

Maternal Attributions and Observed Maternal Behaviour: Are They Linked?

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Abstract. Mothers of children with behaviour problems have more negative attributions about their children than other mothers; they also report reacting differently to their children's misbehaviour. The present study explored whether maternal attributions were associated with actual maternal behaviour observed in the home. Fifty-seven mothers and their 3-year-old children were observed in the home carrying out a range of everyday tasks and behaviour was coded using Gardner's observational coding scheme. Mothers were interviewed about their attributions, using an adaptation of Walker's PAQ and level of behaviour problems was measured using the Child Behaviour Check List (CBCL). Mothers who thought the causes of the child's misbehaviour were more internal to the child had more conflict with their child, used more negative strategies and were more likely to use reactive strategies only, even when controlling for level of behaviour problem in the child. Mothers who thought the causes of the child's misbehaviour were more stable were more likely to use reactive strategies only and mothers who thought the causes of the child's misbehaviour were more global used fewer positive strategies. This study is part of the growing body of literature that suggests observed maternal behaviour is associated with maternal attributions.

Keywords: Maternal attributions, observed behaviour, conduct problems, pre-school children.

Introduction

Pre-school behaviour problems are common, persistent, costly to society and have a poor prognosis. Children with behaviour problems are at increased risk of later adverse outcomes

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such as health problems, poor relationships and employment records, as well as more antisocial outcomes such as criminal behaviour and alcoholism (Farrington, 1991; Patterson, DeGarmo and Knutson, 2000). Young children with early onset antisocial behaviour have a poorer prognosis (Loeber and Stouthamer-Loeber, 1998) and as with most disorders, chronicity and severity of the problems is associated with poor intervention outcomes (Robins, Tipp and McEvoy, 1991). There is an increasing body of literature exploring the factors that influence the development of early conduct problems and it appears that parenting is a very important factor. Parenting styles, behaviours and cognitions have all been associated with children's behaviour problems (Baden and Howe, 1992; Baumrind, 1967; Gardner, 1987, 1989, 1992; Johnston and Freeman, 1997). For example, inconsistent discipline and coercive cycles of reinforcement have been shown to be strongly associated with children's behaviour problems, and it is suggested that they may have a causal influence (Patterson, 1982). Many intervention programmes focus on changing these types of parental behaviour (Brestan and Eyberg, 1998; Sanders, Markie-Dadds, Tully and Bor, 2000; Webster-Stratton and Herbert, 1994). These intervention programmes can be very effective. However, some families are not helped by the intervention, other families drop out of the programmes, and other children do show improvements, but these are not generalizable or sustainable (Kazdin, 1995a, b; 1997).

It has been suggested that adding a cognitive component into behavioural parenting programmes may improve outcomes (White, McNally and Cartwright-Hatton, 2003). Indeed, the study of cognitions has been important in the treatment of adult psychological disorders (Beck, Rush, Shaw and Emery, 1979; Wells, 1997). There is also a growing body of research that suggests parents of children with behaviour problems have different attributions about their children's misbehaviour compared to parents of children with no behaviour problems. Johnston and colleagues found that parental attributions for oppositional child behaviours such as non-compliance or aggression were more negative than parental attributions for hyperactive behaviours such as being very active or not concentrating, which in turn were more negative than parental attributions for non-problem behaviours (Johnston and Freeman, 1997; Johnston and Patenaude, 1994; Johnston, Patenaude and Inman, 1992). Baden and Howe (1992) found that mothers of children who had been seen in specialist clinics for behaviour problems and who had scores above the clinical cut-off on the Eyberg Child Behaviour Inventory believed their child's misbehaviour to be more intentional, more global and stable and more difficult to control than mothers of children with no such behaviour problems.

