

Expressed emotion as an assessment of family environment with mothers and fathers of 1-year-old children

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Abstract

Background High levels of expressed emotion (EE) in parents have been found to put children at risk for emotional and behavioural problems. However, the majority of existing studies have focused on mothers of school-aged children and adolescents rather than younger children, and have only rarely included fathers.

Methods The present study examined the reliability of EE in mothers and fathers of 1-year old children. It also investigated whether depression and marital problems in the postnatal period predicted EE toward the child at 12 months. EE was assessed with the Preschool Five Minute Speech Sample in 163 families.

Results The rater–interrater and code–recode reliability was high for most EE dimensions. Mothers and fathers were found to display quite similar EE scores. Regression analyses showed that depression and couple relationship significantly predicted EE in mothers, but not fathers.

Conclusions The findings suggest that EE provides a reliable and useful assessment of the family environment in families of young children.

Introduction

Expressed emotion (EE; Vaughn & Leff 1976) is a construct of the 'emotional quality of a relationship between a relative and a target individual'. It measures important aspects of relationships, including the degree of criticism and resentment and the levels of emotionally over-involved behaviour. Parental EE has been found to predict high rates of relapse in adults with schizophrenia, eating, and affective disorders (Butzlaff & Hooley 1998) and poor treatment outcomes (Tarrier *et al.* 1999; Sellwood *et al.* 2002). High EE in parents is a risk factor for emotional and behavioural problems in children (Hirshfeld *et al.* 1997; Asarnow *et al.* 2001; Daley *et al.* 2003; Psychogiou *et al.* 2007) and predicts the onset and course of their disorder (Wamboldt & Wamboldt 2000). Despite these important implications of EE for children's developmental outcomes, little is

known about what predicts parental EE. Limited research suggests that parental psychopathology is an important influence. Findings show that maternal depression correlates with EE and that both maternal depression and EE combine together in predicting outcomes in children (Barnes *et al.* 2007; Thompson *et al.* 2010). Despite the contribution of fathers to child development (Lamb 2010) and the deleterious impact of paternal psychiatric problems on parenting and children's outcomes (Ramchandani & Psychogiou 2009), there are very few studies examining EE in fathers. In a sample of adolescent children, Brennan and colleagues (2002) found that depression in both mothers and fathers was associated with high EE in fathers and paternal EE explained the link between parental psychopathology and depression in adolescents.

Miklowitz (2004) noted that 'EE may reflect disturbances in the organization, emotional climate, and the transactional pat-

terns of the entire family system, even if it is only measured in a single caregiver' (p. 670). In support of this suggestion, a study found that mothers were less critical and more positive towards their 6-month-old infants if they were more satisfied with their family relationships (St John-Seed & Weiss 2005). The 'criticism' dimension of EE was also found to be associated with worse family functioning as rated by both parents and their children, and positive comments with better family functioning based on both self-reports and observational data (Wamboldt *et al.* 2000).

The majority of the existing studies have examined EE in school-age children and adolescents and have largely overlooked infants and toddlers. This is a serious omission as the first year of child life is a period of important physical, social and emotional development, with rapid brain maturation and development (Gale *et al.* 2004). The foundations of attachment relationships are also established as well as children's schema about the self (Cicchetti *et al.* 1998). Thus, the effects of negative family dynamics and exposure to parental criticism may have deleterious consequences for the child.

The present study aimed to examine EE in mothers and fathers of 1-year-old children. It measured EE using the Pre-school Five Minute Speech Sample (PFMSS; Daley *et al.* 2003). The PFMSS has good discriminant validity and correlates well with observed parent-child interactions (Daley *et al.* 2003). We focused particularly on two constituents of EE, parental warmth and criticism, as these dimensions have been extensively investigated in parents with depression (Lovejoy *et al.* 2000; Wilson & Durbin 2010 for reviews) and have been found to predict poor outcomes in children (Taylor *et al.* 1996; Caspi *et al.* 2004). The aims of the study were:

- 1 To examine the rater-interrater and code-recode reliability of EE in mothers and fathers of 1-year-old children.
- 2 To explore whether depressive symptoms in mothers and fathers at 3 months predict high EE towards the child at 12 months.
- 3 To investigate whether marital relationship at 3 months predicts EE at 12 months.

