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The ecology of young children's behaviour and social competence: Child characteristics, socio-economic factors and parenting

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Abstract

Using a longitudinal, UK representative sample from the Millennium Cohort Study, the present study examined the effects of socio-economic factors on mother- and teacher-rated behaviour, and the unique and cumulative contribution of both risk and protective factors inherent in children's proximal and distal influences to behaviour during the toddler years and at school entry. The findings showed that although family income, parental employment and maternal education had a significant moderate impact on child problem behaviour as rated in the home and school, when considered in the context of child characteristics and family processes their contribution was negligible, especially for income. In contrast, parenting practices and parental wellbeing emerged as good predictors of behavioural difficulties and prosocial behaviour at school entry, pointing to the importance of supporting parents in order to promote social competence in young children. These findings have implications for family policy.

The ecology of young children's behaviour and social competence: Child characteristics, socio-economic factors and parenting

Introduction

Social competence in preschool children has been found to play a significant role for emotional regulation and social relatedness, both assets to their transition to formal education (eg, Sylva et al, 2008). Children's ability to manage their own behaviour and emotions and display prosocial behaviour in terms of showing empathy to and collaborating with their peers can help them learn from and with others and do well at school (McClelland, Acock and Morrison, 2006). At school entry, children are faced with high expectations regarding the regulation of their emotions and behaviour, and capacity to initiate and maintain positive relationships with adults and peers. Children living in poverty are particularly likely to enter school with a range of social and behavioural difficulties with over 40% showing difficulties in social competence and 20% exhibiting disruptive behaviour that impedes school adjustment (Kaiser et al, 2000). To a great extent, children's reduced social competence and emotional wellbeing reflect the effects of poverty and, most crucially, the impact of poverty on parenting practices and behaviour manifested mainly in the quality of parent-child interactions and parental psychological wellbeing (Bierman et al, 2008; Dearing, McCartney and Taylor, 2001). Little is known however about the unique and joint contribution of socio-economic risk factors and family processes such as parenting to predicting young children's social and emotional preparedness for their transition to school (Mistry, Benner, Biesanz and Clark, 2010; Pomerantz et al., 2006) despite growing concerns expressed by teachers about children's behaviour at school entry.

Understanding the ecology of behaviour and social competence in young children has important implications considering that the effects of socio-economic disadvantage are stronger in early childhood (Yeung, Linver and Brooks-Gunn, 2002) and are linked to adjustment problems in later life (Tremblay, 2000).

Social competencies such as emotion regulation, control of attention and prosocial behaviour, i.e., helping and sharing, have been linked with sustained learning and school success. Children who regulate their behaviour in ways that are consistent with classroom rules and expectations exhibit higher levels of achievement (McClelland et al, 2006). Delineating the contribution of factors, proximal and distal to children's life, to their social competence is crucial to foster social-emotional development, which in turn can strengthen children's learning and school performance. Factors within children's immediate environment that have been found to influence child development include parenting sensitivity, cognitive stimulation and parental feelings towards children (Barnett, Shanahan, Deng, Haskett, and Cox, 2010; Tamis-LeMonda, Shannon, Cabrera and Lamb, 2004; Foster et al, 2005) and maternal psychological well-being (NICHED Early Child Care Research Network, 1999; Kiernan and Huerta, 2008). Parenting sensitivity refers to parents' capacity to perceive and respond to their children's feelings, interests and capabilities in ways that balance children's needs for support with their needs for autonomy (Lugo-Gil and Tamis-LeMonda, 2008). Cognitive stimulation involves parental support with home learning activities such as bookreading or music playing that aim at children's intellectual development and cultural enrichment. Parental affect during parent-child interactions refers to parents' affection and respect toward their children. Finally, parental psychological distress (eg, depression) has been linked with difficulties in children's behavioural self-control

and capacity to regulate their feelings and form a secure attachment with their parents (Cicchetti and Toth, 1998). Maternal depression in particular has been found to be a good predictor of child social and emotional development and is associated with externalising and internalising behaviour difficulties in children as young as 3 years old (Kiernan and Huerta, 2008).

Although for children living in poverty, parent-child relationships and secure attachment with the primary caregiver may be compromised (Weinfield, Sroufe and Egeland, 2000), warmth and parenting sensitivity can function as protective factors for children's cognitive and affective development (Fish, 2004). Positive and warm parenting practices support children's emotional regulation, which includes modulation of emotional responses and associated behaviours, by modelling constructive ways to manage stress and relationships (Power, 2004), whereas low levels of parental sensitivity and responsiveness have been found to associate with increased internalising (Barnett et al, 2010) and externalising behaviour difficulties (Campbell, 2002). A stimulating and linguistically enriched home environment supports children's language and communication skills, which have implications regarding children's social competence in that linguistically competent children are more likely to use language to resolve conflict, display empathy, engage in social problem solving and regulate their own feelings (Brinton and Fujiki, 1993).

Despite the elevated behavioural and social difficulties exhibited by children in poverty (Dearing et al, 2001; Foster et al, 2005), variation exists among them in that many children develop social competence in the face of socio-economic adversity. This suggests that socio-economic disadvantage does not affect all children equally. Variation in the behavioural, social and

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emotional development of children in poverty may be attributed to differences in the risk and protective factors that shape children's daily experiences (Rutter, 2000). Most research suggests that the effects of socio-economic inequality on child development are mediated by risk and protective factors within the child's family (Ayoub et al, 2009; Mistry et al, 2010). Risk factors refer to aspects of children's functioning (eg, poor vocabulary) or environment (eg, poverty, maternal depression) that negatively impact development. Protective factors, on the other hand, are aspects of the environment (eg, parental sensitivity, home learning) that moderate children's and parents' responses to risk in a positive way.

