

The Transaction between Parents' Perceptions of their Children's Shyness and their Parenting Styles

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In recent years, researchers have examined factors that "determine" parenting beliefs, styles, and behaviours. One potential determinant of parenting is the child him/herself. Child characteristics, such as temperament, have been cited as evocative influences on parenting beliefs and behaviours. The primary purpose of this study was to investigate the longitudinal relations between children's social wariness/inhibition and parents' beliefs about how to best socialise their children. Questionnaire data on child temperament and parenting practices were collected from the parents (mothers and fathers) of sixty 2-year-olds; identical data were collected 2 years later. Observations of inhibited behaviour were taken at two years. Results indicated that few differences existed between mothers' and fathers' expressed parenting styles at ages 2 and 4 years. Second, parental perceptions

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The research reported in this manuscript was supported by a grant from the Social Sciences and Humanities Research Council of Canada to Kenneth H. Rubin. In addition, Dr Rubin was supported by an Ontario Mental Health Foundation Senior Research Fellowship. We are grateful to the children and mothers for their participation and the following individuals who aided in the collection and coding of data: Lynne Fenton, Daniele Hermann, Kerri Hogg, Carolyn Krygsman, Loretta Lapa, Kelly Lemon, Jo-Anne McKinnon, Kevin McNichol, Amy Rubin, Alice Rushing, and Cherami Wischman.

of child shyness at age 2 were: (a) stable to age 4; and (b) predicted a lack of encouragement of independence at age 4. Third, parents' expressed lack of encouragement of independence, although stable from 2 to 4 years, failed to predict child shyness at age 4. The findings support the conjecture that young children's dispositional characteristics predict subsequent maternal and paternal behaviour.

In recent years, researchers have examined factors that "determine" parenting beliefs, styles, and behaviours (e.g. Belsky, 1984; Russell, 1997). For example, it is now known that environmental stresses such as negative life events (e.g. job loss, illness, etc.) and daily hassles (e.g. sibling conflicts, housework, etc.) can predict parental beliefs and behaviours (Crnic & Greenberg, 1990; MacKinnon-Lewis et al., 1994; Mills & Rubin, 1993). It is also known that the availability of a social support network can moderate the effects of stress in determining parenting (Crockenberg, 1986; Crockenberg & McCluskey, 1985).

Another potential "determinant" of parenting is the child him/herself. There is growing evidence to suggest that parents adapt their behaviours to accommodate to the characteristics of their children, including temperament (e.g. Caron & Miller, 1981; Fish & Crockenberg, 1986; Lee & Bates, 1985), behaviour (e.g. Russell, 1997); age (e.g. Bates, Olson, Pettit, & Bayles, 1982; Lee & Bates, 1985; Pettit & Bates, 1984), and gender (e.g. Crockenberg, 1986; Greenberger, O'Neil, & Nagel, 1994; Lamb, Frodi, Hwang, Forstrom, & Corry, 1982; Sanson, Smart, Prior, & Oberklaid, 1993). More specifically, child temperament is an evocative influence on parenting beliefs and behaviours. Thus, it has been shown that "difficult" temperament predicts less than optimal parenting practices (see Sanson & Rothbart, 1995 for a review). For example, Fish and Crockenberg (1986) reported that infant crying and soothability at 1 and 3 months, predicted maternal care giving and interaction at 9 months. This work suggests that, in very early childhood, it may be the child who "drives" the parent-child system in so far as the relations between child and parent behaviour are concerned.

Among the temperamental characteristics that have not received much attention, insofar as a relation with parenting is concerned, is the construct of *behavioural inhibition* or social fearfulness. One reason that this construct has been neglected in studies of parenting may lie in arguments that the phenomenon is grounded in genetics and biology. Thus, Kagan and collaborators believe that some infants are genetically hard-wired with a physiology that biases them to be cautious, timid, and wary in unfamiliar social and nonsocial situations. These "inhibited" children differ from their uninhibited counterparts in ways that imply variability in the threshold of excitability of the amygdala and its projections to the cortex, hypothala-

mus, sympathetic nervous system, corpus striatum, and central grey area (Kagan, 1989).

Kagan has identified two dimensions of infant behaviour predictive of later fearful and anxious behaviour in children: (1) frequency of motor activity; and (2) the display of negative affect. According to Kagan and Snidman (1991), the combined and consistent expression of infant motor arousal and negative affect is a function of elevated excitability in areas of the limbic system thought to be involved in fear responses. Infants who are easily and negatively aroused motorically and emotionally are likely to display behavioural inhibition as toddlers (Kagan & Snidman, 1991).

