possibility that dysfunctional mother-child interaction in aggressive dyads may represent long-standing relationship stress rejoins some relatively new theoretical and applied developments in the field. First, the stressful nature

of the mother-child relationship in aggressive dyads and the fact that mothers seem to make a more important contribution to the dysfunctional nature of that relationship than their children, suggest that relationship therapists ought to investigate the role that the relationships mothers have with significant others besides the child may play in the maintenance of the child's conduct (Wahler & Dumas, 1989). This suggestion is in keeping with the development of a communication model of family functioning, which assumes that ineffective communication in the entire family is at the origin of and helps maintains dysfunctional parent-child interactions (Blechman, 1985; Dumas, Blechman, & Prinz, in press).

Second, the results suggest that behaviour therapists may want to put as much emphasis on teaching dysfunctional parents to comply to their children as they commonly do on teaching children to comply to their parents. An important element of the harmonious nature of mother-child relationships in competent dyads may lie in the fact that mothers of competent children are as willing to comply to their children's requests (at least as expressed in a play situation) as they are to insure that their children obey them. This suggestion is certainly in keeping with developmental work indicating that maternal compliance may be a forerunner of child compliance and may play an essential role in the development of reciprocity that is characteristic of well functioning relationships (Maccoby & Martin, 1983). The suggestion is also in keeping with developments in behavioural interventions with families (e.g., Eyeberg & Boggs, 1990).

Finally, the results point to the role that generalization may play in the development and maintenance of aggressive behaviour patterns. The possibility that mothers may make a more important contribution to the dysfunctional nature of their relationship with their children than the children themselves is supported by the results but remains a topic of considerable theoretical debate (see Dodge, 1990; Lytton, 1990; Wahler, 1990). The possibility is all the more intriguing here as the two comparison groups were formed on the basis of teacher evaluations conducted outside the home. This suggests that children as young as three years may already be generalizing aggressive interactional patterns from home to preschool and be accurately rated as deviant by their teachers

in independent evaluations. If this is correct, behaviour therapists may need to assess child aggression in multiple settings, even in very young children, and set up intervention programs accordingly, if the well-documented progression in child aggression from home to school is to be prevented (Ramsey, Patterson, & Walker, 1990).

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#### Footnote

Difference in the degrees of freedom between *t*-tests reflect differences in the number of mother-child dyads that were observed to display the behavior clusters of interest.

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