Risk is not distributed normally and thus risk in one area of children's immediate environment makes children more susceptible to additional risk (Rutter, 2000). For example, children who experience one type of adversity such as maternal depression are also likely to experience negative parent-child interactions and, possibly, reduced cognitive stimulation. This stresses the importance of examining the cumulative contribution of child, family and socio-economic factors to child behaviour. Assessing the relationship between social competence and risk and protective elements inherent in children's socio-economic and family contexts is particularly important for children living in poverty for whom the impact of the socio-economic gap on their development may obscure the contribution of protective factors, such as positive parenting, to resilience and emotional wellbeing (Ayoub et al, 2009).

Children's social competence: An ecological framework

The present investigation was informed by ecological perspectives whereby child development is viewed as a dynamic process in which child characteristics and social factors vary over time and influence behaviour. Ecological perspectives regarding the trajectories of behavioural, social and emotional development in children have identified a complex pattern of child-related characteristics such as cognitive and language skills (eg, Ayoub et al, 2009); proximal factors such as parenting practices and parent-child relationships (eg, Campbell, 2002; Keenan and Wakschlag, 2000) and parental psychological distress (NICHED Early Child Care Research Network, 1999); and distal factors such as family income and parental employment and education (Dearing et al, 2001). Knowledge of either child characteristics, proximal or distal factors alone is not sufficient to predict child behaviour (Campbell, 2002; Miller-Lewis et al, 2006).

The Ecological Systems Model (Bronfenbrenner, 1986a) has been adapted by Cicchetti and Lynch to provide a theoretical framework to examine child behaviour within interacting social systems, i.e., ontogenic system, microsystem, exosystem, and the chronosystem (1993). The ontogenic system involves characteristics related to children's cognition, language and behaviour. The microsystem refers to the physical and social aspects of the child's family environment (eg, parent-child interactions). The exosystem consists of factors external to children's immediate environment such as parental employment or family income which are likely to influence both children and family. Chronosystem refers to the effects of time (longitudinal dimension) on child development (Bronfenbrenner, 1986a). For children living in poverty, factors that promote or hinder social competence and emotional wellbeing are likely to operate within these different social systems (eg, individual child, family, school).

The purpose of this study was to examine the actual impact of socio-economic risk factors on parent- and teacher-rated child behaviour at ages 3 and 5, and then assess the cumulative and unique contribution of child-related characteristics (i.e., vocabulary, cognitive skills), proximal (i.e., parenting sensitivity, home learning, parent affect, maternal depression) and distal (i.e., family income, maternal education, parental employment) factors to children's behavioural difficulties and prosocial behaviour during their transition to school. Thus far, a few studies have focused on child behaviour in early years by taking a dimensional approach to examine behavioural, emotional and social difficulties and prosocial behaviour and their relation to co-occurring risks and protective factors. And fewer studies (with the exception of the EPPE study) have examined the unique and cumulative predictive power of home learning and maternal education with regard to preschool children's behaviour despite that maternal education has consistently been a powerful predictor of children's cognitive and language development (Hoff et al, 2002).

Method

Sample

The data for this study came from the second and third sweeps of the Millennium Cohort Study (MCS), a longitudinal birth cohort study, which offers a large-scale information about the 'New Century's Children' and their families in the UK. The second and third sweeps were carried out when the cohort child reached the ages of 3 and 5 respectively, achieving response rates of 78% and 79% of the target sample. The working sample derived from the surveys was 15,808 singleton cohort children. The sample design allowed for over-representation of families living in areas with a high rate of socio-economic disadvantage, which increased the power of the study

to analyse socio-economic effects. To ensure that the study is representative, the data were weighted to account for over-representation, non-response in the recruitment of the original sample and sample attrition. Full details about the origins and objectives of the Millennium Cohort Study can be obtained from the UK Data Archive at Essex University (Hansen, 2008). Ethical approval for the MCS was gained and parents gave informed consent before interviews took place and a written consent for the cognitive assessments.

Measures

There are three sets of measures, namely child-related, proximal and distal, obtained when the cohort child reached the ages 3 and 5.

Child-related measures include:

Behaviour. The Strengths and Difficulties Questionnaire (SDQ) (Goodman, Meltzer and Bailey, 1998), which consists of five scales with five items each: Emotional Symptoms, Conduct Problems, Hyperactivity, Peer Problems and Pro-social was employed. In each subscale, scores for each of the five items (eg, 'often seems worried', 'considered of others' feelings', 'easily distracted') were summed, giving a range of 0–10, and the total difficulties score, which is the sum of all problem SDQ domains (i.e., Emotional Symptoms, Conduct Problems, Hyperactivity and Peer Problems), had a range of 0–40. The SDQ has a good test-retest reliability of .85 (Goodman et al, 1998). The teacher-rated Personal, Social and Emotional (PSE) development was part of the Foundation Stage Profile (FSP) assessment of children's progress in social competence over the first year of formal education in England (between ages 4 and 5). PSE contains Dispositions and Attitudes; Social Development; and Emotional Development (eg, 'has a developing awareness of own needs, views and feelings and is sensitive to the needs, views and feelings of others'; 'understands what is right, what is wrong, and why'). Each of these

assessment scales has 9 points, with scores ranging between 3 and 27. The FSP assessment

framework is based on continued teacher observation of children during the first year of primary

school collected by the Department for Children, Schools and Families. The MCS survey data

were linked to FSP data taken during the academic year 2005-2006.