Consistent with Kagan's argument that there is a *physiological* basis to social wariness and inhibition is the research of Fox and colleagues (e.g. Fox & Calkins, 1993). These researchers begin by noting that adults exhibiting right frontal EEG asymmetries are more likely to express negative affect and rate emotional stimuli as negative (Jones & Fox, 1992). Moreover, adults diagnosed with unipolar depression, even in remission, are more likely to display right frontal EEG asymmetry compared to controls (Henriques & Davidson, 1990, 1991). Drawing from the adult literature on the psychophysiological underpinnings of emotion dysregulation, Fox and his collaborators have demonstrated that infants exhibiting right frontal EEG asymmetries are more likely to cry to maternal separation, and display signs of negative affect and fear of novelty (Davidson & Fox, 1989; Fox, Bell, & Jones, 1992). Moreover, stable patterns of infant brain electrical activity predict temperamental fearfulness and behavioural inhibition in young children. For example, Fox and Calkins (1993) recorded brain electrical activity of children at 9, 14, and 24 months and found that infants who displayed a pattern of stable right frontal EEG asymmetry across this 15-month period were more fearful, anxious, compliant, and behaviourally inhibited as toddlers than other infants.

Inhibited toddlers display greater reactivity in the sympathetic nervous system, greater muscle tension, and higher levels of salivary cortisol compared to uninhibited children (Reznick et al., 1986). Moreover, these children display elevated resting heart rates (Fox, 1989), higher basal cortisol readings and greater pupil dilation (Kagan, Reznick, & Snidman, 1987). When these children are followed up into elementary school, their behavioural and physiological profiles remain constant (Kagan, Reznick, Snidman, Gibbons, & Johnson, 1988), suggesting that there are stable physiological patterns corresponding with the behavioural expression of inhibition. Importantly, inhibition in early and middle childhood is associated, not only with physiological deviations from the norm, but also with parent, teacher, and peer indices of psychopathology. For example, preschoolers observed to be reticent and socially fearful amongst peers are

viewed, by parents and teachers as having psychological problems of an internalising nature (e.g. Coplan & Rubin, 1998; Rubin, Coplan, Fox, & Calkins, 1995).

Given the developmental significance of social reticence, it is likely that parents could be involved in its transmission, maintenance, or amelioration. To address this issue, Rubin and colleagues have described a developmental pathways model in which infant/toddler inhibition has been implicated in the determination of parenting beliefs and behaviours that, in turn, come to reinforce the development of socially withdrawn child behaviours (e.g. Mills & Rubin, 1993; Rubin, Hymel, Mills, & Rose-Krasnor, 1991).

Thus, Rubin and colleagues have suggested that early social fearfulness and inhibition may elicit parenting responses of an overprotective, overcontrolling nature (e.g. Rubin, Stewart, & Chen, 1995). In turn, such parenting behaviours may reinforce social fearfulness, and ultimately, as such children enter the school milieu, their withdrawn behavioural patterns result in peer rejection and negative self-regard (see Rubin & Stewart, 1996 for a recent review). Support for the hypothesised relation between child social fearfulness and parental overcontrol and overprotectiveness is only now beginning to emerge (Belsky, Putnam, & Crnic, 1997; LaFreniere & Dumas, 1992; Rubin, Hastings, Stewart, Henderson, & Chen, 1997; Rubin & Mills, 1990). However, it is the case that most studies extant: (a) present only contemporaneous associations; (b) fail to address issues pertaining to direction of effect; (c) examine mothers but not fathers; and/or (d) fail to focus comparatively, on male and female children.

In the present study, therefore, we explored the relations between children's social fearfulness/shyness at 2 and 4 years of age, and parents' choices of preferred rearing styles at these same two time periods. We examined not only mothers', but also fathers' socialisation preferences. In recent longitudinal research, Park, Belsky, Putnam, and Crnic (1997) and Belsky et al. (1997) found that boys' shyness is related to paternal as well as maternal parenting. Park et al. (1997) found that inhibited boys at age 3 tended to have mothers and fathers who were less intrusive and highly sensitive and affectionate. In a follow-up study, Belsky et al. (1997) found that high levels of unsupportive co-parenting (parenting in which one parent does not support the parenting actions of the other) were predictive of inhibition at age 3 while controlling for the indices of parenting used by Park et al. (1997). Hence, these findings show that mothers and fathers, individually, and the unity between mothers and fathers may all be important elements in the development of inhibition, possibly contributing to inhibition's moderate level of stability over the early childhood years (e.g. Kagan, 1989; Kagan et al., 1987; Kochanska & Radke-Yarrow, 1992). In the present study, we studied both fathers and mothers as well as sons

and daughters. The specific parenting practice examined was encouragement of independence or the lack thereof.

Following from relevant developmental models extant, we predicted that two-year social fearfulness and inhibition would be contemporaneously, and negatively, associated with maternal and paternal encouragement of independence. We further postulated that toddler fearfulness and inhibition would be: (a) stable; (b) predictive of parents' lack of encouragement of independence; and (c) more highly predictive of parental choice of rearing style than rearing style would be predictive of child characteristics.

