

Applying Pleck's model of paternal involvement to the study of preschool attachment quality: a proof of concept study

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Recent re-conceptualisation of paternal involvement (Pleck, J. H. (2010). Paternal involvement: Revised conceptualization and theoretical linkages with child outcomes. In M. Lamb (Ed.), *The role of the father in child development* (5th ed., pp. 67–107). London: Wiley), while proving fruitful, has yet to be applied to investigations into what extent a father's level of involvement may affect child–peer interactions in the preschool age range, over and above the effects of mother–child attachment quality and socio-economic status (SES). Patterns of associations between attachment quality, sensitivity and general caregiving behaviours have also yet to be compared in equally involved mothers and fathers. Thirty preschool children (17 males:13 females) with similar SES profiles and their immediate caregivers participated in hour-long observations, conducted in the home. Even when attachment quality was controlled for, children with low paternal involvement were found to have higher levels of child–peer aggression. Further, patterns of effects between caregiver sensitivity, child–caregiver attachment quality and general caregiver interactions were similar for equally involved mothers and fathers. These preliminary data support the concept of applying Pleck's (2010) re-conceptualisation of paternal involvement to preschool attachment, and have implications towards the wider study of child–father attachment. Limitations of the current study and directions for future research are discussed.

Keywords: attachment; paternal involvement; father–child relationship; child–peer behaviour; single parent

The following study is predicated on the argument that a failure to acknowledge differential levels of paternal involvement has likely contributed to the historical inconsistencies found when researching child–father attachment.

Attachment theory asserts that children's early attachment experiences shape their social development and the development of internal working models (Bowlby, 1969, 1973, 1982). A secure internal working model is said to arise from readily available and emotionally harmonious infant–caregiver interaction (Ainsworth, Blehar, Waters, & Wall, 1978). Bowlby (1982), while acknowledging the primacy of the mother, noted that it was normal for children to have more than one attachment figure and that any primacy of an attachment figure principally reflected which parent was usually available. During the past three decades, a stark polarisation of the role of the father has taken place. On the one hand, the number of children experiencing low levels of paternal involvement has risen (Haskey, 1998) and an estimated 40% of children in the UK currently live separately from their biological father (Callan et al., 2007). On the other hand, increasingly families are diversifying and, when present, fathers are often becoming progressively more involved in parenting (Coyl-Shepherd & Newland, 2013).

Paternal involvement has historically been operationalised in a number of different ways (e.g. Lamb, Pleck, Charnov, & Levine, 1985). During recent years, further attempts have been made to refine the concept of involvement (Cabrera & Tamis-LeMonda, 2012; Pleck, 2010, 2012). While some authors have focused on either physical presence (Keown & Palmer, 2014), or father's attitudes (Dubeau, Coutu, & Lavingueur, 2013), Pleck's model incorporates five key elements of involvement: (a) positive activity engagement, e.g. playing games/reading books/playing sports together; (b) warmth-responsiveness, e.g. hugging, showing affection, telling the child they appreciate something they have done; (c) control, e.g. limit setting, disciplining; (d) indirect care, e.g. selecting child care, purchasing and arranging goods and services for the child; and (e) process responsibility, e.g. monitoring the above four activities, irrespective of their individual involvement in them.

