

Sharing Attention to Toys: Adolescent Mother–Toddler Dyads

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This study examined whether there were differences in the joint attention behaviours of adolescent mothers and toddlers and adult mothers and toddlers. The timing of mothers' attention-directing behaviours (i.e. maintaining, introducing and redirecting) as well as the specific behaviours (i.e. showing, offering and demonstrating toy) they used to direct their toddlers' attention to toys were observed. The observers also coded the specific joint attention behaviours that the toddlers used. The findings showed that the adolescent mothers redirected their toddlers' attention away from a toy they were interested in to a different toy more often and used fewer introducing behaviours than the adult mothers. Toddler age was also inversely related to mothers' redirecting behaviour. The results also indicated that the adolescent mothers demonstrated toys and interfered with their toddlers' ongoing play behaviour more frequently than the adult mothers. Toddler age was also inversely related to the frequency with which both groups of mothers demonstrated toys and positively related to the frequency with which mothers showed toys. The toddlers born to the adolescent mothers showed fewer social initiations and a higher frequency of non-verbal responses than the toddlers born to the adult mothers. Toddler age was negatively related to the frequency of non-verbal responses.

Keywords: adolescent parenting, joint attention, joint object play

By the second half of the first year of life, children are able to shift their attention between people and toys (Bakeman and Adamson, 1984) as evidenced by the fact that mothers and 6-month-old infants spend a significant portion of their interaction time engaged in joint attention interactions (Kaye and Fogel, 1980). Joint object play, also known as joint attention, occurs when the mother and the child look at, touch or play with the same toy (Roggman, 1991). The significance of joint object play for

young children's development is demonstrated by studies that show that joint attention interactions may facilitate the language process for both at-risk and normal children (Landry, *et al.*, 1989; Tomasello and Farrar, 1986; Tomasello and Todd, 1983). In addition, joint attention skill is related to children's exploratory play behaviour (Landry *et al.*, 1993) and positive affective expressiveness (Garner and Landry, 1992; Kasari *et al.*, 1990; Landry and Chapieski, 1990) and implicated in the development of young children's emotion regulation skills (Raver, 1996). An association between joint attention and the quality of the mother–child attachment relationship has also been demonstrated (Roggman *et al.*, 1987).

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One group of mothers that may have difficulty engaging their children in joint attention interactions is adolescent mothers. Adolescent mothers show fewer synchronous movements, less appropriate behaviour and less symbolic toy play behaviour during social interactions with their children than adult mothers (Barratt and Roach, 1995; Helm *et al.*, 1990; McAnarney *et al.*, 1984; Sommer *et al.*, 1993; Unger and Howes, 1988). Lowered maternal age is also associated with more overall negative interaction between mothers and children (McAnarney *et al.*, 1986), less maternal responsiveness (Garcia Coll *et al.*, 1987) and less overall optimal parenting behaviour (Ragozin *et al.*, 1982). In addition, adolescent mothers talk less, show less positive effect and demonstrate tasks less often when playing with their children than adult mothers (Levine *et al.*, 1985).

Although the question of whether differences exist in the joint attention behaviours of adolescent and adult mothers has not been assessed directly, Raver and Leadbeater (1995) recently reported that adolescent mothers reporting chronic symptoms of depression spend less time in joint attention interactions with their toddlers than adolescent mothers reporting no depressive symptoms. However, these authors did not include a control group of adult mothers. In another study, Unger and Howes (1988) found that a group of adolescent and mentally retarded mothers and their children engaged in less joint symbolic toy play behaviour than adult mothers and their children. These findings are of limited value, however, because the data were analysed with the adolescent and mentally retarded mothers in the same group and because the sample sizes for the two groups were very small ($N=6$). In response to these problems in the literature, the aim of the present study was to compare the joint attention behaviours of adolescent mothers and toddlers with those of adult mothers and toddlers using a more carefully constructed sample and methodology.