Cognitive measures. The Picture Similarities (verbal reasoning) and Pattern Construction (visual

/spatial skills) subscales of the British Ability Scales –II (BAS-II) were administered at age 5;

and the Bracken School Readiness Assessment (BSRA) at age 3. The BSRA was made up of six

subtests that assess the child's ability to identify colours, letters, numbers, shapes and to describe

and compare objects e.g. by size.

Language measures. The Naming Vocabulary subscale of the BAS-II, which assesses expressive

language and knowledge of names in English, was administered at 3 and 5.

[insert Table 1 here]

Proximal measures. These measures were obtained via face-to-face interviews with parents when

cohort children were 3 and 5 years old. An exploratory factor analysis was conducted to identify

patterns among questionnaire items that referred to parent-child interactions and relationships

(i.e., positive and negative affect), cognitive stimulation (i.e., home learning/ enrichment

activities, homework), parenting sensitivity and maternal psychological distress (Table 2). The

responses for the variables clustered under cognitive stimulation and maternal psychological

distress were rated using a Likert five-point scale, ranging from 'every day' to 'not at all', and

for items referring to parent-child interactions and parenting sensitivity ranging from 1= 'definitely does not apply' to 5= 'definitely applies'.

[insert Table 2 here]

Distal measures. These measures included family income for which living in households below the poverty line was based on below the 60% of the national median income before housing cost; maternal educational qualifications and parental employment. The family income data were adjusted for the number and ages of people in the family home using the equivalence scales introduced by the Organisation for Economic Co-operation and Development. The mothers' educational qualifications were classified into five levels equivalent to the National Vocational Qualification (NVQ) scale, ranging from no qualifications to NVQ4 /5 which represents qualifications at a degree (or vocational equivalent) level. Parental employment included measures ranging from both to neither parent in employment (Table 3).

[insert Table 3 here]

Analytical plan

Multivariate analyses of variance (MANOVA) were conducted to examine the effects of socio-economic factors, namely, family income, parental employment and maternal educational qualifications on mothers' ratings of child behaviour (SDQ) at ages 3 and 5. To examine the effects of these socio-economic factors on teachers' ratings of behaviour (PSE) at age 5, a series of analyses of variance (ANOVA) were employed. Bonferroni post-hoc comparisons took place and the Cohen's effect size- d- was calculated (an effect size between .0 - .2 is small; .3-.5 is modest; .6-.8 is moderate and .8+ is strong) for the comparisons of interest for this study namely,

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above /below poverty line; degree-level qualifications (NVQ5) / no qualifications; both/neither parent in employment.

Finally, a series of hierarchical multiple regression analyses examined sources of variability in ratings of behavioural difficulties, prosocial behaviour and PSE at school entry that were attributable to child, proximal and distal factors. In step 1, child characteristics (i.e., cognitive scores and vocabulary) were entered to control for their contribution; in step 2, the proximal factors (i.e., parent affect, parenting sensitivity, cognitive stimulation / home learning, maternal psychological distress) were entered and, finally, in step 3, the distal factors (i.e., maternal educational qualifications, family income and parental employment) were entered. This sequence of steps allowed for an examination of the cumulative and unique contributions of the distal factors to behaviour ratings after child characteristics and proximal factors were accounted for, considering that parent–child interactions and cognitive stimulation explain as much as 50% of the variance between the skills of children living below and above the poverty line (Duncan and Brooks-Gunn, 2000). The multivariate analyses focused on the actual impact of socioeconomic factors on child behaviour whereas, with a hierarchical regression, their impact was examined while factors in children's ontogenic and mesosystem were taken into consideration.

Prior to the regression analyses, bivariate correlations between proximal and distal factors were calculated to ensure that they do not correlate highly with each other (multicollinearity problem) in order to be able to examine their unique contribution to outcome variables. The resulting correlations coefficient values ranged between .34 and .46, indicating moderate associations.

Results

Parental employment and behaviour ratings

Significant multivariate effects for parental employment on SDQ domains and PSE were found (Table 4). Group comparisons (both/neither parent in work) for all SDQ domains at ages 3 and 5 yielded significant differences that were moderate in size for conduct problems, hyperactivity and total difficulties; modest for emotional symptoms and peer problems and weak for prosocial. The effects of parental employment on teacher-rated PSE were moderate. These results indicated that, compared to their peers with both parents in employment, children from workless households were rated higher in problem behaviour, externalising behaviour difficulties in particular, by their mothers and also attracted lower ratings in social competence from their teachers.

[insert Table 4 here]

Family income and behaviour ratings

Significant multivariate effects for family income on SDQ domains and PSE were found (Table 5). Income group comparisons yielded significant differences, modest in size, for SDQ problem domains at ages 3 and 5 and PSE at 5, and weak for prosocial behaviour. Compared to their economically better-off peers, children living below the poverty line obtained modestly higher ratings of behavioural, emotional and social difficulties from their mothers and lower ratings of social competence from their teachers.

[insert Table 5 here]

Maternal educational qualifications and behaviour ratings

Significant multivariate effects for maternal educational qualifications on parent- and teacher – rated child behaviour were found (Table 6). Group comparisons at ages 3 and 5 between mothers with a degree and mothers without any educational qualifications showed significant differences that were strong in size for hyperactivity and total difficulties, moderate for emotional symptoms and conduct problems and modest for peer problems. Moderate significant differences were found for the teacher-rated PSE. No significant differences were found for prosocial behaviour at ages 3 and 5. Compared to children of educated mothers, children whose mothers did not have any educational qualification were rated significantly higher for problem behaviours and lower for social competence.