Paternal involvement and child–peer interactions

A substantial body of evidence suggests that when children experience an absence of paternal involvement, in the form of single parenthood, they are more prone to experience poorer social and arrested cognitive development and elevated levels of internalising, compared to their two-parent counterparts (Amato & Dorius, 2010; Chih-Yuan, Lee, & August, 2011; Clarke-Stewart, Vandell, McCartney, Owen, & Booth, 2000; Craigie, Brooks-Gunn, & Waldfogel, 2012; Gaumon & Paquette, 2013; Lopez, Melendez, & Rice, 2000; Nair & Murray, 2005; Woodward, Fergusson, & Belsky, 2000). One explanation put forward for poorer child–peer interactions in single-parent families is change in the child's maternal attachment quality, resulting from spousal separation (Crockenberg, 1981; Lopez et al., 2000; Woodward et al., 2000). Commonly, such research has employed retrospective designs, such as Hetherington, Cox, and Cox (1982) who found that adolescents who reported their mothers as being less sensitive following spousal separation also reported problems with peers. While fewer in number, existing research during the preschool and school-aged years has reported similar findings. For example, a study performed for the National Institute of Child Health and Human Development (Clarke-Stewart et al., 2000) found that children from divorced families scored lower on cognitive, social and behavioural assessments, compared to children in two-parent family units. More recently, Nair and Murray (2005) employed the Attachment Q-Set (AQS) to demonstrate that single mothers reported themselves as having poorer attachments with their preschool-aged child, compared to mothers in two-parent families. However, once socio-economic status (SES) was controlled for, there was no association between family type and child–mother attachment quality. In addition, in these studies only divorced and married family types were investigated, whereas the current study expanded upon this by using Pleck's (2010) re-conceptualised model of paternal involvement.

Single parenthood is often synonymous with low SES (Bradley & Corwyn, 2002). Researchers such as Amato and Dorius (2010) and Lamb (2010) have argued that if poor social and/or cognitive developmental outcomes are associated with single parenthood, they are likely to be the result of stresses placed upon child–mother relationships as a result of hardship. However, single parenthood does not in itself necessitate a reduction in SES and it has yet to be established whether poorer child outcomes are best understood as a function of low paternal involvement itself, or any resultant low SES.

Paternal involvement and child–father attachment

With regard to father attachment, the existing literature suggests that in contrast to the findings related to mothers: (i) father sensitivity in interactions does not consistently predict child–father attachment security and (ii) child–father attachment security is often a weaker predictor of child–peer behaviours (e.g. Jia, Kotila, & Schoppe-Sullivan, 2012). This inconsistency has led, in some cases, to fathers' potential contribution to child development being either ignored (e.g. Emerson, Donenberg, & Wilson, 2012; Schoon, Jones, Cheng, & Maughan, 2012) or undervalued (e.g. McIntosh, Smyth, & Keleher, 2010).

An alternative explanation is the heterogeneity of the father role, specifically the role of involvement in father–child attachment (Pleck, 2010, 2012). More generally, studies have shown paternal involvement to predict child–father attachment security (Caldera, 2004), fewer child internalising behaviour problems (Dubeau et al., 2013), supportive co-parenting (Jia, Kotila, & Schoppe-Sullivan, 2011) and preschool children's secure internal working model (Brown, Mangelsdorf, & Neff, 2012; Coyl-Shepherd & Newland, 2013). To date however, equally involved mothers and fathers have yet to be compared in terms of associations between child–caregiver attachment and both; (i) caregiver sensitivity, and (ii) father–child interactions.

The aim of the current study was to apply Pleck's (2010, 2012) re-conceptualisation of paternal involvement to attachment quality in the preschool years. First, in a sample where SES was held constant, we expected poorer child–peer interactions to be a function of low paternal involvement, rather than child–mother attachment. Second, we expected similar associations between caregiver sensitivity and child–caregiver attachment quality for equally involved mothers and fathers. Third, we expected to find differences in similarly involved mothers' and fathers' general caregiving behaviours.

Method

Participants

Thirty children and their immediate families participated in the study including 17 boys ($M = 33.65$ months, $SD = 15.76$ months) and 13 girls ($M = 32.77$ months, $SD = 8.02$ months). Overall, the children's age ranged from 13 to 72 months, with a mean age of 33.27 months ($SD = 12.80$ months). The number of children in each family ranged from one to three and the modal family had one child.

All mothers were White-British, aged between 21 and 43 ($M = 32.55$ years, $SD = 6.81$ years). All but one father was White-British and were aged between 23 and 43 ($M = 33.38$ years, $SD = 5.75$ years). Consistent with previous research (Campbell et al., 2013; Caslake et al., 2013), SES was calculated using the participant's postcode, which they provided. Based upon this, a credit report agency was used to generate a score for each participant. Using this approach, the mean SES was 3.73 ($SD = 0.83$), out of a possible 5. This indicates the SES for the current sample was slightly higher than the national average of 3.1

The families self-selected via leaflets placed in Sure Start centres and privately run nurseries in the Nottinghamshire area, UK. All mothers worked part time and all fathers were in full-time employment. All children were recruited from a non-clinical population. As such, none of the children had any reported behavioural difficulties, or developmental delays such as language impairment or learning disabilities that may have impacted upon their capacity to communicate with their parents or upon their observable behaviours at home or at nursery with peers.