We also predicted that parent perceptions of their children's social-emotional characteristics would be more strongly associated with, and predictive of, their parenting preferences than would objective, observational assessments of behavioural inhibition. Parents' beliefs have been found to be reliable predictors of their behaviour with socially competent and less competent children (e.g. Dix & Lochman, 1990; Rubin & Mills, 1992), and studies have shown that, *regardless of children's actual behaviours or characteristics*, parents' pre-existing beliefs contribute greatly to their perceptions of their children (Rubin, Provenzano, & Luria, 1974; Stern & Karraker, 1989).

A second goal of the study was to explore possible differences between mothers and fathers in their parenting of the child at ages 2 and 4 years. As noted earlier, the particular dimension of parenting that we assessed was encouragement of independence. Few researchers have examined parental differences *vis-à-vis* this particular dimension of parenting (drawn from the Block "Q-Sort"; Block, Block, & Morrison, 1981). In a recent review, Parke and Buriel (1998) examined the relevant literature extant. They indicated that in most studies, researchers compared parents' involvement (e.g. time spent together, care giving, etc.), styles of interaction, and child behavioural correlates. With regard to styles of interaction, for example, fathers were portrayed as more physically playful than mothers with their young children. There was, however, a dearth of studies comparing parental beliefs and styles.

Those few studies in which parental beliefs and styles have been compared provide mixed results. For example, Hart, DeWolf, Wozniak, and Burts (1992) found that mothers and fathers agreed about their disciplinary styles 65% of the time; Sanson et al. (1993) found, on the other hand, that mothers and fathers differed significantly in the administration of punishment based on the gender of the child. Mills and Rubin (1990) found that mothers and fathers had similar emotional reactions to, and causal attributions for, their preschool children's aggressive and socially withdrawn behaviours. They differed somewhat, however, in the strategies they suggested they would use to respond to those behaviours. Given the

general lack of relevant data, and the mixed findings extant, no hypotheses were offered in relation to mothers' and fathers' preferred parenting styles for their 2- and 4-year-old children.

In summary, the primary goal of this study was to explore the direction of relations between children's social wariness/shyness and parents' preferred socialisation practices. A secondary goal was to examine whether fathers and mothers differed with regard to their preferred parenting practices.

METHOD

Participants

The participants for this study were drawn from a sample that comprised 108 children (54 females) from families who lived in, and around, the Canadian cities of Kitchener and Waterloo, Ontario (approximate population = 250,000). The children and parents were first involved in the study at toddler age 2 years. The present report represents a follow-up of those 60 parents who agreed to complete a set of questionnaires at child age 4 years, and for whom a complete data set was available at 2 years. Ninety-seven per cent of the participants were Caucasian; 96% of the couples were married. The average age of the mothers, at child age 2 years, was 31.05 years ($SD = 4.12$; range 23–41); and, the average age of the fathers was 32.49 years ($SD = 3.91$; range 24–43). On average, both mothers and fathers had some college education. The families had a mean score of 46.46 ($SD = 10.80$, range = 18–66) on the Hollingshead Social Status Index (Hollingshead, 1965).

Procedures and Measures

At age 2 years, each toddler-mother dyad experienced an adapted version of the Behavioral Inhibition Paradigm (e.g. Garcia Coll, Kagan, & Reznick, 1984; Kochanska, 1991); components included in this investigation are described herein. During this session, mothers completed a questionnaire providing information about family demography; they left the laboratory with a second questionnaire as well as an envelope within which was a questionnaire for the child's father to complete. At child age 4 years, mothers and fathers received questionnaires (described later) to complete.

Parenting Styles. Parenting style was assessed at child age 2 and 4 years by the Child-rearing Practices Report (CRPR; Block, 1981; Block et al., 1981). This 91-item Q-sort was obtained independently from both mother and father. The CRPR assesses child-rearing attitudes, beliefs, and

behaviours. Initially, individual items were aggregated to form different styles or aspects of parenting, including *Encouragement of Independence* (I let my child make decisions for him/herself; If my child gets into trouble, I expect him/her to handle the problem mostly by him/herself; I prefer that my child not try things if there is a chance he/she will fail (reverse scored); I let my child make many decisions for him/herself; I think one has to let a child take many chances as he/she grows up and tries new things; I encourage my child to be curious, to explore, and question things; I encourage my child to be independent of me). Parenting style was assessed by averaging multiple Q-sort items. The items for each style were selected based both on previously published research (e.g. Block, 1981) and collaborative discussion within our research group (e.g. Chen et al., 1998). Cronbach alphas were generally low for each dimension of parenting assessed. Indeed, only the Encouragement of Independence dimension had an acceptable level of internal consistency, ranging from .59 for fathers at child age 2 years, to .64 for mothers at child age 4 years. It is important to note that the forced ranking paradigm of the Q-sort methodology inherently contributes to low or negative correlations among individual items; this may explain why researchers have had difficulty replicating Block's original factor structure (Holden, 1995).