[insert Table 6 here]

Across multivatiate analyses, during the toddler years and at school entry, parental employment exerted moderate effects on ratings of behavioural difficulties (i.e., conduct problems, hyperactivity and total difficulties) and modest on ratings of emotional and social difficulties (i.e., emotional symptoms and peer problems); maternal education had a moderate / strong effect on ratings of behavioural difficulties and a modest /moderate for emotional and social difficulties; and income had a modest effect on all SDQ problem domains. Similar effects were also found for teacher-rated behaviour. In contrast, these socio-economic factors yielded non-significant / weak effects on ratings of prosocial behaviour. These findings indicated that socio-

economic factors had a differential impact on children's behavioural, social and emotional development, with maternal education and employment having a larger impact compared to that of family income. Furthermore, parental employment and maternal education had stronger effects on ratings of behavioural difficulties than on emotional and peer problems, and negligible effects on prosocial, suggesting that socio-economic risk factors had differential effects on aspects of child behaviour.

Predicting SDQ and PSE from child, proximal and distal factors

In this study, the contribution of socio-economic factors to prosocial behaviour, behavioural difficulties and PSE was found to be non-significant (with the exception of the contributions of maternal education to PSE and income to total difficulties) when child characteristics and proximal factors were accounted for (Table 7). The base model (step 1) predicting prosocial behaviour from child characteristics accounted for a significant but small portion of the observed variance in prosocial, $F(5, 3079)=6.2$, $p<.001$, adjusted $R^2= .008$. The introduction of proximal factors improved the model fit, $F(5, 3072)= 25.1$, $p<.001$, $\Delta R^2=.07$. Specifically, negative parent affect ($\beta=-.131$, $p<.001$) and parenting sensitivity ($\beta=.143$, $p<.001$) at age 3 and home learning ($\beta=-.106$, $p<.001$) at 5 emerged as good predictors for prosocial behaviour. Distal factors in step 3 improved slightly the model fit, $\Delta R^2=.005$ but did not account for a significant portion of variance in prosocial behaviour.

The base model (step 1) for predicting total difficulties from child characteristics accounted for a significant but small portion of the variance in total difficulties (the sum of all SDQ problem

domains), $F(5, 3079)=28.80$, p<.001, adjusted $R^2 = .04$. The addition of proximal factors

significantly improved the model fit, $\Delta R^2 = .18$, p<.001. Specifically, negative parent affect

($\beta=.303$, p<.001) and maternal psychological distress ($\beta=-.178$, p<.001) were good predictors. In

step 3, the addition of distal factors made a slight improvement in predicting total difficulties,

$\Delta R^2 = .01$, with income making a relatively small contribution to total difficulties ($\beta=.063$,

p<.001). The base model (step 1) regressing teacher-rated PSE on child-related factors accounted

for a significant portion of the observed variance in PSE, $F(5, 1755)=44.85$, p<.001, adjusted

$R^2=.11$. Specifically, child characteristics such as school preparedness at age 3 ($\beta=.165$, p<.001),

and vocabulary ($\beta=.150$, p<.001) and non-verbal reasoning ($\beta=.085$, p<.001) at 5 made a

significant contribution to teachers' ratings of behaviour. The addition of proximal factors in

step 2, homework ($\beta=-.106$, p<.001) in particular, improved the model fit, $F(5,1748)= 21.53$,

p<.001, $\Delta R^2=.01$. The entry of distal factors also improved the model fit, $F(5, 1743)= 16.26$,

$\Delta R^2 = .01$, p<.001, with maternal education being a good predictor ($\beta=.208$, p<.001) [For brevity,

only substantive β values from all 3 steps are presented here; see Table 7 for more details] .

[insert Table 7 here]

When child characteristics were accounted for, parent affect, parenting sensitivity, home learning

and maternal psychological distress made significant contributions to mother-rated total

difficulties and prosocial behaviour, whereas these proximal factors (with the exception of

homework support) did not contribute to variation in teachers' ratings of behaviour. Amongst

child and distal factors, children's cognitive and vocabulary skills and maternal education made

significant contributions to teachers' ratings of behaviour.

Discussion

Problematic behaviours in early years with regard to peer interactions, hyperactivity and conduct problems have been found to associate with reduced learning, anti-social behaviour and mental health problems in later life (Foster et al, 2005; Tremblay, 2000). Despite a widespread consensus that parenting practices and socio-economic factors influence child development, few studies have investigated their contribution to child behaviour at school entry. Child behaviour varies over time and in response to the influences inherent in children's social environment (Earls and Mezzacappa, 2002). Mapping the ecology of behaviour and social competence in young children is crucial to untangle the contribution of child, proximal and distal factors to child behaviour.

Socio-economic inequality, parenting and child behaviour

In this study and consistently with previous research (eg, Foster et al, 2005; Lugo-Gil and Tamis-LeMonda, 2008), the effects of family income, parental employment and maternal education on ratings of child behaviour at ages 3 and 5 were moderate to modest in size for problem behaviour and weak for prosocial. Other studies have also shown weak associations between socio-economic factors and prosocial behaviour in four-to-five-year old Australian children (Edwards and Broomfield, 2008) and among two-to-eleven-year old Canadian children (Romano et al, 2005), suggesting that socio-economic factors are likely to operate differently for problem and prosocial behaviour in children, with ratings of problem behaviour (eg, hyperactivity) being higher in children living in poverty.