Although many studies have examined the association between children's behaviour problems and parental attributions, fewer have examined the mechanisms that link them. Dix and colleagues, amongst others, have suggested that parental attributions are important because of their effects on parental behaviour. They found that parents who reported their child's misbehaviour as more intentional and the cause of the behaviour as more stable and global reported that they would react more negatively (Dix and Reinhold, 1991) and more forcefully (Dix and Lochman, 1990). Geller and Johnston (1995) found that depressed mothers' reported behavioural reactions were associated with their attributions (attributional dimensions internal locus and controllability). It is proposed that parents who have more negative attributions about their children's behaviour react using more negative, power assertive strategies. Power assertive strategies have been conceptualized as those in which a parent asserts their control over a child in a negative way, for example through anger, harshness and criticism. Parental

behaviours may include shouting and physical punishment. The negative attributions make escalation of conflict more likely, and thus the families develop coercive cycles of interaction. These types of reactions are associated with children's behaviour problems (Hoffman, 1975; Patterson, 1982).

These studies have relied on parental reports of behaviour. However, observational studies are vital to test the proposed association, as it is often found that reports of behaviour do not correspond well to observed behaviour (Reid, Patterson and Snyder, 2002). To date only a small number of studies have observed parental behaviour and linked it with parental attributions (e.g. Slep and O'Leary, 1998; Verduyn and Calam, 2000). Slep and O'Leary (1998) experimentally manipulated maternal attributions and found that giving an attribution of child responsibility for their behaviour had a negative impact on the subsequent observed maternal behaviour and child affect. MacKinnon-Lewis, Lamb, Hattie and Baradaran (2001) assessed attributions of intent and observed behaviour in mothers and sons aged 7–9 years old. They found that at both time points there were significant associations between attributions and observed behaviour, both in mothers and their children.

There are compelling arguments for looking at these associations in young children. Parental attributions are affected by the age of the child (Cote and Azar, 1997), as are self-reports of parental behaviour (Dix and Grusec, 1985; Dix, Ruble and Zambarano, 1989). By examining whether there are associations between maternal attributions and observed behaviour in pre-school children it is possible to examine this important relationship at a developmental stage when child conduct problems, and parental reactions to these, are not yet well-established. Our primary aim in the present study was to examine whether associations between parental behaviour, parental attributions and child behaviour problems occur when children are very young.

There were several aspects of maternal behaviour that interested us. The first aspect was conflict. A significant percentage of difficult child behaviour in 3-year-olds is seen within the context of parent-child conflict (Gardner, 1987). The literature suggests that mothers of difficult to manage children have more negative attributions, so we therefore predict associations between negative maternal attributions and level of mother-child conflict. We are also interested whether these associations still hold when the reported level of behaviour problems in the child is controlled for.

In addition to conflict, we are also interested in associations between maternal attributions and the strategies mothers employ to encourage children to engage in appropriate behaviour (e.g. putting toys away), and to stop undesirable behaviour (e.g. whining and tantrums). These strategies may vary in their content; thus they can be positive (for example, if the mother makes putting toys away into a game) or they can be negative (for example, shouting or hitting). They may also vary in their timing. For example, they can be proactive, that is they can occur before difficult child behaviours, or they can be reactive, that is they can occur in response to negative behaviours. Both the content and timing of strategies are important in effective parenting (Gardner, Sonuga-Barke and Sayal, 1999). This type of behaviour may be difficult for parents to report on reliably, as the successful outcome of a proactive strategy is lack of child misbehaviour. It is therefore more appropriate to observe parents in situations where this behaviour may occur. By setting up everyday situations in the home, parents may be observed using these types of strategies. However, even within structured observations there may not be many examples of proactive strategies (Gardner et al., 1999) and so mothers who use proactive strategies should be compared with mothers who do not. Consistent with existing

literature we predict that within the current sample mothers who have more negative attributions will be observed to use more negative strategies and fewer positive strategies and that mothers who use reactive strategies only and no proactive strategies will have more negative attributions.

The present study extends previous findings by studying a very young cohort of children and by observing the parents and children in their own home in a number of everyday situations that allow observation of both parental responses and parental pro-active behaviour.