Parental Judgements of Shyness. At age 2 years, assessments of mothers' and fathers' ratings of their child's shyness were obtained from the social fear subscale of the Toddler Behavior Assessment Questionnaire (TBAQ; Goldsmith, 1988). The Cronbach alphas for mothers and fathers were .80 and .75, respectively. In addition, mothers provided a two-item rating of shyness ("How does your child behave with other children who he or she does not know?" and "How does your child behave with adults he or she does not know?"). These two items were rated on a scale of rarely, occasionally, or usually shy at first. At age 4 years, social wariness was assessed by mothers and fathers on the shyness subscale of the Colorado Child Temperament Inventory (CCTI) (Buss & Plomin, 1984; Rowe & Plomin, 1977). The Cronbach alphas for mothers and fathers were .80 and .96, respectively.

Maternal Judgement of Nonsocial Fears. At age 2 years, nine specific nonsocial fears were rated, by mothers, on a frequency scale of 0 (never) to 3 (frequently). The nonsocial fears included large animals; being left alone in the house for a short time; fire; water; elevators; machines; lightening or thunder; monsters (in stories, television, or movies); and a category of "other" that mothers could complete. The Cronbach alpha for mothers was .47.

Behavioural Inhibition. Behavioural inhibition was observed at age 2 years in two situations. In the first situation, each toddler-mother dyad experienced an adapted version of the Behavioral Inhibition Paradigm (e.g. Garcia Coll et al., 1984). First, each dyad entered an unfamiliar room comprising one large and one small chair, and a low table. The child was allowed to play with an assortment of attractive toys for ten minutes while the mother sat in the large chair and filled out a questionnaire (free play 1). Then, an experimenter, who the child had already met, entered with a basket, asked the child to tidy up the toys, and left (clean-up); afterwards, the experimenter removed the toys. An unfamiliar woman entered the room with a toy dump truck and some blocks. She sat quietly for one minute, played with the truck for one minute, then (if toddler had not yet approached), encouraged the child to join her in play. After this third minute, she left, returning with a toy robot that moved, made noises, and emitted smoke. The experimenter did not say anything for the 30 seconds, then invited the child to play with the robot for one minute. In her third visit to the room, she brought an inflatable tunnel that she encouraged the child to crawl through. After she left, a third woman dressed as a clown entered the room. The clown was silent for 30 seconds, then invited the child to approach for one minute, then removed enough of her disguise for the child to realise this was another experimenter who he/she had met before. The mother and child were allowed another free-play period, for three minutes (free play 2). Following this was a separation-stranger-reunion sequence (e.g. Booth, Rose-Krasnor, McKinnon, & Rubin, 1994), lasting up to three minutes. After a third and final free play session lasting six minutes (free play 3), the mother and child were brought a snack.

Based on results of this first visit, unfamiliar children were paired for a second session (see Rubin et al., 1997 for a complete description). Two toddler-mother dyads participated in this second visit to the laboratory. Same-sex toddlers were paired based on their inhibition-related behaviour in the first visit. "Wary" toddlers were identified as those who did not approach the truck, robot, or tunnel. "Average" toddlers were identified as those who approached one or two of these three objects. "Not wary" toddlers were identified as those who approached all three. Each toddler was paired with an "average" toddler for the second session, such that pairings were comprised of wary-average, average-average, or not wary-average children.

In the second session, a large unfamiliar room was used. This room was divided in half by a large, two-sided bookcase extended across two-thirds of the width of the room. The first mother-child dyad was brought into the room and led to the far side of the bookshelf, where there were six toys and a large and a small chair; the mother was asked to sit in the large chair. Then, the second dyad was brought to the near side of the shelves, where

there were six similar but not identical toys and two chairs; again, the mother was asked to sit in the large chair. Two closed circuit TV cameras with a split-screen monitor filmed the dyads. Data observed in the following components were used in this investigation. The first episode lasted for ten minutes. The toddlers were allowed to play with the toys and wander freely, but their mothers were asked to remain seated. Then, two experimenters entered the room, moved the barrier against one wall, and placed all of the toys in the middle of the room. This was followed by 25 minutes of free play (Episode 2); mothers were asked to remain seated for the first five minutes of this period, then were free to move about the room. Following Episode 2, a low table was brought into the room, onto which was placed juice and cookies for the toddlers, and juice/coffee/tea for the mothers (Snack-Time). The table was placed against the wall opposite the toy shelves. The two large chairs were placed at either end of the table, and the two small chairs were placed beside each other, facing the wall. Participants were told that it was "snack-time", but mothers were not instructed to keep their children seated at the table. Snack-time continued for 15 minutes.