Procedure

Questionnaire data in the current study were obtained from mothers. The observed behavioural data for the current study are based on free-form video recordings of family member interactions. The unstructured observations took place within the family home, without the presence of the researcher, during mid-late afternoon using a digital camcorder with enhanced microphone facilities which was placed on a small tripod in an appropriate location by the researcher. The families were instructed to: 'Do what you would normally do if you had spare time at this time of day'. Each observation was approximately 60 minutes in length. Following data collection, independent observer ratings were made.

Measures

Attachment Q-Set: The AQS has 90 items, each item describing a different behaviour designed to measure a child's attachment security. The frequently employed (e.g. Lundy, 2002; Pederson & Moran, 1996) AQS has been established as a valid measure of attachment (van IJzendoorn, Vereijken, Bakermans-Kranenburg, & Riksen-Walraven, 2004). The 90 items were arranged in a standard 1–9 Q-composite method, with each pile containing 10 items. The child's security score was then calculated by correlating the description of the child with the published criterion description of a hypothetically secure child (Waters & Deane, 1985). Overall inter-rater reliability for the current study was .91, $p < .01$ ($SD = 0.11$).

Parental sensitivity: The Sensitivity vs. Insensitivity Scale (Ainsworth et al., 1978) was used to assess parental level of sensitivity towards the child. This scale has been widely used within the literature (e.g. Isabella, 1993). It consists of a single item, according to which observers rate a caregiver's sensitivity from 1 (Highly Insensitive) to 9 (Highly Sensitive), with 5 (Inconsistently Sensitive) being the midpoint. Inter-rater reliability was sought across six different raters for all dyads ($Kappa = .70$).

General caregiving behaviours: Child-specific parental interactions were independently assessed during the observation using Bales' Small Group Analysis (Bales, 1950). Bales analysis was conceptualised as a tool for providing a greater understanding of traditional socio-emotional role of the mother and task-related behaviours associated with the father role, and was informed by psychodynamic theory (Bales & Parsons, 1956). With an emphasis on how small groups interact in terms of information sharing and use of both positive and negative emotion, Bales' Small Group Analysis is an appropriate instrument to use when observing general interactions of the family unit within the home. Whilst this scale has been used in other areas of developmental Psychology (e.g. Underwood, 2000), the scale has yet to be applied directly to attachment theory. Given the age range of the current sample, it was necessary to amend the categories. For example, positive socio-emotional reactions such as 'shows solidarity' were expanded to include items such as 'shows affection'. Similarly, negative socio-emotional reactions such as 'withholds help' was expanded to include 'does not share'. The mean inter-rater agreement was 86% ($Kappa = .81$).

Parental involvement: Informed by Pleck's (2010, 2012) re-conceptualisation of the paternal role, families were coded as having either an absent/uninvolved or involved father. Prior to the observation, mothers were asked during a telephone interview 'who does what around the home' and were prompted to rate how often they themselves and their partner engaged in: (1) Positive Activity Engagement, e.g. playing games/reading books/playing sports together; (2) Warmth-Responsiveness, e.g. hugging, showing affection, telling the child they appreciate something they have done; (3)

Control, e.g. limit setting, disciplining; (4) Indirect Care, e.g. selecting child care, purchasing and arranging goods and services for the child; and (5) Process Responsibility, e.g. monitoring the above four activities, irrespective of their individual involvement in them. Due to the documented propensity of mothers to underestimate their partner's contribution to child care (Coley & Morris, 2002; Mikelson, 2008), the threshold for categorising a father as uninvolved was deliberately conservative. Accordingly, for a father to be classified as uninvolved, the mother had to describe the father as never or rarely engaging in all five of the above activities. In line with these criteria, 9 children had fathers who were wholly absent, 7 children had a father that lived with the family but was uninvolved, while 14 had fathers were classed as involved. All mothers in the study were classified as involved.