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Interestingly, family socio-economic disadvantage was reflected roughly equally across home and school settings with externalising behaviour difficulties (eg, hyperactivity) in children living in poverty attracting significantly higher ratings from both mothers and teachers. Compared to the strong / moderate effects of maternal education on both mothers' and teachers' ratings of behaviour, family income (i.e., living above/ below poverty line) yielded modest effects in that its influence is traced through family processes such as parental involvement and access to educational resources and services, and through its impact on parental wellbeing which in turn influences how parents interact with their children during the early formative years (Yeung et al, 2002). Amongst the proximal factors, parent affect, parenting sensitivity and engagement with learning and enrichment activities were found to be good predictors for prosocial behaviour, whereas negative parent affect and maternal psychological distress were good predictors for behavioural difficulties. Although the contribution of each proximal factor was modest to moderate, their cumulative effect explained a significant component of the variance in mothers' ratings of child behaviour.

Children's immediate family processes such as parental feelings and psychological wellbeing can function as a platform for children to develop social relatedness and show empathy, both important cognitive and affective components of prosocial behaviour (Knafo and Plomin, 2006b). When parents are warm, responsive and sensitive to their children's needs, prosocial behaviour has been found to increase (Campbell, 2002). In contrast, and consistently with previous research, mothers who experienced psychological distress such as depression or anxiety offered higher ratings of problem behaviour (Foster et al, 2005). Three explanations have been offered to understand the ways in which maternal depression is associated with inflated ratings of

child problem behaviours. First, cognitive distortions due to mothers' tendency towards pessimistic views may contribute to perceiving children's behaviour as unduly inappropriate. Secondly, psychological difficulties are likely to pose significant stress on parenting, resulting in reduced tolerance of children's age- appropriate misbehaviour and, eventually, children may develop inappropriate behaviours as a reaction to an intolerant parenting. Thirdly, depression and anxiety may exacerbate mothers' sensitivity to negative behaviour and thus offering higher ratings of problem behaviour (Campbell, 2002).

Compared to proximal factors, and consistently with previous research (eg, Edwards and Broomfield, 2008), the distal factors made a negligible contribution to prosocial behaviour. One explanation might be that, during the preschool years, the development of social cognition or the ability to understand emotions and social situations is influenced by children's growing cognitive capacity to discriminate, encode and retrieve information that allows for socio-cognitive representations (Bishop, 1997) and their interactions with parents, ultimately influencing parents' view of prosocial behaviour (Bierman et al, 2008).

Although the effects of inequality in the form of income, parental employment and education were reflected in both mothers' and teachers' ratings of behaviour (not in prosocial), child characteristics and proximal and distal factors explained variance in teachers' and mothers' perceptions of behaviour differentially. Specifically, the quality of parent-child relationships, parental wellbeing and parental involvement with learning and enrichment activities made significant contributions to child behaviour within the family context. At school however,

language, cognitive development, capacity for learning and the human capital that educated mothers are likely to generate (rather than income alone) contributed to teachers' views of children's social competence. From the teachers' perspective, tangible resources such as mothers' education, homework support and children's language and learning behaviours constituted significant forms of human and intellectual capital that are likely to influence children's social readiness for school. Mothers' education in particular is likely to support child behaviour by promoting school readiness through home learning and homework support and congruence in the attitudes, behaviours and expectations governing home and school settings.

The contribution of proximal and distal factors to mothers' and teachers' perceptions of child behaviour is discussed by considering Lareau's approaches to parenting, namely 'concerted cultivation' and 'sustaining natural growth' (2003). What seems to contribute to teachers' views of child behaviour is parents' capacity to offer 'concerted cultivation', fostered through mothers' education and involvement with practices such as homework support aimed at creating intellectually rich and stimulating environments for their children. This is consistent with previous research showing that good quality of home learning experiences and parental involvement support young children's self regulation and social competence (Sammons et al, 2007). It appears that teachers' perceptions of child behaviour are influenced by children's cognitive and linguistic capabilities and learning behaviours (Miller-Lewis et al, 2006), whereas mothers' views of child behaviour are likely to be influenced by their psychological wellbeing and the emotional capital that warm parent-child interactions generate. For parents living in poverty, positive parenting, emotional relatedness and parental psychological wellbeing are important resources to 'sustain natural growth' in their children's social competence, considering

that the contribution of socio-economic factors in the form of family income and employment to teachers' and parents' perceptions of child behaviour was non-significant (with the exception of a small contribution of income to mother-rated behavioural difficulties) when child characteristics, parenting practices and parental wellbeing were accounted for. As Masten observed, 'the most important protective resource for development… is a strong relationship with a competent, caring, prosocial adult' (1997), and thus it is argued that child cognitive characteristics and positive and warm parenting can function as protective resources for young children's social competence and emotional readiness for school, especially for families who face socio-economic adversity.

The important contribution of child characteristics and the factors inherent in children's immediate family environment to perceptions of children's social competence points to a view of parents and children as active agents, capable of shaping the structures that surround their life. As with middle-class families, social reproduction in families who face socio-economic adversity can be an active and constructive process that is shaped by human agency and the socio-economic structures that surround parent-child interactions and access to resources (Kaufman, 2005). Giddens has argued that structures, which are thought of as both rules and resources, can be enabling in terms of giving people the capability to work within them. In this study, parents' engagement with learning and enrichment activities, parenting sensitivity and positive child-parent relationships constituted what Giddens identified as cultural schema that some parents may be able to apply even in the face of disadvantage (1984). However, in considering the application of cultural schema, it is important to note that the interactions between child behaviour and parental practices are reciprocal and symbiotic whereas parents and children are

influenced by each others' adaptive or maladaptive behaviour and its socio-economic milieu. For example, parents who experience psychological distress due to poverty are likely to display maladaptive behaviour that impacts on their children's social adjustment, which in turn puts more pressure on them (Campbell, 2002). This stresses the importance of understanding parenting practices and behaviours within their socio-economic context. As income alone is not enough (considering its modest impact) to alleviate the deleterious effects of socio-economic disadvantage on child outcomes, protective family processes and human agency cannot flourish in a vacuum but in a context where genuine opportunities for parental education and employment are offered to reduce socio-economic inequality.