Inhibition Coding. Toddler inhibition was coded as described in Rubin et al. (1997). The amount of time each toddler spent *in physical contact with his/her mother* in the first free play, the second free play, and truck, robot, and tunnel episodes; *the child's latency to approach the stranger and/or touch the truck, and robot*; and *latency to pass through the tunnel* (all of which required approaching, to within touching distance, the stranger) comprised the inhibition index. It is important to note that virtually no children spontaneously went near the clown both prior to, and following an invitation to approach. Because of a lack of variability of response, the clown episode was dropped from further analysis.

One data point was obtained for each of the first two free play episodes. Four data points were obtained for the truck episode; during the first minute, the duration of contact with the mother and latency to spontaneously approach the unfamiliar adult was recorded. During the third minute, the duration of contact with the mother and latency to approach the unfamiliar adult was recorded after an invitation to approach was given (for children who approached the stranger spontaneously in the first minute, third minute latency was scored as zero). Two data points were obtained for each of the subsequent robot and tunnel episodes: (1) duration of maternal contact following an invitation to play with the robot or crawl through the tunnel; and (2) latency to touch the robot or crawl through the tunnel was also measured. Each of these variables was standardised via *Z*-transformation, and then aggregated.

Reliability was computed for 10% of the sample using per cent agreement given that all measures were based on recordings of time. The average inter-coder reliability for the inhibition behaviour was 89.8%, ranging from 80% (contact with mother in first free play) to 100% (contact with mother and latency for tunnel episode).

The Toddler Play Observation Scale (Rubin & Stewart, 1994; see also Rubin et al., 1997) was used to code interactions in the second situation. This involved 10-second time sample observations of the particular play forms (unoccupied, solitary, onlooking, and parallel behaviours; imitative play; conversations with peers; rough and tumble play; and interactions with adults), affect, and proximity to and contact with the playmate and mother as displayed by each toddler. As well, the frequencies of anxious and aggressive behaviours were recorded. For this investigation, the following data points were obtained from each of the first two episodes: toddler's maintenance of contact with his/her own mother; time spent engaged in unoccupied behaviour (inactive and unfocused, not including time spent actively watching the other peer); and frequency of anxious behaviour (e.g. finger pulling, thumb sucking, and hair twisting). These were normalised via *Z*-transformations and aggregated to form an index of *peer-social inhibition*. The coders for Session 2 were not involved in the coding of Session 1, and were blind to the group categorisations (wary/average/not wary) of the toddlers they observed. Reliability was computed for 10% of the sample using kappa coefficients for the time-sampled data and per cent agreement for the frequency counts of anxious behaviour. Kappa coefficients for play behaviours (including unoccupied behaviour) and the contact variables were .92 and .99, respectively; per cent agreement for the presence/absence of anxious behaviours was 82%.

Inhibition scores were generated separately for the traditional inhibition and peer inhibition situations. The correlation between these indices was [$r(102) = .28, P < .01$ (power = .89)]. The measures were *z*-transformed, and then aggregated (as per Rubin et al., 1997).

RESULTS

Sex and Age Differences

Means and standard deviations for the parenting styles and the measures of shyness are presented in Table 1. Data for the measure of behavioural inhibition are not reported because they are based on *z*-scores.

Differences between boys and girls, mothers and fathers, and their interactions, were tested by mixed 2×2 ANOVAs with sex of child as a between-subject factor and parent as a within-subject factor; these analyses were computed separately for the temperamental shyness measures at

TABLE 1
Means and (Standard Deviations) of Shyness and Parenting Style Measures

Measures	Mother						Father					
	Girls			Boys			Girls			Boys		
	<i>N</i>	<i>M</i>	(<i>SD</i>)									
<i>Age 2</i>												
Shyness TBAQ	35	63.9	(19.1)	25	66.2	(16.7)	34	59.3	(19.0)	24	60.9	(13.5)
Shyness rating	35	2.10	(0.64)	25	2.30	(0.56)	–	–	–	–	–	–
Independence	35	5.22	(0.75)	25	5.04	(0.83)	30	4.98	(0.79)	23	5.03	(0.94)
Protection	35	4.18	(0.57)	25	4.26	(0.59)	30	3.97	(0.71)	23	4.07	(0.75)
Rejection	35	1.69	(0.60)	25	1.76	(0.73)	30	1.72	(0.83)	23	1.64	(0.46)
Acceptance	35	5.91	(0.41)	25	5.62	(0.43)	30	5.61	(0.63)	23	5.65	(0.65)
<i>Age 4</i>												
Shyness CCTI	35	2.61	(0.89)	25	2.52	(0.82)	30	2.65	(0.79)	24	2.42	(0.66)
Independence	35	5.25	(0.85)	25	5.07	(0.58)	29	4.94	(0.82)	24	4.83	(0.80)
Protection	35	3.91	(0.65)	25	4.36	(0.62)	28	3.70	(0.58)	24	3.97	(0.71)
Rejection	35	1.85	(0.69)	25	1.62	(0.47)	29	1.72	(0.66)	24	1.64	(0.52)
Acceptance	35	5.68	(0.49)	25	5.86	(0.41)	29	5.54	(0.75)	24	5.64	(0.53)