To summarize, we predict that:

1. There will be an association between observed mother-child conflict and negative maternal attributions.
2. Mothers who are observed to use more negative and fewer positive strategies will have more negative attributions about the causes of their child's misbehaviour than mothers who use fewer negative and more positive strategies.
3. Mothers who are observed to use reactive strategies only will have more negative attributions about the causes of their child's misbehaviour than mothers who use some proactive strategies.

We predict that these associations and differences will be present even when controlling for the level of children's behaviour problem.

Method

Participants

Recruitment strategy. Health visitors in largely socially disadvantaged neighbourhoods in mainly urban and some rural districts were approached and asked to nominate children close to their third birthday. They were asked to nominate children who, in their clinical judgement, showed marked or moderate conduct and oppositional type behaviour problems that were causing concern to families or professionals. They were also asked to nominate children who showed average or low levels of behaviour problems to ensure a large range of levels of behaviour problems in the sample. Some health visitors had regular contact with the families as determined by their own clinical practice, other health visitors nominated families on the basis of the standard 2-year-old checks undertaken in the geographical area (Oxfordshire). A number of health visitors were approached in order to minimize potential bias of any one professional. Exclusion criteria included mothers who did not speak English, children with a global learning disability, and mothers who worked full time and were not available for day time home observational visits. Mothers with major psychiatric disorders were excluded by consultation with their General Practitioners (GPs). GPs were asked to let us know that the family should not take part, but not to share any other details as this would compromise confidentiality. Seventy-five mothers were contacted by phone or in person and 60 were subsequently visited in the home for discussion of the project and consent procedures. Families were not paid for participation.

Sample. Sixty mothers and their 3-year-old children were recruited (mean age 37 months, range 36–39 months). Thirty-one of the children were boys. Of these, 57 completed all the measures reported below. One family did not complete the CBCL and another two did not complete the observational procedures. The sample was largely working class and a high

percentage of families were receiving welfare benefits (42% compared to a national average of 14%; Noble et al., 2000). The mothers were aged between 20 and 44 years old and one-third of them were in the clinical range on the General Health Questionnaire (GHQ; Goldberg, 1978), a community mental health screening instrument. The children showed a range of levels of behaviour problems as measured by the Child Behaviour Check List (CBCL; Achenbach, 1992). Sixty-eight percent of the children were referred by health visitors as causing concern because of oppositional or conduct problems. The mean total Child Behavior Checklist (CBCL 2-3) T-score was 60 (*SD* 8.8) for these children, which is at approximately the 85th percentile on US norms, compared to 50 (*SD* 6.1) for the remaining children, whose behaviour was not causing concern. These figures are comparable with normative data for referred and non-referred samples respectively (Achenbach, 1992).

Procedures

Questionnaire and interview measures were collected at the first home visit. During the second visit the mother and child dyads were observed and video-recorded for about one hour doing a series of structured activities. These included mother and researcher talking, mother busy completing questionnaires, mother and child watching a short video together then the child turning it off, mother and child playing together and then the child tidying the toys, and mother making some lunch and the child eating it. Most second visits were scheduled one week after the first and all second visits were made within 3 weeks of the first home visit.

Ethical approval was granted for all parts of the study by Oxfordshire Psychiatric Research Ethics committee.