Mother's ability to respond to her child's behaviour cues is demonstrated through the timing and the quality of the stimulation she provides (Barnard and Martell, 1995). Therefore, two aspects of mothers' joint attention behaviour were considered in the current study: the timing of their attention-directing behaviours and the specific attention-directing non-verbal behaviours they used. Three maternal timing behaviours were of interest: maintaining, redirecting and introducing. Mother maintains her child's attention by timing her attention-directing attempts to 'match' the

child's already established focus of attention (e.g. demonstrating a toy that the child is already looking at). Mother's maintaining behaviour is positively related to young children's language skills, exploratory play behaviour and positive affective expressiveness (Akhtar *et al.*, 1991; Garner and Landry, 1994; Landry *et al.*, 1989; Rocissano and Yatchmink, 1983; Tomasello and Farrar, 1986). Mother can also time her attention-directing behaviour so that the child's attention is redirected away from one toy to a different toy (Dunham and Dunham, 1995). When mothers use redirecting behaviour, a 'mismatch' in attention often occurs because, in order to respond to this maternal timing behaviour, children must first determine the mother's intended reference and then must work to match their attention with mother's (Tomasello and Farrar, 1986; Tomasello and Todd, 1983). Researchers have also found that mother's redirecting behaviour is inversely related to children's language skill (e.g. Akhtar *et al.*, 1991; Tomasello and Farrar, 1986) and exploratory play behaviour (Landry *et al.*, 1986).

When the child is not attending to a toy, the mother can attempt to direct the child's attention by introducing a toy. Mother's introducing behaviour may be especially important when young children's joint attention skills are beginning to emerge. In fact, the earliest bouts of joint attention occur when mother introduces toys into the infant's focus of attention and helps the infant to explore them (Roggman, 1991). However, toddlers can take a more active role than infants during joint object play situations and their mothers respond accordingly by offering a lower level of support. Mother's introducing behaviour has been positively associated with increased displays of negative affect for high-risk infants (Garner and Landry, 1994). This finding could be interpreted to mean that children turn their attention away from the joint toy play situation because they are overstimulated and need a 'break' to reorganize their attentional resources (Fogel, 1982). If this is true, mother's persistence in introducing toys may interfere with children's ability to regulate their attentional resources. At the same time, high-risk infants are more likely to increase the complexity of their non-verbal joint attention behaviour in response to mother's maintaining and introducing versus redirecting behaviour (Landry *et al.*, 1996). Based on the aforementioned literature, it was predicted that the adolescent mothers would show less maintaining and more redirecting behaviour than

the adult mothers. However, because of the scarcity of data on mothers' introducing behaviour, we were unable to make a specific prediction for this maternal timing behaviour.

The specific behaviours mothers used to direct their toddlers' attention to toys (e.g. showing and demonstrating toys) were also evaluated. These behaviours could be classified as either structured or non-structured. For example, demonstrating a toy provides a child with more information about how to use a toy than merely showing the toy (see Garner and Landry, 1994). Mothers who are responsive to their children's attentional cues, who pause to allow their children to explore and manipulate objects and use a low rate of specific teaching behaviours during joint object play have children who show high levels of focused attention (Lawson *et al.*, 1992). Non-structured maternal behaviour is also positively associated with children's joint object play behaviour (Rocissano *et al.*, 1987). These findings suggest that mothers who use non-structured attention-directing behaviours may be more successful in eliciting their children's attention to toys than mothers who use more structured attention-directing techniques. Indeed, a highly structured mother may actually impede her child's ability to develop self-directive behaviour (Rocissano *et al.*, 1987). Although Unger and Howes (1988) found no differences in the amount of structure used by adolescent and mentally retarded versus adult mothers, researchers using larger samples and more methodological controls have reported that, compared to adult mothers, adolescent mothers are less likely to offer and demonstrate toys during interactions with their children (Barratt and Roach, 1995; Levine *et al.*, 1985). Therefore, it was predicted that the adolescent mothers in the current study would use fewer structured and non-structured attention-directing behaviours than the adult mothers.