each age. There were no statistically significant effects. Sex of child differences in the maternal shyness and nonsocial ratings and the measures of observed behavioural inhibition at age 2 years were examined by *t*-tests; significant differences were not obtained.

Age effects could be evaluated only for the parenting styles because age-specific shyness scales were used. Differences between age and the interactions between age and sex of child, and sex of parent, were tested by $2 \times 2 \times 2$ mixed ANOVAs with sex of child as a between-subject factor and age of child and sex of parent as within-subject factors; the three-way interactions were not interpreted because of the small cell sizes. There were no significant main effects or interactions.

Consistency of the Rated Shyness and Observed Inhibition Measures. Correlations between measures of parent-rated shyness, observed inhibition, and parental encouragement of independence are presented in Table 2. The maternal shyness judgements showed moderate consistency both across measures and over time; significant correlations were found with the aggregated, observed measure of behavioural inhibition. In contrast, the *paternal* shyness judgements showed only modest consistency with the maternal shyness judgements, lower stability over time (although significant), and nonsignificant correlations with observed behavioural inhibition. This pattern of correlations suggests that mothers' temperamental shyness judgements may be more valid than those of fathers. However, it was also the case that subsequent statistical tests revealed the magnitude of the correlations for each of mothers and fathers to be nonsignificantly different from one another.

The relative contributions of parents' early *perceptions* of their child's shyness and their child's observed early behavioural inhibition on parents' later perception of their child's shyness were explored by multiple regression analyses. Mothers' CCTI shyness scores at age 4 years were regressed on both their TBAQ shyness scores and the aggregated behavioural inhibition score of their child at age 2 years; a similar analysis was performed for fathers. Mothers' shyness judgements at 4 years were influenced equally by their earlier shyness judgements [$\beta = .39$ ($P < .01$)], and by the child's earlier observed inhibition [$\beta = .33$ ($P < .01$)]. In contrast, fathers' later shyness judgements were influenced by their earlier shyness judgements [$\beta = .30$ ($P < .05$)], but nonsignificantly by the child's earlier observed behavioural inhibition [$\beta = .19$ (n.s.)].

Transactions between Shyness and Parenting Styles

Transactions between the parental shyness judgements and the expressed parenting styles, over time, were analysed by path analyses; the small

TABLE 2
Correlations between Measures of Shyness, Behavioural Inhibition, and Parenting Style (one-tailed tests)

Measure	Age 2				Age 4				
	TBAQ—D	Shy—M	Inhib	Indep—M	Indep—D	CCTI—M	CCTI—D	Indep—M	Indep—D
Age 2									
TBAQ shy—mom	.32**	.59**	.40**	.02	.12	.52**	.25	-.36**	-.29*
TBAQ shy—dad		.21*	.08	-.18	.24*	.24*	.31*	-.26*	-.17
Shyness rating—mom			.19	-.24*	-.16	.50***	.34**	-.34	-.13
Inhibition (aggregate)				-.09	-.16	.48***	.21	-.14	-.25
Independence—mom					.24	.08	.03	.64***	.35**
Independence—dad							-.03	.15	
Age 4									
CCTI shy—mom								-.18	-.07
CCTI shy—dad								-.22	-.23
Independence—mom									.19

* $P < .05$, $P < .01$, $P < .001$.

sample size precluded computation of structural equation modelling (see Asendorpf & Wilpers, in press, for a similar approach). The results for the transactions between temperamental shyness and encouragement of independence are illustrated in Fig. 1 which shows path coefficients.