Child–peer interactions: Mothers completed the Child Behaviour Scale's (CBS, Ladd & Profilet, 1996) Asocial Peer Behaviours Subscale, Prosocial Peer Behaviours Subscale and Excluded by Peers Subscale. The CBS has been employed in numerous pieces of research in the same age range as the current study (e.g. Coplan & Rubin, 1998; von Grunigen, Kochenderfer-Ladd, Perre, & Alasker, 2012). Children's interactions with peers were rated on a 3-point scale; does not apply (1), applies sometimes (2) and certainly applies (3). Scores were created by averaging ratings over items. As scale means were used, overall internal consistency reliability measures were included and not individual item measures. All three subscales were found to have acceptable internal reliability: Asocial Peer Behaviours Subscale ($\alpha = .77$); Prosocial Peer Behaviours Subscale ($\alpha = .71$) and Excluded by Peers Subscale ($\alpha = .72$).

Child–peer aggression: Child–peer aggression was assessed by mothers, who completed the Proactive and Reactive Aggression sub scales from the Teacher Checklist for Social Behaviour (Dodge & Coie, 1987), which has been previously validated in the preschool age range (e.g. Pellegrini et al., 2011). Aggressive behaviours were rated in the same manner as general Peer Behaviours; on a 3-point scale, including; does not apply (1), applies sometimes (2) and certainly applies (3). Items on the Proactive Subscale include 's/he gets other kids to gang up on a peer that s/he does not like' and 's/he threatens or bullies others in order to get in her/his own way'. Items on the Reactive Subscale include 'when teased or threatened, s/he gets angry easily and strikes back' and 's/he always claims that other children are to blame in a fight and feels that they started the trouble'. Scores were again created by averaging ratings over items. Both of the original three-item subscales were found to be reliable (Proactive $\alpha = .77$; Reactive $\alpha = .86$).

Results

The mean maternal AQS security score was 0.37 (SD = 0.19) and the mean paternal AQS security score was 0.35 (SD = 0.21) (Table 1). These scores suggest that the children in the current sample were relatively securely attached. Maternal and paternal AQS scores were correlated, $r(14) = .69$, $p < .01$. Child age was not related to child–peer asocial ($p = .26$), prosocial ($p = .46$), peer exclusion ($p = .34$), reactive aggression ($p = .21$), or proactive aggression ($p = .45$).

Associations between paternal involvement and child–peer interactions

Separate ANOVA tests revealed that paternal involvement was not associated with SES ($p = .16$), child–mother AQS scores ($p = .82$) or child age ($p = .47$). However, child gender did differ by paternal involvement ($F(2, 27) = 3.785$, $p < .05$), in that there was a higher proportion of females with involved fathers, than absent and uninvolved

fathers.

To explore difference in maternal ratings of children's psychosocial peer behaviours by paternal involvement, separate univariate ANOVA tests were performed. There was a significant difference of child-peer reactive aggression, according to paternal involvement, $F(2, 26) = 4.73, p < .05$. Follow-up independent samples t-tests, using Bonferroni corrections, revealed that mothers reported children with absent or uninvolved fathers as having higher ratings of reactive aggression than those with involved fathers (Table 1). There were no significant differences according to paternal involvement for children's asocial peer behaviours ($p = .37$), prosocial behaviours with peers ($p = .40$), child-peer exclusion ($p = .22$) and proactive aggression ($p = .11$). In order to test whether this effect was due to, or mediated by, child-father attachment quality a separate correlation was performed, which was non-significant ($p = .60$).