Children also have an organized set of behavioural cues that they use to communicate to their mothers their interest in toys (see Barnard and Martell, 1995). For example, toddlers' exploration of toys during joint toy play is often accompanied by smiles, vocalizations and other social gestures (Eckerman *et al.*, 1979). Thus, the very nature of joint attention highlights the importance of young children's ability to use social communicative gestures to achieve joint action with toys (Adamson and Bakeman, 1985; Mundy *et al.*, 1992, 1987; Roggman, 1991). Five toddler behaviours were of interest in the present study:

positive affect, coordinated eye gaze behaviour, vocalizations, social initiations and the frequency with which the toddlers made no verbal response to mothers' attention-directing behaviours. Positive affect was included because joint attention requires an integration of attention with the expression of positive affect (Adamson and Bakeman, 1985; Garner and Landry, 1992) and once visual attentiveness is achieved, it is often maintained through smiling behaviour (Kaye and Fogel, 1980). Coordinated eye gaze behaviour was considered because many joint attentional episodes occur as a result of the adult partner monitoring the child's gaze behaviour (Bruner and Sherwood, 1976; Moore and Corkum, 1994; Schaffer, 1984). Vocalizations were of interest because a high number of vocalizations made by children within the context of joint attention interactions is associated with the acquisition of language (Rocissano and Yatchmink, 1983; Tomasello and Farrar, 1986; Tomasello and Todd, 1983). Social initiative was considered because, by the end of the first year of life, children begin to show a high frequency of initiations during toy centred play with an adult (Holmberg, 1980; Landry *et al.*, 1989; see also Leung and Rheingold, 1981). The frequency with which the children failed to make a verbal response to mothers' attention-directing behaviours was also considered. Children born to adolescent mothers are less affectively positive during joint toy play, use fewer vocalizations and are less likely to initiate social interactions than children born to adult mothers (Barratt and Roach, 1995; Frodi *et al.*, 1990; Levine *et al.*, 1985; McAnarney *et al.*, 1986). Adolescent mothers and children also gaze at each other less often than adult mothers and children (Teberg *et al.*, 1983). On the basis of this previous research, it was hypothesized that the toddlers born to the adolescent mothers would show fewer of the social communication behaviours and a higher frequency of non-verbal responses than the toddlers born to the adult mothers.

METHOD

Participants

Forty-three toddlers (25 girls and 18 boys) and their mothers were the participants in this study. The participants were recruited from social service agencies and pre-schools serving a predominantly low-income population. The families were initially recruited to participate in an investigation of the

relation between low-income pre-school children's social cognitive skills and their prosocial reactions to distressed toddler siblings (Garner *et al.*, 1994). The previous study was specifically concerned with the pre-schooler's behaviour and the mother and toddler behaviours were not analysed for the earlier report.

All of the families were English-speaking. Following the procedures described by Helm *et al.* (1990), the 12 mothers who were 19 years of age or younger (mean age=18 yr; SD=1.13 yr; range=16–19 yr) at the time of birth of the target child were included in the adolescent mother–toddler group (six boys and six girls; mean age=24 yr; SD=3.73 yr; range=20–37 yr) were included in the adult mother–toddler group (12 boys and 19 girls; mean age=17.16 months; SD=4.66 months; range=8.26 months). The ANOVA comparing the two toddler groups on age was marginally significant, $F(1,40)=3.02, p<0.09$.

Eighty-three per cent of the adolescent mothers were single compared to 81% for the adult mothers. Approximately 67% of the families in the adolescent mother–toddler group were African-American, 17% were Caucasian and 16% were Mexican-American. Eighty-four per cent of the families in the adult mother–toddler group were African-American, 10% were Mexican-American and 6% were Caucasian. The mean years of education for the adult mothers ($M=12.23$ yr; SD=1.16 yr; range=9–12 yr) was significantly greater than the mean years of education for the adolescent mothers ($M=11.08$ yr; SD=1.31 yr; range=9–15 yr), $F(1,41)=6.98, p<0.01$. The average family was composed of three children (range 2–6). Within the adolescent mother group, 42% of the mothers were living alone, 33% with the toddler's grandparent(s), 17% with the father and 8% with a family member other than the grandparent(s). Approximately 60% of the toddlers were enrolled in some organized form of day care or pre-school. The average family income was \$9300. Fourteen of the families were supported by Aid to Families with Dependent Children and all of the families had an annual income that was below the poverty threshold for their family size.