Measures

Attributions. The attributions measure used was an adaptation of Walker's Parental Attributions Questionnaire (PAQ, Walker, 1985). The PAQ involves parents producing examples of child misbehaviours and then rating each example on several dimensions using a likert type scale from 0-100. This method of assessing attributions, by using an example of events or behaviour and then asking people to rate the event or behaviour on dimensions, has been used in many studies with both children (see Bugental, Johnston, New and Silvester, 1998) and adults (e.g. Norman and Antaki, 1988; Peterson et al., 1982). The present study adapted the PAQ by giving mothers examples of misbehaviours rather than asking them to produce examples themselves. This was done for two reasons. Firstly, it was felt that children in the study had a wide range of behaviour problems and so the examples mothers would give would vary a great deal in severity. This would make the results difficult to interpret. Secondly, it was felt that as mothers and children were being observed in the study, asking about behaviours that were likely to be observed, such as non-compliance, would lead to more meaningful relationships between maternal attributions and behaviour. However, it is acknowledged that this could affect reliability. Ten story vignettes were piloted on 20 mothers of young children (2.5-4 years) who were not involved in the main study. The four vignettes given the highest ratings by mothers for being true to life and easy to understand were used in the main study. These are detailed in Table 1. Also, each mother in the study was asked to rate how typical the misbehaviour in the story was for their child. If the story was not at all typical

Table 1. Stories used and questions asked in order to assess each attributional dimension

Stories (version for girls)	
One	The phone rings and you answer it. It is a friend who needs to talk. (Name of child) starts calling to you and tugging at your leg. You ask her to go and play quietly for a few minutes. She continues to tug at your leg and when you ask her again she starts whining.
Two	You are in a hurry to go out. You approach (name of child) to put her coat and shoes on. She struggles, runs away and starts shouting and crying.
Three	You are making dinner for later and it has to go in the oven to cook, or it won't be ready in time. (Name of child) is hanging round your feet and you ask her to go and play quietly by herself for a few minutes. She goes away, but comes back a minute later and starts whining.
Four	You are shopping with (name of child). She is very curious about all the things on the shelves and keeps trying to touch them and put them in the basket. You say that you don't need them and put them back on the shelf. (Name of child) starts fussing and whining.
Dimension	Question asked ^a
Internal Locus	Is this (name cause) something about your child as an individual, or something about something more general such as her age or the circumstances? ^b
Stability	Does (name cause), in general, happen the same amount from one week to the next, or does the amount change a great deal?
Globality	Is this (name cause) something that would only happen in this particular situation, or would it happen in other situations and in other areas of your child's life?

^aThe questions follow Walker, and are adapted for younger children where necessary.

^bThis follows the social psychology tradition where internal causes were considered those that were personal to the individual and external causes were considered impersonal. Age would be considered impersonal and therefore external. See Munton, Silvester, Stratton and Hanks (1999), pp. 10–16.

the mother was not asked about the story, as it was felt they would be using a different type of information to judge the cause of the misbehaviour (see Bugental et al., 1998 for a discussion of this). The mean number of stories responded to was three and every mother responded to at least one story.

Mothers were read each story and then asked to remember a situation where her child behaved like that and to give a cause/reason for the child's misbehaviour (data not presented here). The mother was asked to rate the cause of the child's misbehaviour on scales of internal locus, stability (Weiner et al., 1971) and globality (Abramson, Seligman and Teasdale, 1978). The scales all ran from 0 to 100 and had both ends labelled (see Table 1 for questions asked in order to assess each dimension). For example, the scale assessing stable had 0 labelled as "not at all stable" and 100 labelled as "completely stable". This was repeated for each of the four stories, and scores were averaged over the number of stories completed. The complete questionnaire was piloted on 10 mothers who found the language appropriate and the questions easy to understand.

Ratings on each dimension scale were found to have moderate to good internal consistency with the alpha values varying from 0.64 (locus of control) to 0.78 (stability). These figures are comparable to others found for the PAQ (Baden and Howe, 1992; Bugental et al., 1998). There were also no significant associations between the dimensions (r ranged from $<.001$ to $.21$, $p > .1$ ns).

Child behaviour problems. The Child Behaviour Check List 2–3 is a 100-item questionnaire that assesses a wide range of different behaviours. These are coded into broad bands of internalizing, externalizing, somatic and sleep problems. The parent rated whether, over the past 2 months, a statement about a particular behaviour was not true (rated 0), was somewhat or sometimes true (rated 1), or was very true or often true (rated 2). The CBCL has been used widely and is reported to have adequate test-retest reliability, short-term longitudinal stability, interparental agreement (Achenbach, Edelbrock and Howell, 1987) and good validity (Achenbach, 1992). For this study the externalizing scale on the CBCL was used to indicate level of behaviour problems.