The above results establish a significant difference between the level of paternal involvement and a child's reactive aggressive behaviours. It was then necessary to test whether the level of paternal involvement also indirectly impacts child-peer behaviours via changes to child-mother attachment quality. To address this issue, an analysis including maternal attachment quality (measured using the AQS) as a covariate of the relationship between levels of paternal involvement (absent father, uninvolved father and involved father) and a child's display of reactive aggression behaviours (specifically, reactive aggression) was conducted. Univariate ANCOVA showed differences in reactive aggression remained present whilst controlling for the level of maternal attachment [$f(2, 26) = 4.49, p < 0.05$]. This suggests that the absence of a father impacts a child's child-peer behaviours (e.g. reactive aggression) over and above any changes in the mother-child relationship resulting from a lack of paternal involvement. In other words, the lack of involvement of a father does not vicariously impact a child's child-peer behaviours (e.g. reactive aggression) by altering the relationship the child has with its mother. This suggests that a father's involvement has a direct influence of how a child is able to develop adaptive child-peer relationships.

Comparison of equally involved mothers and fathers

For mothers, attachment quality was positively correlated with maternal sensitivity, $r(29) = .38, p < .05$. For fathers, there was also a strong positive association between paternal sensitivity and AQS paternal attachment quality, $r(15) = .56, p < .05$. In order to assess whether overall fathers' Bales' interactions differed quantitatively from overall mothers' Bales' interactions, four separate Mann-Whitney U tests were conducted and were all non-significant (Table 2).

Fisher's exact tests were used to test for associations between general caregiving behaviours and child-caregiver attachment security. First, the AQS was looked at. The test for child-mother security was significant ($P < .001$, Fishers exact test) (Table 3). This test revealed that mothers performed more positive socio-emotional actions and more negative socio-emotional actions towards secure children than insecure children. Mothers also provided and requested more information with securely attached children than they did with insecurely attached children.

The test for child-father security was also significant ($P < .001$, Fishers exact test) (Table 4). This test revealed that fathers performed more positive socio-emotional actions towards secure children than insecure children. Fathers also provided and requested more information with securely attached children than they did with insecurely

attached children. Interestingly, fathers did not perform any negative emotional actions.

Discussion

The goal of this proof of concept study was to apply Pleck's (2010, 2012) re-conceptualisation of paternal involvement to attachment theory in the preschool age range. The results confirmed our hypotheses, in that low paternal involvement, rather than SES or maternal attachment quality, predicted poorer child-peer interactions. Also, patterns of effects between caregiver sensitivity, child-caregiver attachment quality and general caregiver interactions were similar for equally involved mothers and fathers. Somewhat surprisingly, we found no differences in how equally involved mothers and fathers interacted with their preschool-aged children. The current findings are consistent with previous research establishing poor child-peer interactions in children without an involved father (Amato & Dorius, 2010; Amato & Keith, 1991; Clarke-Stewart et al., 2000; Crockenberg, 1981; Hetherington et al., 1982; Lopez et al., 2000; Nair & Murray, 2005; Woodward et al., 2000). Additionally, the level of both maternal and paternal attachment security found in the current study was consistent with that measured in previous observational research (Howes, Matheson, & Hamilton, 1994; Lundy, 2002; Nakagawa, Teti, & Lamb, 1992).

The current study adds to the literature by establishing differences in child-peer behaviours with differential levels of paternal involvement, even in the absence of differences in SES. Specifically, the results indicated that children with absent fathers were rated by their mothers as having higher levels of reactive aggression to their peers, compared to children with either an uninvolved or an involved father. The association between paternal involvement and child-peer aggression still held when maternal attachment (as measured by the AQS) was entered into the model, suggesting that poor child-peer interactions are not due to differential child-mother attachment quality. This finding is in contrast to attachment classifications based on separation/reunion episodes which have identified lower levels of attachment quality in children who experience single parenthood (e.g. Clarke-Stewart et al., 2000). This finding is particularly noteworthy, as being in a single parent family is often viewed as a risk factor resulting in poor developmental outcomes (Lewis, Feiring, & Rosenthal, 2000).