As Rogosa (1980) has noted, the causal interpretation of cross-lagged correlations can be quite misleading because they depend not only on the direct influence of one variable on the other, but also on the indirect influence due to the variables' initial correlation and their stability. Because the initial correlations were close to zero in the present case, this was not a real problem. Nevertheless, it seemed desirable to control indirect influences directly by path analyses (Rogosa, 1980). This procedure is equivalent to a regression approach wherein the later assessment of one variable is regressed on both variables' earlier

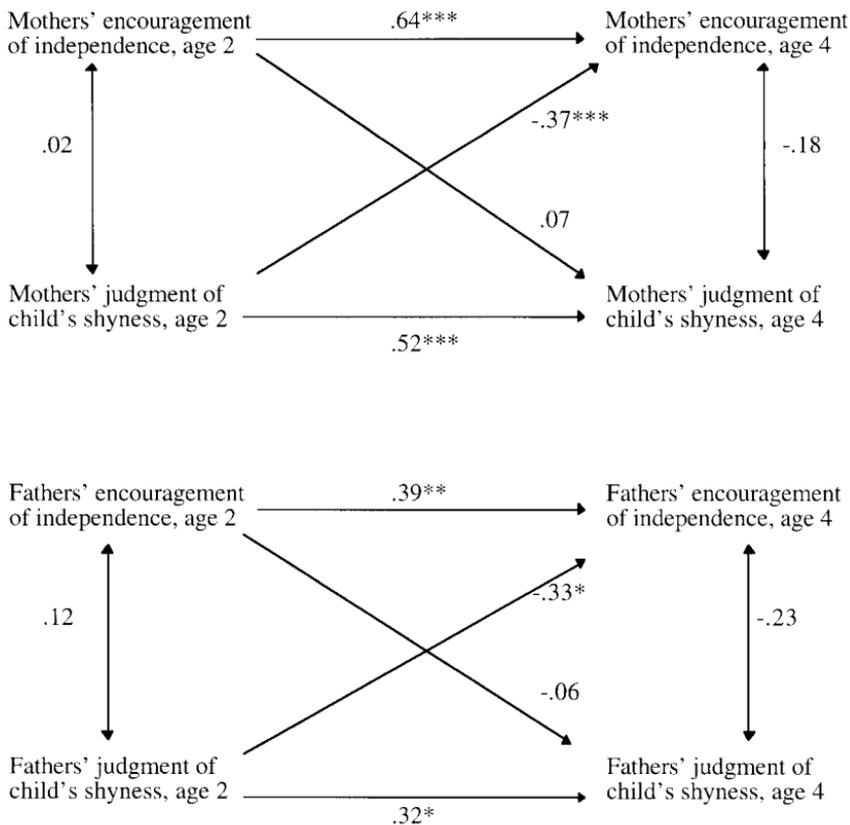


FIG. 1. Transaction between parents' encouragement of independence and children's shyness. (Panel A: path coefficients. * $P < .05$; ** $P < .01$; *** $P < .001$.)

assessments; the resulting standardised betas can be interpreted as path coefficients.

The path coefficients presented in Fig. 1 indicate that children's early shyness, as viewed by the parent, directly influenced the parent's later discouragement of independence. It cannot be concluded, of course, that this "causal" effect was not due to an unmeasured third variable. But, it is especially important to note that the effect was found for both mothers and fathers despite the fact that parents' Q-sort indices of encouragement of independence were only marginally correlated across parents at child age 2 ($r = .24, P < .10$) and age 4 ($r = .19, n.s.$).

To evaluate the specificity of this effect for *social* fears, the maternal shyness judgement at age 2 was replaced by the *nonsocial* fear scale at age 2. Nonsocial fear was nonsignificantly correlated with the measures of shyness or behavioural inhibition at age 2, and the synchronic correlations as well as the cross-lagged paths between mothers' judgements of nonsocial fear and their encouragement of independence were nonsignificant. Thus, the effect of early shyness on later encouragement of independence was specific to *social* fears.

Because the observed effect of early shyness on later discouragement of independence was the only significant finding in these analyses of transaction, it was important to further support the finding with a different method. Thus, the *mothers' TBAQ* shyness judgement was replaced by the concurrent two-item shyness rating (see Table 2). The path from this shyness rating at age 2 to mothers' encouragement of independence at age 4 was again negative and significant [$\beta = -.32, P < .002$].

Importantly, the effects reported in the foregoing were not replicated when the shyness judgements were replaced by the observed measure of behavioural inhibition. In a correlational analysis, behavioural inhibition, as assessed at 2 years, did not predict later maternal or paternal encouragement of independence. To conclude, it appears that it is the *subjective perception* of children's shyness rather than the child's observed inhibition in unfamiliar situations that influences mothers' and fathers' parenting attitudes.

DISCUSSION

The primary purpose of this study was to investigate the longitudinal, "causal" relations between children's dispositional social wariness or inhibition and parents' beliefs about how best to socialise their children. Given the relevant literature extant (see Rubin et al., 1995 for a review), it was predicted that dispositional shyness would predict beliefs that children should not be encouraged to be independent. Additional questions addressed concerned the consistency between mothers' and fathers'

judgements of their children's social wariness or inhibition; and their judgements of social wariness and children's observed behavioural inhibition. Further, the stability of parents' perceptions of their children's social wariness, as well as their beliefs about how best to socialise their children was examined from child age 2 to 4 years.