Methods

Participants

The sample was drawn from a longitudinal study of 192 families examining the effects of paternal depression on infant's development. Trained staff approached parents in the maternity wards of two hospitals in Oxford and Milton Keynes, UK. They provided parents with information and invited them to partici-

pate in the study. Fathers who gave their written consent were contacted at 7 weeks and were asked to fill out the Edinburgh Postnatal Depression Scale (EPDS; Cox *et al.* 1987) which is a screening questionnaire for depression. Every father scoring 10 or above on the EPDS and approximately one in every four fathers scoring less than 10 were invited to take part in the study. Mothers, fathers and their infant were assessed at 3 and 12 months. Nearly 56.5% of the sample was employed in managerial/professional posts, 26.8% in intermediate and 16.1% in routine/manual posts. Approximately 0.6% of the sample was unemployed. A more detailed description of the recruitment and the sample is available (Edmondson *et al.* 2010; Ramchandani *et al.* 2011).

Measures

Expressed emotion

Expressed emotion was measured with the PFMSS (Daley *et al.* 2003) at 12 months. Each parent was asked to talk for 5 min, without any interruption or any prompts, about their thoughts and feelings towards their child and their relationship over the last 6 months. Speech samples were available for 163 mothers and 163 fathers. The PFMSS has three global scores: initial statement, relationship and warmth (each scored high, neutral or negative with high scores being more negative) and frequency counts of positive and negative comments. In the current study, we added a frequency count of qualified positive and critical comments. These categories were added because of the young age of the child and also to capture more subtle forms of positivity and negativity. A comment was rated as qualified if the parent used a qualifier (i.e. 'he is a *quite* affectionate child'). Each speech sample was rated as high or low on EE based on the coding scheme. High EE was assigned on the basis of having more critical than positive comments and the presence of at least one negative global category. The PFMSS has good discriminant validity differentiating the parents of children with behavioural problems from the parents of control children (Daley *et al.* 2003). It has also been found to have good rater-interrater and code-recode reliability (Yelland & Daley 2009).

Quality of couple relationship

The couple relationship was assessed with the Dyadic Adjustment Scale (DAS; Spanier 1976). The DAS consists of four scales: consensus, affection, satisfaction and cohesion. There is also a total DAS score by adding up all the 32 items of the

questionnaire. Scores range from 0 to 151 with higher scores indicating a better couple relationship.

Criticism in the couple relationship

Perceived criticism in the couple relationship was assessed with two items: (1) How critical do you think you are of your partner? and (2) How critical do you think your partner is of you? (Hooley & Teasdale 1989) Responses were scored on a 10-point scale ranging from 0 = Never critical to 10 = Very critical indeed. Another item was added asking parents to indicate on a scale from 0 to 10, 'how confident they were that their relationship would succeed'.

Depressive symptoms

Depressive symptoms in parents were measured with the EPDS (Cox *et al.* 1987). The EPDS consists of 10 items with higher scores indicating higher levels of depressive symptoms. It has good psychometric properties and has good specificity and sensitivity in predicting depression in fathers (Matthey *et al.* 2001; Edmondson *et al.* 2010).

Procedure

The data were collected at home visits. This speech sample assessment was conducted with each parent in a separate room away from their family. The tape recorded speech samples were then coded by a trained psychologist who was blind to the group status of parents. Mothers and father's samples were coded several weeks apart.

Outline of statistical analyses

The analyses were conducted in the following stages:

- 1 We examined the test–retest and code–recode reliability of EE and its constituents using Pearson correlations for the

continuous variables and Kappa's for the categorical variables.