The degree of association between caregiver sensitivity and child attachment quality identified in the current study was higher than that in previous research (Caldera, 2004; Kerns & Barth, 1995; Van IJzendoorn & De Wolff, 1997; Van IJzendoorn et al., 2004; Youngblade, Park, & Belsky, 1993). This is perhaps explained by the naturalistic setting in which the families were observed. Perhaps the most striking finding was the high degree of association between paternal sensitivity and father-child attachment quality. Further, previous research (e.g. Suess, Grossman, & Sroufe, 1992) has focused on a younger age range; the type of care necessitated by the toddler age range differs from the type of care that a preschooler would require, which is less instrumental and more inter-personal in nature. It is plausible that as a child's needs change from neo-natal to inter-personal, the role of the father becomes more pronounced, thus explaining the higher level of association between security and sensitivity discovered in the current study when compared to other studies involving younger children. Contrary to our expectations and assumptions originally underpinning Bales' analysis, mothers did not focus on socio-emotional actions and fathers did not focus on information-

sharing behaviours. While this may appear at odds with some fathering literature, it is important to note that it has been argued that, in general, there are more similarities than dissimilarities in how mothers and fathers interact with their children (Lamb, 2010). It is likely that it is these similarities that were captured in the current study.

A qualification of the study was the necessary controls put in place by using such a stratified sample. While this was a deliberate attempt to exclude extraneous variables, to an extent, it also limits the generalisability of the results. There are further limitations to the study which should be borne in mind. Given the exploratory nature of the current study combined with the small sample size, the findings call for replication in larger scale samples. One consequence of the small sample size is that with the subsequent range of appropriate analysis, the findings should be viewed as tentative. It is perhaps worth mentioning that the difficulty of recruiting fathers in research is well documented and was evident in the current study (Brown et al., 2012; Caldera, 2004). Given a lack of available paternal reports in the current study, it was unfortunately not possible to measure father reports of paternal involvement and instead, paternal involvement was rated by mothers alone. An attempt was made to control for the wide range of disagreement between mother and father reports of paternal involvement reported in the literature (Coley & Morris, 2002; Mikelson, 2008), by using a deliberately conservative threshold for classifying a father as 'uninvolved'. Despite this, it should be noted that there exists a potential rater bias. Additionally, it should be noted that there was a sex imbalance between groups, in that males in the study were more likely to have an involved father. While previous research has suggested that females can engage in a higher level of certain bullying behaviours than males (e.g. Mynard & Joseph, 2000), the role of paternal involvement in this has yet to be understood. Unfortunately, due to issues around statistical power, this type of moderation analysis was beyond the scope of the current paper. However, the role of paternal involvement in sex-specific aggression is a potential avenue for future researchers. Similarly while beyond the scope of the current study, future research should aim to investigate underlying psychometrics of the items included in Pleck's model of involvement. Specifically, such work should address the possibility that certain aspects of paternal involvement, rather than paternal involvement as a whole, may be driving the effects described in the current paper. Despite such limitations, the findings are suggestive that it is beneficial to take into consideration paternal involvement when researching child-peer development across family types.

The current research expands the literature by measuring paternal involvement, rather than a father's residential status. By doing so, it was possible to gain a more meaningful insight into the role that fathers may play in child development. In addition to expanses in knowledge, the findings may have use for practitioners with an interest in circumventing the poor child-peer development associated with paternal loss. The poorer child-peer behaviours described in the current research may be the first step towards later life problems identified in older age groups of adolescents without an involved father (Amato & Keith, 1991; Clarke-Stewart et al., 2000; Hetherington et al., 1982; Nair & Murray, 2005; Woodward et al., 2000). Historically, interventions commonly either focus on improving SES of single mothers (Schoon et al., 2012), or attempt to improve mother-child interactions through parenting programmes (e.g. Hutchings, Bywater, Daley, & Lane, 2007). If, as the current results suggest, it is the lack of paternal involvement which is important, both of these approaches are limited in their effectiveness and interventions should instead focus on facilitating father-

child relationship quality, where possible.

In summary, the present research highlights limitations of ignoring the potential importance of caregiver involvement, particularly paternal involvement, when researching child development. The current data are suggestive that an involved father's role is markedly similar to that of mothers in attachment, rather than being a secondary caregiver, or simply a playmate. Where SES was held constant, differences in child–peer interactions were found and were not related to child–mother attachment. Consequently, we conclude that rather than being explained via differences in mother–child interactions or SES, less desirable child–peer outcomes following spousal separation appear to be more closely related to paternal involvement.

Note

1. Provided by Credit Reporting Agency Limited via checkmyfile.com, 1 August 2011.

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