Strengths, limitations and future directions

There are strengths and limitations to this study. The strengths lie in its use of a population-based representative sample which enabled replication of other studies with fairly small samples to explore the actual impact of parents' socio-economic status on child behaviour in the UK at the start of this century. By using longitudinal rather than cross-sectional measures to examine the impact of socio-economic factors during the toddler years and during the transition to primary school, the predictive power of both current and prior factors was delineated. Furthermore, the ecological focus of this study allowed the examination of socio-economic factors while accounting for proximal factors and child characteristics. Finally, multiple behaviour aspects (eg, prosocial behaviour, behavioural difficulties) and multiple informants (eg, parents, teachers) were examined to delineate the relative contextual influences on problem and prosocial behaviour as reflected in the ratings of mothers and teachers.

Another limitation to this study is its reliance on parent reports to obtain measures regarding proximal and distal factors due to the potential parent bias and also the independence of data. Also, although maternal education is a source of human capital, parental employment and family income and parenting practices do not always generate intellectual / emotional capital. Rather, knowledge of parents' values and aspirations and their capacity for intellectual stimulation and enrichment that go beyond school-related learning is critical to understanding factors that promote resourcefulness and resilience in families facing socio-economic adversity. Considering that child characteristics and parenting practices influence each other, it is also plausible that both child and parent factors influence the ways in which they access and use economic and family resources. Also, although child-, proximal- and distal-level factors were examined longitudinally to better understand the trajectories of children's behavioural difficulties and prosocial behaviour, causality cannot be inferred from the regression analyses. Given that factors proximal to child's environment did account for some of the variation in child behaviour, other proximal factors, pertinent to peer interactions and community cohesion (eg, feelings about the neighbourhood), should also be investigated. Finally, considering the interactional nature of child, proximal and distal factors, further research is needed to examine their potential mediation effects. Via structural equation modelling, the pathways through which these factors exert direct and indirect influences on child behaviour can be identified (for example, the effects of family income on child behaviour may be mediated by maternal depression).

Utilising secondary data has benefits and limitations. The technical expertise involved in MCS in terms of developing surveys and using independently validated instruments (such as SDQ) is high, ensuring data that are of the highest quality (Hansen, 2008). There are also social benefits

in that handling secondary data is an unobtrusive process. One limitation however is that the secondary analyst is removed from the source of data (eg, parent interviews) and that may affect considerations of the dynamics of the research context and the capacity to take a nuanced approach to data analysis and interpretation (Smith, 2008).

Conclusions and implications

Numerous studies have established a link between socio-economic inequality and child outcomes with evidence showing that poverty impacts on children's behaviour and social adjustment through family and parenting processes, stressing the importance of delineating the contribution of both risk and protective factors in children's family environment. The findings from this study showed that although children who experience socio-economic disadvantage fared less well behaviourally at home and school, when considering factors within the children's immediate environments, socio-economic inequality in the form of family income and employment did not explain much of the variance in children's behaviour and social competence at school entry. Proximal factors such as positive parent affect, parenting sensitivity and home learning, directly or indirectly related to school, emerged as protective factors that made a significant contribution to child behaviour. This highlights the importance of considering not only the factors that place children at risk, such as low income or maternal depression, but also protective factors such as parenting sensitivity and parental warmth that enable positive developmental outcomes in children experiencing socio-economic disadvantage (Mistry et al, 2010).

These findings have important implications for family policy in that by promoting positive and sensitive parenting and offering cognitive stimulation to children, their behaviour (actual or perceived) is likely to improve. Family policy, especially for disadvantaged families, should

build upon families' unique strengths by accounting for different forms of human and emotional capital that parents bring into their interactions with their children. By recognising the importance of existing strengths and their potential to promote children's natural growth in families facing poverty and disadvantage, parents may be enabled through family support services to offer the cultivation their children need to develop social competence, succeed at school and achieve upward social mobility. The influence of factors within children's social ecologies on behaviour indicates the potential protective effects of programmes that focus on supporting children and families. Intervention and prevention programmes that are multi-layered with a focus on reducing socio-economic risk, supporting parent–child interactions and enhancing children's cognitive and language stimulation at home are likely to be effective at supporting the social and emotional wellbeing of children in poverty.

Moreover, programmes that offer a combination of financial resources and services and genuine opportunities for education, rather than parenting skills alone, to improve the quality of parenting and reduce psychological distress in parents may be more effective in promoting social competence in children during the important preschool years. Finally, the integration of care and early years education as in the Sure Start programme has the potential to support children's social competence by extending positive caregiving relationships from home to school settings in that, as positive and warm parent-child feelings and relationships contribute to child behaviour, positive child-teacher relationships can equally promote young children's self-regulation and social competence.