Observation coding. The one-hour structured home visit was transcribed for each family. Gardner's observation system (Gardner, 1987, 1989, 1994; Gardner et al., 1999) was used with the transcripts to code maternal strategies and mother-child conflict throughout the hour of observation. Two aspects of maternal strategies were coded, content and timing. Content was coded as positive or negative. Positive strategies included reasons, bargains, playful strategies and positive suggestions. Negative strategies were coercive or power assertive strategies and included yelling, or threatening. With respect to timing, strategies were classified as proactive or reactive. A proactive strategy was one that was future oriented and aimed to prevent problems and promote certain outcomes. Reactive strategies were those mothers used in reaction to the child's behaviour. Any strategy that was not proactive was coded as reactive.

Mother-child conflict was also coded using Gardner's observational coding system. Conflict was defined as: "A dispute or control issue between the mother and child concerning the child's behaviour. It consisted of a sequence containing commands, followed by non-compliance or other negative behaviour." Conflict and maternal strategies were coded separately, although there was some overlap as a mother command followed by non-compliance was coded as negative strategy and also mother-child conflict.

The coding system has good evidence to support its reliability and validity (Gardner et al., 1999). One author coded all the transcripts and was blind to behaviour problem scores and other information about the family. Inter-rater reliability was assessed by this coder and another independent coder for both strategies and mother-child conflict on transcripts of 22 mother-child pairs who were not part of the present study. Kappas ranged from 0.62 to 0.87 and so were considered to be substantial or above (Landis and Koch, 1977).

Statistical analysis

The variables attribution dimension scales, child behaviour problem scores, observed conflict and number of observed positive strategies used by mother were normally distributed and within acceptable limits for skewness and kurtosis. The range of number of negative strategies used was small; 31 mothers used 0 or 1 negative strategies and 26 mothers used 2 or more negative strategies. Mothers were therefore split into two groups. For timing of strategies, the range of number of proactive strategies used was also limited (most mothers showed 0–3

Table 2. Descriptive data for attribution dimensions and mothers' observed negative strategies, and observed proactive and reactive strategies mean (*SD*)

	Globality	Internal locus	Stability
Low (0 or 1) negative strategies (<i>n</i> = 31)	66 (22)	45 (24)	62 (25)
High (2+) negative strategies (<i>n</i> = 26)	59 (24)	58 (15)	58 (15)
Mother didn't use proactive strategy (<i>n</i> = 21)	64 (25)	62 (17)	68 (22)
Mother did use proactive strategy (<i>n</i> = 36)	61 (22)	44 (21)	49 (26)

proactive strategies). As we were interested in whether mothers could be proactive within the structured setting, mothers were grouped as to whether they used reactive strategies only (*n* = 21) or whether they used any proactive strategies (*n* = 36).

We first explored simple correlations between maternal attribution dimensions and conflict and observed positive strategies. These correlations were then repeated controlling for level of child behaviour problems using partial correlations. We then used *t*-tests to compare differences in maternal attribution dimensions between mothers using negative strategies and mothers not using negative strategies and between mothers using proactive strategies or reactive strategies only. We finally used analysis of covariance (ANCOVA) to control for level of child behaviour problems in these analyses.

Results

Observed conflict, maternal attributions and child behaviour problems

Observed conflict was positively associated with both internal locus of control ($r(57) = .39, p < .01$) and externalizing score on the CBCL ($r(57) = .27, p < .05$). Mothers who had higher rates of conflict with their children in a one-hour structured home visit rated the causes of their children's misbehaviour as more internal to the child, even when controlling for level of behaviour problem ($r(57) = .33, p < .05$). There were no other associations between conflict and attributions dimensions.