- 2 We then combined the low and moderate categories for warmth into one category as there were only few parents who expressed low and medium levels of warmth. Similarly we combined the neutral and negative categories for initial statement and relationship respectively into one category. The binary variables for warmth, initial statement and relationship were used in all subsequent analyses. We explored whether depressive symptoms at 3 months predicted EE at 12 months using regression models for mothers and fathers separately. Linear regressions were used for continuous and logistic regressions for categorical outcomes.
- 3 Similarly, we used regression models to examine whether marital functioning predicted EE.

Results

Step 1

We examined the reliability on 40 speech samples (20 from mothers, and 20 from fathers). The rater–interrater and code–recode reliability was satisfactory for all constituents of EE (see Table 1). Mothers and fathers showed similar levels on most dimensions (see Table 2). There were significant associations between mothers and fathers' initial statement, warmth and qualified critical comments.

Step 2

Mother's depressive symptoms predicted high EE, low warmth and high levels of critical comments. For fathers, depressive symptoms predicted increased qualified critical comments (see Tables 3 and 4). We then examined whether depressive symptoms in mothers predicted high EE in fathers and vice versa. The results revealed that high levels of depressive symptoms in mothers predicted increased qualified critical comments in fathers ($\beta = 0.156$, $P = 0.049$). No other results were significant.

Table 1. Rater–interrater and code–recode reliability for each constituent of expressed emotion

	Rater–interrater ($n = 40$)	P	Code–recode ($n = 40$)	P
Initial statement	0.899	0.000	0.792	0.000
Relationship	0.813	0.000	0.656	0.000
Warmth	0.762	0.000	0.639	0.000
Positive comments	0.943	0.000	0.880	0.000
Qualified positive comments	0.957	0.000	0.847	0.000
Negative comments	1.00	0.000	0.934	0.000
Qualified negative comments	0.870	0.000	0.871	0.000

	Fathers <i>n</i> = 163 (%)	Mothers <i>n</i> = 163 (%)	Phi	<i>P</i>
EE			0.146	0.065
Low EE	153 (93.9)	153 (93.9)		
High EE	10 (6.1)	10 (6.1)		
Initial statement			0.161	0.044
Positive	68 (42.0)	80 (49.1)		
Neutral/negative	94 (58.0)	83 (50.9)		
Relationship			0.066	0.402
Positive	119 (73.0)	118 (72.4)		
Neutral/negative	44 (27.0)	45 (27.6)		
Warmth			0.159	0.045
High	44 (27.0)	42 (25.8)		
Low/medium	119 (73.0)	121 (74.2)		
	M (SD)		<i>r</i>	<i>P</i>
Positive comments	3.07 (2.663)	4.01 (2.559)	0.037	0.642
Qualified positive comments	1.12 (1.211)	1.26 (1.455)	0.015	0.850
Critical comments	0.28 (0.864)	0.23 (0.688)	−0.057	0.479
Qualified critical comments	0.38 (0.705)	0.59 (0.914)	0.196	0.013

Table 2. Descriptive statistics and associations between mothers and father's expressed emotion (EE)