Procedure

The toddlers were observed for 5 minutes in a joint toy play situation with their mothers in a playroom equipped with a ball, puzzles, stuffed animals, dolls, cars and trucks. A 5-minute duration of observation was chosen because researchers believe

that it provides a reliable and adequate sampling of joint attention behaviour (e.g. Dunham and Dunham, 1995; O'Connell and Bretherton, 1984). The mothers were instructed to play with their toddlers as they would at home. The playroom was equipped with a video camera and a microphone so that the interactions could be videotaped from behind a one-way mirror. All of the observations took place in a university laboratory.

Measures

Maternal Joint Attention Behaviours

Each time a mother attempted to direct her toddler's attention to a toy, the timing of her behaviour as well as the specific non-verbal behaviours she used were recorded. If mother directed the child's attention to a toy that the child was already looking at or manipulating, her behaviour was coded as 'maintaining'. If mother directed the child's attention to a toy that was different from the one the child was already attending to, her behaviour was coded as 'redirecting'. If mother directed the child's attention when the child was not already involved with a toy, her behaviour was coded as 'introducing'.

The specific non-verbal behaviours that mothers used to direct their toddlers' attention to toys were also coded. These included showing toys, offering toys (i.e. handing a toy to the child), demonstrating toys, physically orienting the child's attention to a toy (e.g. placing the child's hand on a toy) and interfering with the child's ongoing play behaviour (e.g. taking a toy away from the child). Showing and offering toys were considered non-structured maternal attention-directing strategies and demonstrating toys, physically orienting and interfering were considered structured maternal attention-directing behaviours.

Toddler Social Communication Behaviours

Five toddler behaviours were coded from the videotapes; positive affect, coordinated eye gaze behaviour, vocalizations, social initiations and the frequency with which the toddlers made no verbal response to mothers' attention-directing behaviour. 'Positive affect' was defined as corners of the mouth turned upward and/or any combination of laughing or cooing (Sorce and Emde, 1982). 'Coordinated eye gaze behaviour' was coded when the toddlers made eye contact with the mother while holding an object and when the toddlers alternated their gaze between mother and an object

(see Mundy and Kasari, 1995). 'Vocalizations' were coded when the toddlers responded vocally to mothers' attention-directing attempts, including instances when the toddler expressed surprise and when the purpose of the vocalization was unclear. 'Social initiations' were coded when the toddlers used a non-verbal and/or verbal gesture to the mothers' attention-directing attempts, 'no verbal response' was coded (see Landry *et al.*, 1989).

The observations were independently reviewed and coded by two trained observers who were unaware of the hypotheses of the study. In addition, the observers were not given information about the mothers' group assignment. The observers reviewed the observations as many times as necessary to code accurately the observations. Interrater reliability was assessed by having 11% of the videotapes coded by two independent observers. Kappa statistics were computed for each maternal timing behaviour: maintaining behaviour (0.76), introducing behaviour (0.63) and redirecting behaviour (0.56). For the mother's specific non-verbal behaviours, the kappas were: 0.64 for showing toys, 0.88 for offering toys, 0.74 for demonstrating toys, 1.00 for physically orienting and 0.98 for interfering with toddler behaviour. The kappas for the individual toddler social communication were: 0.67 for positive effect, 0.79 for coordinated eye gaze behaviour, 0.69 for vocalizations, 0.94 for social initiations and 0.62 for no verbal response.