Content of strategies, maternal attributions and child behaviour problems

Descriptive data are provided in Table 2. The frequency of positive strategies used was negatively associated with both attribution dimension globality ($r(57) = -.30, p < .05$) and externalizing score on the CBCL ($r(57) = -.30, p < .05$). Mothers who used fewer positive strategies rated the causes of their children's misbehaviour as more global and reported that their children had more behaviour problems. When the level of behaviour problems was controlled for there was no longer an association between frequency of positive strategies and attribution dimension globality ($r(57) = -.23, ns$).

Mothers who used 2 or more negative strategies (*n* = 26) were compared to mothers who used 0 or 1 negative strategies (*n* = 31). The group of mothers who used more negative strategies rated the causes of their children's misbehaviour as more internal to the child ($t(57) = -2.28, p < .05$). There were no differences between the two groups in reported level of child behaviour problems and so ANCOVA was not performed.

Timing of strategies, maternal attributions and child behaviour problems

Mothers were split into 2 groups; those who used reactive strategies only ($n = 21$) and those who used any pro-active strategies ($n = 36$). Mothers who used reactive strategies only rated the cause of the child's misbehaviour as more internal to the child ($t(57) = 2.80, p < .01$) and more stable ($t(57) = 2.72, p < .05$). There were no differences on the scale of globality (see Table 2 for descriptive data). Mothers who used only reactive strategies also reported more behaviour problems in their child ($t(57) = 2.37, p < .05$). Analysis of covariance was then performed to control for level of behaviour problem. For internal locus of control, both the strategy grouping and level of child behaviour problem contributed independent variance to the model ($F(2,55) = 5.65, p < .05$; $F(2,55) = 5.42, p < .05$ respectively). However, for stability, only the strategy grouping contributed variance ($F(2,55) = 7.3, p < .01$ for grouping; $F(2,55) = .09, ns$ for behaviour problem). The results suggest that mothers who used only reactive strategies considered their children's misbehaviour to be due to factors more internal to the child and more stable over time, over and above the level of behaviour problem in the child.

Discussion

The hypotheses in the current study were somewhat supported. One attributional dimension, internal locus, was associated with observations of mother-child conflict. Two attributional dimensions, internal locus and globality, were associated with the content of strategies. Two attributional dimensions, internal locus and stability, were associated with timing of strategies. Mothers who thought the causes of their children's misbehaviour were more internal to the children had more conflict with their children, used more negative strategies and were more likely to use reactive strategies only. This was over and above the level of child behaviour problems reported by the mother. Mothers who thought the causes of the child's misbehaviour were more global used fewer positive strategies, although this was not true when level of behaviour was controlled for. Mothers who thought the causes of the child's behaviour were more internal to the child and more stable were more likely to use reactive strategies only.

This study found some of the predicted associations between maternal attributions and observed maternal behaviour. This extends previous findings by using observations of maternal behaviour, rather than maternal report and by examining the association between this behaviour and both parental attributions and child behaviour problems in young children. Finding these associations in families with children as young as 3 years old is important as it suggests that the associations develop very early in a child's life. The present study is cross-sectional and therefore causal inferences cannot be drawn. However, Dix and Lochman (1990) and Johnston (1996) among others have suggested that maternal attributions affect maternal behaviour. This is supported by both experimental manipulations of parental attributions (Slep and O'Leary, 1998) and interventions involving changing parental attributions (Bugental et al., 2002). In turn, it is proposed that parental behaviour influences child behaviour (Snyder, Reid and Patterson, 2003). If this mechanism starts very early in a child's life then the importance of early intervention becomes even greater.