	Fathers			Mothers		
	OR	CI	<i>P</i>	OR	CI	<i>P</i>
Expressed emotion						
Success of relation	0.731	0.477–1.119	0.149	0.476	0.256–0.888	0.020
Critical of partner	0.797	0.744–1.255	0.797	1.037	0.737–1.460	0.834
Partner critical of you	0.993	0.757–1.302	0.959	1.383	0.987–1.936	0.059
Affection	0.889	0.654–1.208	0.451	0.716	0.524–0.979	0.036
Consensus	1.011	0.904–1.130	0.851	0.966	0.853–1.094	0.586
Cohesion	0.922	0.763–1.115	0.402	0.835	0.681–1.026	0.086
Satisfaction	0.872	0.752–1.013	0.073	0.843	0.713–0.997	0.047
Total DAS	0.975	0.917–1.036	0.406	0.935	0.873–1.001	0.053
Depressive symptoms	0.970	0.847–1.110	0.654	1.274	1.094–1.484	0.002
Warmth						
Success of relation	0.831	0.592–1.167	0.285	0.762	0.510–1.138	0.184
Critical of partner	1.101	0.952–1.273	0.195	1.082	0.908–1.289	0.377
Partner critical of you	1.299	1.098–1.538	0.002	1.035	0.868–1.233	0.703
Affection	0.880	0.725–1.069	0.199	0.982	0.813–1.186	0.849
Consensus	0.989	0.929–1.053	0.729	1.009	0.942–1.080	0.800
Cohesion	0.963	0.870–1.067	0.475	0.955	0.860–1.061	0.391
Satisfaction	0.904	0.810–1.008	0.069	0.900	0.797–1.017	0.091
Total DAS	0.989	0.955–1.024	0.540	0.985	0.949–1.023	0.445
Depressive symptoms	1.038	0.965–1.116	0.314	1.114	1.003–1.237	0.044

Table 3. Logistic regressions showing the associations between the categorical constituents of expressed emotion and measures of marital relationship

DAS, Dyadic Adjustment Scale.

Step 3

Fathers who perceived their partners to be critical toward them were less warm with their children. Fathers also who were satisfied with their marital relationship were (marginally) less likely to display high EE and low warmth for their children (see Tables 3 and 4). Marital relationship significantly predicted most of the EE dimensions in mothers (see Tables 3 and 4).

Discussion

The study aimed to examine the rater–interrater and code–recode reliability of EE in mothers and fathers of 1-year-old children and investigate whether depressive symptoms and marital relationship at 3 months predicted parental EE towards the child at 12 months. In support of the first hypothesis, we found satisfactory rater–interrater and code–recode reliability.

Table 4. Linear regressions showing the associations between the continuous constituents of expressed emotion and measures of marital relationship

	Fathers		Mothers	
	β	P	β	P
Critical comments				
Success of relation	0.114	0.148	-0.240	0.003
Critical of partner	0.052	0.517	0.143	0.079
Partner critical of you	-0.018	0.823	0.223	0.006
Affection	-0.087	0.345	-0.144	0.076
Consensus	0.031	0.715	-0.073	0.394
Cohesion	0.097	0.238	-0.189	0.019
Satisfaction	0.007	0.932	-0.304	0.000
Total DAS	0.042	0.636	-0.235	0.007
Depressive symptoms	-0.020	0.804	0.203	0.010
Qualified critical comments				
Success of relation	-0.045	0.579	-0.192	0.017
Critical of partner	0.119	0.136	0.053	0.517
Partner critical of you	-0.014	0.866	0.196	0.017
Affection	0.009	0.915	-0.165	0.042
Consensus	0.062	0.467	0.045	0.597
Cohesion	0.008	0.922	-0.183	0.023
Satisfaction	-0.023	0.781	-0.133	0.104
Total DAS	0.025	0.780	-0.136	0.121
Depressive symptoms	0.172	0.028	0.112	0.157

DAS, Dyadic Adjustment Scale.

There was only a low rate of agreement between code–recode ratings for warmth ($k = 0.639$) and relationship ($k = 0.656$). Daley and colleagues (2003) in mothers of preschool children with attention deficit hyperactivity disorder had also found a similar level of code–recode reliability for warmth ($k = 0.66$). Future work needs to investigate how to measure these components of EE in a more objective way. The reliability was also satisfactory for *qualified* critical comments and this may be an important category to consider in parents of young children. Interestingly, the findings also showed that mothers and fathers had quite similar EE scores and they correlated significantly suggesting that parents may adopt overlapping parenting qualities. Levels of EE for both mothers and fathers were low compared with other studies (Daley *et al.* 2003). Possibly parents of 1-year-old children are less likely to make critical comments. Alternatively, these findings may be related to the sample, being on average of higher socio-economic status and educational level than some other studies.