RESULTS

The results are presented in three parts. First, the means and standard deviations for the study variables are presented. Second, each set of data (maternal and toddler) was subjected to a multivariate analysis of variance (MANOVA) to test for group differences for the joint attention behaviours. There were two models for the maternal behaviours. The first maternal model examined group differences for the three timing behaviours: maintaining, introducing and redirecting. The second model was concerned with the specific non-verbal behaviours that mothers used to direct their toddlers' attention to toys. Five behaviours were considered in this analysis: showing toys, offering toys, demonstrating toys, physically orienting the toddlers' attention to toys and interfering with the toddlers' behaviour. The five toddler variables

were included in a third model. Follow-up tests were conducted using analysis of variance (ANOVA) techniques. Because the groups were different on maternal education, this variable was included in each of the models focusing on the maternal variables. Toddler age was also included as a covariate in all of the analyses because of the marginally significant finding for this variable.

The coefficient of variation was calculated for each variable to determine if there was sufficient variation to proceed with subsequent analyses. The coefficient of variation is computed by dividing the standard deviation by the mean and has an expected value of 0.15 (Ostle and Mensing, 1975). Means, standard deviations and ranges for the study variables are presented in Table 1. The results of this analysis showed that there was considerable variability among the measures. All of the variables had a coefficient that was greater than 0.15.

In order to document whether mothers and toddlers used specific joint attention behaviours more than others, the next set of analyses examined variations in the maternal and toddler behaviours by type. When the overall main effect was significant, *post hoc* comparisons were computed using Bonferroni *ts*. The main effect of maternal timing was significant, $F, (2,41)=42.36, p<0.001$. *Post hoc* comparisons between the timing behaviours revealed that the mothers used significantly more maintaining and redirecting behaviours than introducing behaviours (all

Table 1. Means and standard deviations for the study variables

Variable	Group			
	Adolescent (N=12)		Adult (N=31)	
	M	SD	M	SD
<i>Toddler behaviours</i>				
Positive effect	1.83	2.85	1.22	2.65
Eye gaze behaviour	2.92	3.18	1.84	2.48
Vocalizations	4.25	2.56	2.61	5.36
Social initiations	1.25	2.18	3.10	2.69
No verbal response	21.00	10.96	13.65	8.53
<i>Maternal timing behaviours</i>				
Maintaining	16.75	9.19	15.87	9.18
Introducing	1.75	1.54	3.13	2.36
Redirecting	8.00	5.23	4.00	3.55
<i>Maternal joint attention behaviours</i>				
Demonstrations	17.33	9.55	9.42	7.13
Physically orienting	1.50	1.68	1.10	1.96
Offering	1.83	1.40	1.71	2.90
Showing	6.00	6.03	6.81	5.46

$ps < 0.01$). The main effect of type of maternal attention-directing behaviour was also significant, $F(4,168) = 44.03$, $p < 0.0001$. *Post hoc* comparisons indicated that mothers demonstrated and showed toys more often than they offered toys, physically oriented their children's attention or interfered with their children's ongoing play behaviour (all $ps < 0.01$). Comparisons were also made for the toddler behaviours. The mean levels for the toddler behaviours indicated that non-verbal response was used more frequently than the other toddler behaviours (all $ps < 0.05$).

Maternal Attention-Directing Behaviours

The first MANOVA was concerned with the timing of mothers' attention-directing behaviours. The result of the overall MANOVA was significant, $F(3,36) = 5.01$, $p < 0.01$. Follow-up univariate tests showed that the adolescent mothers had fewer introducing behaviours, $F(1,38) = 8.13$, $p < 0.01$ and more redirecting behaviours, $F(1,38) = 8.33$, $p < 0.01$ than the adult mothers. This analysis also showed that maternal education was also inversely related to introducing behaviour, $F(1,38) = 4.61$, $p < 0.05$. Toddler age was also inversely related to mothers' redirecting behaviour, $F(1,38) = 4.19$, $p < 0.05$.