However, this is a somewhat simplistic model and the relationships between parental attributions, parental behaviour and child behaviour are likely to be complex. Recent

longitudinal studies have suggested that a negative pattern of attributions may develop as a result of having a child with behaviour problems (Hastings and Rubin, 1999; Wilson, Gardner, Burton and Leung, 2006). Other researchers have suggested that the differences in behaviour between parents with and without children with behaviour problems may be due to the child's behaviour problems (Anderson, Lytton and Romney, 1986). Using an experimental design, Anderson et al. (1986) found that mothers responded more negatively to children with behaviour problems, compared to other children, whether or not the mother's own child had a behaviour problem. They argued that the mothers were responding to the individual child and not simply using the same parenting behaviours for every child. Over time it may be that difficult child behaviour has more influence on maternal attributions than the other way round. However, some associations between maternal behaviour and attributions were found in the present study even when the level of behaviour problem in the child was controlled for. This suggests that there might be inter-relationships between parental attributions, parental behaviour and child behaviour. As well as direct effects of parental attributions on parental behaviour, there may be indirect effects and reversed effects (parental behaviour influencing parental attributions). Large scale studies exploring reported attributions and behaviour and observed behaviour, both of the child and the parent, are needed to explore these complex models of parenting.

Clinical implications

The findings of the present study may have implications for intervention for children with behaviour problems. This has traditionally focused on changing parental behaviour, with considerable effect. If parental attributions are important in influencing maternal behaviour, then adding a cognitive component to parenting programmes should improve outcomes (Goddard and Miller, 1993; White et al., 2003). For example, parents who physically abuse their children have more negative attributions about their children's misbehaviour (Larrance and Twentyman, 1983). Bugental et al. (2002) compared a standard home visiting intervention with an enhanced home visiting intervention with parents at risk of abusing their child. The enhanced intervention used a cognitive intervention with these parents. The parents in the enhanced group were encouraged to think of different benign causal explanations for their children's behaviour and then to problem solve based on this new explanation for the child's behaviour. Parents in this enhanced group were significantly less likely to physically abuse their children in the first year of the child's life. They also had a reduced likelihood of physically punishing their infant. Future work needs to explore how generalizable this intervention is to parents of older children and to parents not at risk of physically abusing their children. Bugental et al. (2002), however, have shown that a cognitive component in a parent intervention can improve outcomes for children.

Strengths and limitations

One strength of the present study is the use of observational data to examine the key question of the current paper, namely, are there associations between maternal attributions and behaviour in children as young as 3 years old, rather than relying on maternal reports of their own behaviour. The observation system used was noteworthy in being detailed and able to look at both timing and content of maternal strategies. The current paper does, however, rely upon

maternal report of children's behavioural problems, perhaps exaggerating the significance of associations reported between this and maternal attributions. Another limitation may be the attributional measure. Reviews of the measurement of attributions lament the common practice of designing a new measure, or altering an existing one, rather than using an existing validated one (Bugental et al., 1998; Miller, 1995). However, only a few measures of attributions available are validated and they are rarely appropriate to the questions being asked. The reliability of the measure used in the present study may also have varied across parents as the parents responded to different numbers of stories. However, the internal consistency of the attributional dimension scales was found to be good in the present study and changes to an existing measure were required to answer the particular questions posed.

Future directions

There are a number of questions that follow from this study. Although there are clear associations between maternal attributions and behaviour, this study is cross-sectional in design and cannot make any causal inferences. In addition, the study only examines a small number of maternal behaviours and only uses one measure of one type of maternal cognition. Future studies need to examine other kinds of parental behaviours and their associations with different kinds of parental cognitions if a cognitive-behavioural model of parenting is to be developed. Longitudinal studies examining the effects of parental attributions on parental behaviour and child behaviour problems over time would start to elucidate causal directions. Finally, the effects of changing parental attributions on changing parental behaviour and child behaviour problems need to be understood.

The behavioural model of parenting has provided an excellent basis for the effective treatment of children's behaviour problems. If a cognitive-behavioural model of parenting can be developed it may have important implications for the understanding and treatment of these common and distressing problems.

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