In line with previous studies (Brennan *et al.* 2002; Rogosch *et al.* 2004; Barnes *et al.* 2007), depressive symptoms in mothers predicted EE. However, father's depressive symptoms did not substantially predict EE, being associated only with the qualified critical comments subcategory. We also found that mothers scoring high on depressive symptoms in the postnatal period had partners who were more critical regarding their child at 12

months. In other words, depressed mood exhibited by the mother in the postnatal period translated into criticism of the child by the father at 1 year. Quite similar findings have been reported in another study. Rogosch and colleagues (2004) found that mothers with depression had high EE and that the partners of depressed mothers expressed more criticism towards self and spouse. The study also revealed subtle and complex relationships between EE and family functioning. Difficulties in the marital relationship in the postnatal period predicted high EE towards the child at 12 months for mothers. For fathers, it was only partner's criticism that predicted father's low warmth. These findings provide support for the 'spill over' hypothesis, according to which emotions and mood generated in the marital relationship are transferred to the parent–child relationship (Erel & Burman 1995; Krishnakumar & Buehler 2000). In summary, the results suggest that multiple factors predicted EE in mothers, but not in fathers. There are a number of possible explanations for the finding that factors that predict maternal EE, such as depression, do not seem to predict EE in fathers. It is possible that depression does not have such a direct effect on father's parenting, in the manner that it seems to with mothers. In support of this, there are mixed findings regarding the effects of paternal depression on father–child interaction (Wilson & Durbin 2010), whereas maternal depression is reasonably consistently associated with an increased risk of adverse mother–child interaction (Lovejoy *et al.* 2000). This apparent effect may be because fathers are typically less engaged with their infant children (Yeung *et al.* 2001), providing less overall care compared with mothers. Complicating this are two further factors; first, typical patterns of interaction do differ between mothers and fathers (MacDonald & Parke 1986; Paquette 2004; Lamb 2010), and so it may be that the types of interaction that fathers exhibit are less influenced by paternal mood state and other family factors; second, these parenting patterns also change as children age and develop (Waylen & Stewart-Brown 2010). So it is possible that an assessment of EE at an older age may find that depression in fathers does predict high EE at that stage.

Before considering the clinical implications of this study, a number of methodological limitations and strengths must be considered. First, marital relationship was measured with self-reports rather than more objective measures. Second, the sample was predominantly middle class so caution should be exercised in generalizing the findings to other populations. Third, our assessment of EE did not include the usual code for emotional over-involvement, because of the young age of the children. Fourth, the present study was based on EE assessed at one time point and did not examine its stability over time. Despite these limitations the study has a number of noteworthy

strengths. It used a longitudinal design, recruited a community sample, involved both mothers and fathers, and examined EE very early on in a child's life. This is also the first study to examine EE in both parents this early in the child's life. This is a sensitive period as parental criticism and low warmth can set the stage for the aetiology and the maintenance of psychopathology in the child.

The findings of the present study are of potential clinical importance, as the parenting characteristics identified by the assessment of EE and its constituent components are potentially amenable to clinical intervention. As these findings relate to the first year of a child's life the possibility is raised of useful early intervention for depressed parents and their children. By intervening earlier in children's lives it may be possible to prevent the establishment of 'coercive cycles' of interaction (Patterson 1982), in which both the parent and the child reinforce each other's maladaptive behaviour. These facets of the parent-child relationship might be potentially important targets for clinical intervention.

Key messages

- EE has satisfactory rater-interrater and code-recode reliability and provides a reliable assessment of the family environment in parents of young children.
- Mothers and fathers show quite similar levels on most EE dimensions.
- Depression and couple relationship predict high EE in mothers.

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