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Table 1.   Descriptive Statistics for Behaviour, Cognitive and Language Measures

	Age 3	Age 5
	M (SD)	M (SD)
SDQ:		
Emotional symptoms	1.79 (2.30)	1.64 (2.05)
Conduct problems	3.18 (2.56)	1.70 (1.88)
Hyperactivity	4.56 (3.02)	3.66 (2.80)
Peer problems	2.48 (2.82)	1.78 (2.28)
Total difficulties	12.03 (8.02)	8.79 (6.74)
Prosocial	7.84 (2.11)	8.49 (1.69)
PSE	-	21.11 (4.2)
Picture Similarities	-	55.51(10.27)
Pattern Construction	-	50.27(10.07)
BSRA	103.8 (16.36)	-
Naming Vocabulary	49.64 (11.39)	53.81(11.25)

Note: $N_{age\ 3}$=12360-12975; $N_{age\ 5}$=14106-14961; N= 8407 for PSE (England only)

Table 2.   Factor analysis

Factor	Factor content	Loadings
Home learning / enrichment activities at 5	How often respondent plays indoor games/ toys with child	.697
	How often respondent draws / paints with child	.674
	How often child plays physically active games	.669
	How often child does musical activities	.551
	How often respondent tells stories to child	.543
	How often respondent takes child to playground/ park	.531
	How often respondent reads to child	.477
Homework at 5	How often do you help with writing?	.726
	How often do you help with maths?	.723
	How often do you help with reading?	.689
Negative parent affect at 3	Child's feelings can be unpredictable towards me	.764
	Child is sneaky /manipulative with me	.666
	Child is in bad mood for a long day	.649
	Child easily becomes angry with me	.641
	Child angry or resistant after is disciplined	.634
	Dealing with child drains my energy	.596
	I struggle with child	.568
Parenting sensitivity at 3	Child spontaneously shares information with me	.798
	Child openly shares feelings/experiences	.729

	It is easy to be in tune with child's feelings	.549
Positive parent affect at 3	I have a warm, affectionate relationship with child	-.678
	Child will seek comfort from me	-.672
	Child values relationship with me	-.590
	When praise child he/she beams with pride	-.447
Home learning at 3	How often at home try to teach child counting	.797
	How often teach child songs/poems/rhymes	.717
	How often help child learn alphabet	.700
	How often does child paint/draw at home	.522
	Over the last 30 days…	
Maternal psychological distress at 5	How often did you feel hopeless	.807
	How often did you feel worthless	.768
	How often did you feel depressed	.766
	How often did you feel everything is an effort	.707
	How often did you feel restless or fidgety	.670
	How often did you feel nervous	.648

$N_{age\ 3}=14848$; $N_{age\ 5}=14771$

Note: The eigenvalues for the factor loadings were set to be greater than .4

Table 3.   % for Family Income, Educational Qualification and Parental Education

	Age 3	Age 5
Family Income:		
Above 60% median	61.7	64.1
Below 60% median	24.2	26.8
Missing	14	9.1
Educational Qualifications:		
NVQ1	7.5	7.1
NVQ2	28.6	27.4
NVQ3	15.4	15.4
NVQ4	31.4	29.5
NVQ5	4.3	8.5
None	10.4	9.7
Parental Employment:		
Both at work	54.6	42.0
Main respondent in work only	2.7	2.5
Partner in work only	35.8	21.6
Neither	7.0	4.9

$N_{age\ 3}=14848$; $N_{age\ 5}=14771$

Note: 97% of main respondents were mothers. Also, a small percentage of respondents with overseas qualifications were not included.

Table 4.   Multivariate M, SD for Parental Employment on SDQ at Ages 3 and 5 and PSE at

5

	Age	Both M(SD)	Main M(SD)	Partner M(SD)	Neither M(SD)	F	D
Emotional Symptoms	3	1.44(1.8)	1.89(2.4)	1.90 (2.3)	2.63(2.7)	84.69***	.51
	5	1.31 (1.70)	1.83 (2.24)	1.73 (2.08)	2.35 (2.65)	79.52***	.46
Conduct problems	3	2.73(2.2)	3.31(2.4)	3.19(2.5)	4.11(2.8)	82.47***	.54
	5	1.35 (1.56)	1.78 (1.81)	1.66 (1.91)	2.58 (2.42)	120.91***	.60
Hyperactivity	3	4.03 (2.7)	4.85 (3)	4.59 (3)	5.69(3.3)	84.88***	.55
	5	3.13 (2.50)	3.88 (2.83)	3.65 (2.81)	4.85 (3.16)	109.71***	.60
Peer problems	3	2.15 (2.6)	2.74 (3)	2.57 (2.8)	3.31 (3.2)	45.98***	.39
	5	1.43 (2.03)	2.35 (2.57)	1.82 (2.35)	2.52 (2.73)	71.89***	.45
Total difficulties	3	10.36(6.7)	12.81(7.9)	12.26(7.9)	15.75(9)	136.33***	.67
	5	7.23 (5.52)	9.86 (7.00)	8.86 (6.76)	12.32 (8.60)	171.47***	.70
Prosocial	3	7.81(1.9)	7.87(2.2)	7.78(2.1)	7.96(2.4)	1.41	n.s.
	5	8.58 (1.57)	8.50 (1.75)	8.48 (1.75)	8.32 (1.91)	7.29***	.14
PSE	5	21.90(3.8)	20.03(4.4)	21.01(4.2)	18.69(4.7)	80.05***	.75

N_{age3} =10611; N_{age5}=14755; N_{age5}=8451 (PSE)

Note: Cohen's d for 'both v. neither parent in work' comparisons

***P<.001

Table 5.   Multivariate M, SD for Family Income on SDQ at Ages 3 and 5 and PSE at 5