The major finding of this study was that parents' *perceptions* of their toddlers' social wariness and shyness predicted, at child age 4 years, their preference for socialisation strategies that could best be construed as limiting children's opportunities for developing an independent self. Thus, parents who viewed their toddlers as shy and inhibited were less likely than those who did not perceive their children as shy, to endorse statements such as the following: "I let my child make decisions for himself/herself"; "If my child gets into trouble, I expect her or him to handle the problem mostly by herself/himself".

These data make sense given that parents might choose to constrain independence of thought and deed if they believe their preschool children may place themselves at psychological or physical risk should they stray too far from their parents' psychological and physical purview. Thus, the findings support the conjecture that shy, wary, and/or inhibited children are raised by parents who are particularly anxious about letting their children explore novel experiences (Rubin et al., 1995). To the extent that the children seen by their mothers as shy truly were inhibited when dealing with novelty (see Table 2), the constraints imposed by parents may deny inhibited children with the necessary challenging experiences to develop their self-regulatory abilities. Thus, parents' perceptions and child-rearing orientations may serve to maintain or exacerbate the nascent wariness in their children.

The important issue addressed herein, and the one that is central to the study of bidirectional effects, is that it was the parental *perception* of a child characteristic that predicted subsequent views of child rearing, rather than the reverse. To this end, the findings are novel and significant, and they address the issue of why observed child behaviour may not always be associated, in meaningful ways, with parental behaviour (see also Parke & Buriel, 1998). On the one hand, parents must not be held accountable for the early development of all child social behaviour; on the other hand, it is the parental perspective of the child's characteristics, rather than the objective "reality" that may matter in so far as longitudinal associations between child behaviour and parenting are concerned, at least in so far as the early years of childhood are concerned.

From a developmental perspective, especially with regard to such non-threatening (to others) behaviours as social inhibition and shyness, it may not be until parents learn from significant others (e.g. teachers), that their children's behaviours are inappropriate or unacceptable, that they begin to

alter, or match, their behaviours to their children's objectively appraised characteristics. Until such time occurs, parent *perceptions* may regulate their child-rearing behaviours. In any case, the present results strongly suggest that researchers who study the developmental trajectories of inhibited behaviour must assuredly examine, more carefully, bidirectional child-parent effects to a greater extent than has been the case in the past.

Other findings of note centred primarily on the consistency of perceived shyness or social wariness, not only over time, but also across venues and reporters. Thus, mothers', and to a lesser extent fathers', perceptions of their children as shy and socially wary remained stable from ages 2 to 4 years. Further, mothers and fathers showed a moderate level of agreement with each other about the extent to which their children were socially wary. And finally, mothers' judgements of toddler shyness were significantly associated with observed behavioural inhibition (and behavioural inhibition at 2 years was associated with maternal perceptions of shyness at 4 years). Importantly, mothers' shyness ratings at 2 years were associated only with indices of *social* wariness; they were nonsignificantly correlated with fears of inanimate objects, activities, or places. To this extent, therefore, it would seem as if maternal ratings of this particular behavioural trait are reliable, valid, and distinct from beliefs about other constructs.

Fathers' perceptions of toddler shyness, however, were unrelated to observed inhibition. One may conclude from these data, that mothers' shyness ratings are more reliable and valid than those of fathers. But on the other hand, mothers were exposed to their children's responses to unfamiliar adults, objects, and peers when they visited the laboratory. Had fathers, instead of mothers, accompanied their children to the laboratory, or had they observed their children in the laboratory situations, perhaps we would have found a stronger relation between fathers' ratings of social wariness and observed behavioural inhibition. Further, it was the case that the magnitude of the correlations between fathers' judgements of toddler shyness and behavioural inhibition and mothers' judgements of toddler shyness and behavioural inhibition were nonsignificantly different from one another. At any rate, despite the greater "inaccuracy" of fathers, and psychometric properties of the scales notwithstanding, *perceptions* of child traits did influence both mothers' and fathers' preferred socialisation strategies.

Finally, because parents provided the information both on children's inhibition and on their own parenting styles, it may be argued that the findings on the transactions between the two variables represent little more than shared method variance. Had we relied simply on cross-lagged correlations to explore the associations between the measures of interest, the issue of method variance may have applied. One of the strengths of

path analysis is that it controls shared method variance to a great extent because this variance is part of the synchronic correlation at Time 1, which in turn is statistically controlled. Thus, our results pertaining to "causal" influences cannot be explained by shared method variance.

In summary, in the present study we explored directional effects in the relations between children's shyness and parenting at ages 2 and 4 years. Two major findings emerged. First, few differences existed in the parenting styles of mothers and fathers at ages 2 and 4 years. Second, parental perceived shyness at age 2 years predicted a decrease in parental encouragement of independence at age 4.

Manuscript received November 1997

Revised manuscript received April 1998

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