The overall MANOVA for the specific joint attention behaviours that the mothers used was also significant, $F(5,34) = 5.25$, $p < 0.001$. Follow-up univariate tests showed that the adolescent mothers used more toy demonstrations $F(1,38) = 5.38$, $p < 0.03$, and more interfering behaviours, $F(1,38) = 25.94$, $p < 0.0001$, than the adult mothers. Toddler age was also inversely related to mothers' use of toy demonstrations, $F(1,38) = 4.11$, $p < 0.05$. Although the two groups of mothers were comparable in the frequency with which they showed toys, toddler age was positively associated with the use of this maternal behaviour, $F(1,38) = 5.54$, $p < 0.02$.

Toddler Social Communication Behaviours

Although the overall MANOVA for the toddler variables was not significant, univariate tests indicated that the toddlers of the adolescent mothers showed fewer social initiations, $F(1,39) = 4.89$, $p < 0.03$, and a higher frequency of non-verbal responses to mothers' attention-directing behaviours, $F(1,39) = 4.89$, $p < 0.03$, than the toddlers of the adult mothers. Toddler age was

also inversely related to the frequency of non-verbal responses, $F(1,39) = 8.52$, $p < 0.02$.

Many researchers have found that demographic factors such as race, marital status and child gender may explain many of the differences found between adolescent and adult mothers and their children. Therefore, the adolescent mothers were matched with a subset of 12 of the adult mothers on a one-to-one basis on race, marital status and child gender and the data were reanalysed. These results were virtually identical to the results obtained with the original sample.

DISCUSSION

A large body of research has been concerned with the interactional patterns of adolescent mothers and their children and adult mothers and their children. Many of these studies have shown that adolescent and adult mothers behave differently when playing with their children. However, one problem with this literature is that the majority of investigators have focused on very young infants and have limited their observations to face-to-face rather than joint object play situations (see Barratt and Roach, 1995; Frodi *et al.*, 1990, for exceptions). The present study expands this previous work by showing that differences also exist in the joint attention behaviours of adolescent and adult mothers. Differences were also found for the toddler behaviours.

Specifically, the findings revealed that the adolescent mothers used more redirecting behaviour than the adult mothers. Many researchers regard redirecting behaviour as an intrusive maternal attention-directing behaviour because responding to it requires children to shift their attention away from the toy they are looking at or playing with to a different toy (Tomasello and Farrar, 1986; Tomasello and Todd, 1983; Rocissano and Yatchmink, 1983). Therefore, one interpretation of this finding is that the adolescent mothers used more redirecting behaviour than the adult mothers because they are intrusive and overly directive during social interactions with their children. However, there are data to indicate that adolescent and adult mothers show comparable levels of warmth during social exchanges with their children (see Brooks-Gunn and Furstenberg, 1986, for a review). This suggests that differences between adolescent and adult mothers should not necessarily be interpreted as deficits (Brooks-Gunn and Furstenberg, 1986). It is possible that the adolescent

mothers were attempting to adjust their behaviour to their children's developmental skill. For example, many researchers report that children born to adolescent mothers may have less well-developed language skills than children born to adult mothers (Levine *et al.*, 1985; Roosa *et al.*, 1982). Along these lines, the adolescent mothers' high frequency of redirecting behaviours could mean that they were working harder to elicit their children's verbal responsiveness. The present study supports this interpretation in that the toddlers born to the adolescent mothers used a higher frequency of non-verbal responses than the toddlers born to the adult mothers. The toddlers of the adolescent mothers also initiated fewer joint attention interactions than the toddlers born to the adult mothers. This finding is particularly disturbing because, in the present study, social initiations were the most advanced social communication behaviour observed. It could be that the toddlers born to the adolescent mothers had an inadequate understanding of the social information required for the initiation of complex social exchanges (see Landry *et al.*, 1994). Future research would ideally include measures of the toddlers' cognitive and language abilities as stronger evidence for this possibility. However, we urge caution in interpreting the results for the toddler behaviours because the overall MANOVA for the toddler variables was not significant. A larger sample may provide greater statistical power in detecting multivariate as well as univariate effects.

The adolescent mothers also demonstrated toys and interfered with their children's ongoing play behaviour more often than the adult mothers. Researchers studying at-risk children report similar results. It has been suggested that mothers may need to be highly directive with children who have difficulty becoming involved in joint toy play situations or who show low levels of child-initiated social exchanges (Landry *et al.*, 1994).