	Age	Above 60% median M(SD)	Below 60% median M(SD)	F	d
Emotional symptoms	3	1.48 (1.90)	2.25 (2.56)	159.04***	.34
	5	1.38 (1.74)	2.08(2.41)	188.00***	.33
Conduct problems	3	2.78(2.27)	3.86(2.69)	234.91***	.43
	5	1.43 (1.62)	2.20 (2.16)	267.20***	.35
Hyperactivity	3	4.10 (2.74)	5.33(3.18)	208.24***	.41
	5	3.26 (2.55)	4.40 (3.04)	258.46***	.40
Peer problems	3	2.16 (2.61)	2.92(2.95)	103.45***	.27
	5	1.50 (2.09)	2.26 (2.48)	180.38***	.33
Total difficulties	3	10.54(6.85)	14.38(8.47)	318.35***	.49
	5	7.58 (5.76)	10.96 (7.63)	406.47***	.50
Prosocial	3	7.76 (1.97)	7.85(2.16)	13.35***	.04
	5	8.53 (1.63)	8.45 (1.77)	5.71***	.04
PSE	5	21.54 (4.10)	19.57 (4.60)	185.92***	.45

N_{age3}= 12713; N_{age5}=14755; N_{age5}=8651 (PSE)

***P<.001

Table 6.   Multivariate M, SD for Maternal Educational Qualifications on SDQ at 3 and 5

and PSE at 5

	Age	NVQ1 M(SD)	NVQ2 M(SD)	NVQ3 M(SD)	NVQ4 M(SD)	NVQ5 M(SD)	None M(SD)	F, d
Emotional symptoms	3	2.36(2.66)	1.81(2.20)	1.57(1.94)	1.32(1.68)	1.25(1.54)	2.77(3.04)	96.01**, .63
	5	2.04(2.33)	1.64(2.01)	1.45(1.78)	1.31(1.69)	1.36(1.85)	2.42(2.67)	81.90**, .46
Conduct problems	3	3.98(2.67)	3.30(2.45)	2.95(2.33)	2.54(2.13)	2.37(2.06)	4.14(2.94)	112.7**, .69
	5	2.23(2.13)	1.76(1.82)	1.53(1.65)	1.26(1.54)	1.26(1.61)	2.56(2.38)	141.2**, .63
Hyperact.	3	5.59(3.24)	4.77(2.94)	4.35(2.70)	3.70(2.61)	3.26(2.43)	5.83(3.41)	142.6**, .86
	5	4.43(2.84)	3.83(2.72)	3.52(2.58)	2.92(2.41)	2.87(2.57)	4. 94(3.31)	159.9**, .69
Peer Problems	3	3.06(2.97)	2.56(2.82)	2.27(2.57)	1.96(2.53)	2.09(2.68)	3.22(3.06)	51.21**, .39
	5	2.25(2.44)	1.80(2.26)	1.70(2.23)	1.35(1.97)	1.51(2.17)	2.5(2.64)	75.39**, .40
Total Difficulties	3	14.99(8.6)	12.46(7.5)	11.16(6.8)	9.54(6.2)	8.98(6)	15.98(9.4)	183.7**, .88
	5	10.9(7.33)	9.05(6.46)	8.22(5.98)	6.86(5.35)	7.01(5.90)	12.4(8.50)	207.6**,

								.73
Prosocial	3	7.89(2.3)	7.82(2)	7.79(1.9)	7.76(1.9)	7.89(1.9)	7.97(2.4)	2.39n.s.
	5	8.34(1.81)	8.45(1.68)	8.50(1.60)	8.59(1.59)	8.63(1.66)	8.39(1.90)	6.95n.s.
PSE	5	19.7(4.76)	20.5(4.33)	21.1(4.05)	22.04(3.9)	22.1(4.04)	18.9(4.67)	88.19**, .71

N_{age3}=12192; N_{age5}=14722; N=8651 for PSE

Note: Cohen's d for 'NVQ5 v. none' comparisons

**$P<.001$

Table 7.   Standardised Regression Coefficients for Prosocial, Total Difficulties and PSE at 5

	Prosocial			Total difficulties			PSE		
	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3
Child:									
BSRA	-	-	-	-.092	-.059	-	.165	.160	.154
NV (3)	.059	-	-	-	-	-	-	-	-
NV (5)	-	-	-	-.068	-.054	-	.150	.150	.151
PS (5)	.061	.049	.049	-.058	-	-	-	-	-
PC (5)	-	-	-	-	-.054	-.054	.085	.082	.081
Proximal:									
NPA (3)		-.131	-.135		.303	.297		-	-
PPA (3)		-	-		-	-		-	-
HL(3)		.048	.049		-	-		-	-
HL(5)		-.106	-.110		.071	.067		-	-
Hw(5)		-.046	-.045		.053	.050		-.106	-.107
PS(3)		.143	.144		-.070	-.068		-	-
MPD(5)		.048	.049		-.178	-.175		-	-
Distal:									
FI			-			.063			-

PE			-			-			-
EQ			-			-			.208
Adj. R^2	.008	.086	.091	.043	.219	.229	.111	.123	.129
F	6.2	25.1	19.06	28.80	72.99	55.01	44.85	21.53	16.27

Note$_1$: Only the significant coefficients β and F values are presented here (p<.001).

Note$_2$: BSRA: Bracken School Readiness Assessment; NV: Naming Vocabulary; PS: Picture Similarity; PC: Pattern Construction; NPA: Negative Parent Affect; PPA: Positive Parent Affect; HL: Home Learning; Hw: Homework; PS: Parenting Sensitivity; MPD: Maternal Psychological Distress; PSE: Personal, Social and Emotional; FI: Family Income; PE: Parental Employment; EQ: Educational Qualifications