The two groups of toddlers showed comparable levels of positive affect, coordinated eye gaze behaviour and vocalizations. During joint toy play, the young child produces many communication behaviours that are not socially directed (D'Odorico and Cassibba, 1995). For example, the child may gaze at mother as a check on her whereabouts rather than to communicate to her about their interest in toys (Camaioni, 1992). In addition, researchers have suggested that the simultaneous use of the individual social communication behaviours (e.g. coordinated eye gaze behaviour and vocalizations) may be the best indicator of intentional behaviour

and social communication (D'Odorico and Cassibba, 1995). More differences between the two groups of toddlers might have emerged if this more stringent coding system had been used to code the toddlers' social communication behaviours. Researchers should consider this hypothesis in future investigations.

One final set of findings warrants discussion. Mothers used maintaining and redirecting behaviour more often than introducing behaviour to direct their toddlers' attention. In our coding system, mothers were coded as introducing a toy when toddlers withdrew their attention away from mother and toys. There has been some speculation that turning away from the joint object play situation allows children to take a 'break' from the interaction to reorganize their behaviour and to process information and modulate arousal (Brazelton *et al.*, 1974; Field, 1981; Fogel, 1982). That introducing behaviour was used less frequently than the other two timing behaviours may be due to the fact that, compared to younger children, toddlers tend to take a more active role initiating and directing joint attention interactions and may need fewer 'breaks'.

The results also revealed that mothers' redirecting behaviour was inversely related to toddler age. Mothers may have used more redirecting behaviours with younger toddlers in an effort to get them engaged in the interaction. However, of the three maternal timing behaviours, redirecting behaviour is the most difficult for young children to respond to. This is because children must first shift their attention away from a toy that they are interested in to a toy that the mother is interested in. Furthermore, not only do children have to shift their attention away from a toy that they are interested in, they must also organize a behavioural response to the 'new' toy. In addition, responding to redirecting behaviour may leave children with inadequate cognitive resources for learning new skills within the context of joint attention interactions (Garner and Landry, 1994; Rocissano and Yatchmink, 1983; Tomasello and Farrar, 1986).

Results also indicated that showing and demonstrating toys was the most common joint attention behaviour used by mothers. This is 'new' information given that the majority of researchers aggregate the individual maternal measures into structured and non-structured categories (e.g. Garner and Landry, 1994; Landry *et al.*, 1993). Toddler age was inversely related to toy demonstrations and positively

related to the frequency with which mothers showed toys. Other research has shown that mothers decrease their use of structured attention-directing behaviours as children move from the infancy period to toddlerhood (Garner *et al.*, 1991).

For the toddlers, non-verbal response was the most common joint attention behaviour used. This finding suggests that the toddler period is a time when children's joint attention skills are still emerging. Participation in joint attention interactions requires children to coordinate a number of skills including interpreting the partner's verbal and non-verbal behaviours, exploring toys and using social communicative behaviours to respond to the adult partner's cues and to elicit the partner's attention (Landry, 1995).

This study is one of the first to examine differences in the joint attention behaviours of adolescent and adult mother-toddler dyads. Modest support was found for the general hypothesis that differences would favour the adult mothers and their children. Although it would seem that maternal age is the most likely explanation for these differences, multiple confounding factors are correlated with lowered maternal age (e.g. lack of social support, depression). Consequently, attributing the differences to maternal age may be a simplistic interpretation of the data. Furthermore, it is important to note that adolescent mothers and children exhibit a range of social competencies (Culp *et al.*, 1988). This variability is due to, among other things, differences in ethnicity, neighbourhood and number of people residing in the home. Therefore, future researchers should include more subgroups of adolescent mothers (Brooks-Gunn and Chase-Lansdale, 1995). Greater recognition of these individual differences, may help researchers to develop more appropriate interventions and to pinpoint the families that actually need the services.

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